January 2001
Volume 69 No 1

Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

Pactor Bulletin Board Service
— A Voice for the Far Outback

The 'Good Enough'
A fifty-cent Morse key that's easy to build

Clandestine Communications in WW2

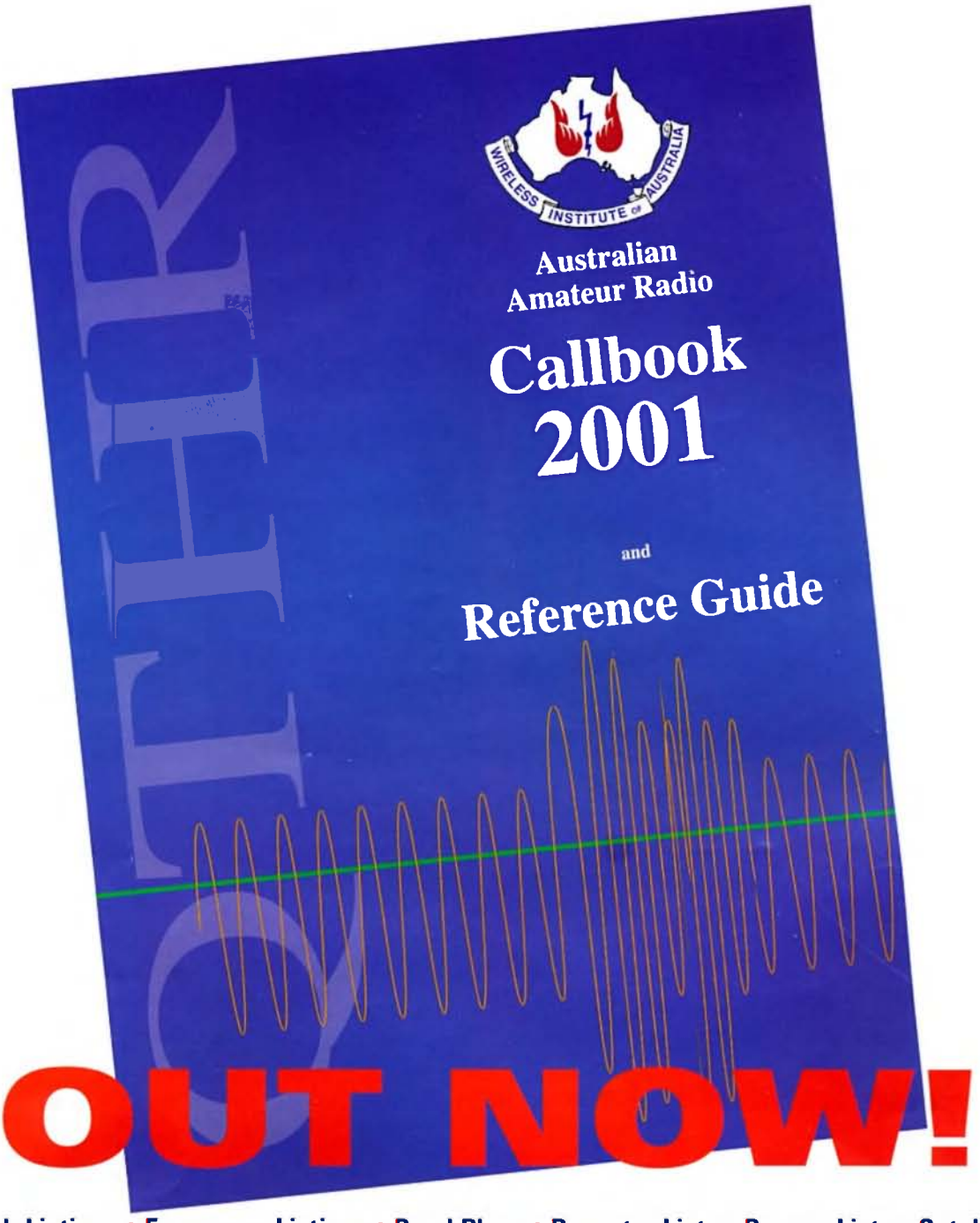
HAM LOG
A Station Log Keeping Program

Book Review:
From Wireless to the Web

Lloyd Butler VK5BR
An Active Loop Converter at VLF

Drew Diamond VK3XU
A W2PV 4-element Yagi for 6 metres

Gil Sones VK3AUI
Technical Abstracts • Simple Regen Radio • DOX Control of Yaesu FT847 • Simple Morse Practice



Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies ***and more!***

The "WIA Call Book 2001" is now available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 1
January 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: t.b.a
e-mail: *newsl@webtime.com.au*

Office

t0/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191
Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 0419 532 164

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Our cover this month

VK3UM's aerial farm.
A great location and setup.

General

Technical

Columns

Contributions to Amateur Radio

Amateur Radio is a forum lor WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Acting Federal Secretary

Peter Naish VK2BPN

Federal Office staff

June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

Council

President	Peter Naish	VK2BPN
VK1 Federal Councillor	Glenn Dunstan	VK1XX
VK2 Federal Councillor	Michael Corbin	VK2YC
VK3 Federal Councillor	Brenda Edmonds	VK3KT
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6UU
VK7 Federal Councillor	Phil Corby	VK7ZAX

Executive

Peter Naish VK2BPN
John Loftus VK4EMM

Federal Coordinators

AMSAT	Graham Ratcliff	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	John Kellaher	VK3DP
Contests		
Education	Brenda Edmonds	VK3KT
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Grant Willis	VK5ZWI
Intruder Watch	Gordon Loveday	VK4KAL
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (VK9, VK0)	Neil Penfold	VK6NE
Videotapes	VK2 Division	
Web/PR	Richard Murnane	VK2SKY

ACA Liaison Team

Peter Naish VK2BPN
Glenn Dunstan VK1XX
Michael Corbin VK2YC
Wally Howse VK6KZ
Canberrra Liaison Officer
Richard Jenkins VK1RJ

Editor's Comment

Colwyn Low VK5UE

Note: The editorial is the Editor's views and not necessarily those of the WIA at any level.

Resolution or just "Amgonna"?

Happy New Year. I hope you have all had an enjoyable Christmas and New Year and are now back planning new activities, operating and/or building great new gear (If Santa did the right thing) I have still got a bit of "amgonna" in my schedule these days, but I live in hope.

New Year is a time of new dreams and aspirations. It is a time to look back and to reconsider the future. We of the WIA need to do this as much if not more than other organisations. We have a system which has not really stood the test of time but can be made to work. However it puts extreme pressure on those who are willing to accept office in the organisation at any level. It is very difficult to know where specific things get done even by those in office. The Company, State, Federal nature leaves some people with lots of responsibility and little control and some offices have almost despotic control of specific areas. The ordinary member does not see why he/she has no direct link the WIA Federal office bearers but has to go through local Divisions and Divisional Federal Councillors.

As Editor of AR for a year I have had to work hard to understand the structure and how to achieve what I think AR should be doing.

Some members are thinking about the WIA future and have put their thoughts in print. One recent example is Martin Luther VK5GN. You can get a copy from him:- Martin Luther P.O.Box 70 Willaston SA 5118, luther@mail.mdt.net.au, Fax 08 8524 3836 Tel 08 8524 3440.

Now to look at the future of AR. The Magazine is running dangerously low on material to print, be it articles, letters, local news or your latest operating adventure or your thoughts on a piece of equipment you use or have used. It will be a sad day when all that is available to print has already been published in other magazines, the Web or the Packet network.

I noted that Radio and Communication has been able to continue as Radiomag and that is a good thing. In looking through some of the results of their interest survey there seems to be great interest in antennae and building them. I noted also the December issue of R & C and AR both carried the article by Andrew Scott VK2TWO on the Spring Field Day. I feel the magazines are complementary, there is a bit of overlap but the rest of each magazine addresses a different audience.

The other future we have to look at, is who will carry the reins of the WIA into the new millennium? The Federal Convention and the election of new board members is not something that should just happen by default. We should have office bearers who feel they have the support of members and are not just there because their hand came down last !!!!!! or everyone else took one step back. There has been enough snipping at WIA office bearers by small pressure groups who do nothing to solve problems but blame others for being ineffective.

May your News Year's Resolution be to talk with your mates in the local Radio Club or at a State Divisional meeting. Then sort out who would best serve your amateur radio interests and see if you can get them to agree to stand for office. Maybe even stand yourself.

May the Force be with you.

Colwyn VK5UE

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of NOVEMBER 2000

L21182	MR R O S ADAMS	VK3JKG	MR LOUIS BELCOURT
L60415	MR K KELLER	VK3MS	MR C PAUN
VK2BRC	MR R L CLOSE	VK3PCJ	MR J O H TURNER
VK2HSW	MR R L CANNAN	VK3TGX	MR P A U STUBBS
VK2NH	MR D C THOMPSON	VK5XVS	MR S VARRO
VK3HKB	MR KEVIN BEDFORD	VK6AAK	MR F A KING
VK3HKD	MR K MCCLEARY	VK6AMY	MR G A SMITH
VK3HSV	MR P A U ASHBY	VK6KBR	MR B I ROBERTS

WIA Comment

Peter Naish
WIA Federal President.

New challenges in the new century

We have now entered the 21st. Century and can look forward to meeting the challenges of a new millennium. Most of these challenges are carried over from the last Century but will become increasingly vital to our hobby as the years progress. The WIA has a proud record of achievements on behalf of amateur radio in Australia but will need every effort to ensure that it is successful in a world where commercial interests and social pressures become the dominant forces.

In the near term we are going to see demands on the amateur radio operator to ensure that his station meets the requirements of Electro-Magnetic Radiation (EMR) standards. Fortunately the WIA has been involved in the preparation of guidelines for amateur radio stations in regard to EMR and thus we have been able to ensure that this requirement can be easily understood. It is likely that only a minority of stations will need to change their operating habits to enable them to comply. Look for forthcoming articles in "Amateur Radio" that will provide information and comfort on this subject.

We have begun to see the threat to amateur bands from commercial interests with the proposed changes to our usage of the 70 cm. band. In association with changes to spectrum access in the microwave area that have already occurred, this illustrates the need for constant vigilance to ensure that amateur radio is not dismissed as an easy target by regulators and governments in their rush to satisfy commercially inspired pressures. This is a global trend and the WIA's participation in international decisions through its membership of the International Amateur Radio Union (IARU) is a key factor in protecting our interests. The next World Radio Conference (WRC) to be held in Geneva in 2003 will be a milestone for the amateur radio service worldwide. As I have previously noted, the IARU is already working intensely to ensure that decisions made at the WRC are beneficial to amateur radio.

So, challenges are recognised and are being met. Others will appear and who knows what technological advances in the years ahead will both enhance and threaten amateur radio! I am sure amateur radio will survive as it enters its second century, but we must expect and participate in changes as and when they occur.

Finally, on behalf of the WIA may I wish you all a Happy New Year and enjoyment in amateur radio, our truly international activity.

Peter Naish
WIA Federal President.

Australian Communciations Authority

EMR Compliance Self-assessment Trial

The Australian Communications Authority (ACA) invites eligible radiocommunications licensees to take part in a trial of materials for self-assessing electromagnetic radiation (EMR) compliance

The draft materials will allow licensees of some radiocommunications transmitters to self-assess compliance of their transmitter against the limits in the *Radiocommunications (Electromagnetic Radiation—Human Exposure) Standard 1999* (as amended from time to time).

Although the standard currently applies only to transmitter installations supporting cellular mobile telecommunications services, all radiocommunications transmitters will be subject to the standard by the end of 2001.

When the regulatory arrangements are fully in place, the ACA intends to allow some licensees to determine, for themselves, whether their installations comply with the standard. In anticipation of these changes, the ACA is making the self-assessment materials available to licencees to trial on a voluntary basis.

The trial will assess the effectiveness and user-friendliness of the self-help guidelines by obtaining feedback from the licensees, which will enable the ACA to fine-tune the materials. The trial will also provide licensees with the opportunity to bring their installation into compliance before compliance becomes mandatory.

The self-assessment materials include charts and graphs that will allow trialing for the following radiocommunications services:

- Fixed Link
- Land Mobile Base Station
- Low Power TV and Radio Broadcast
- Paging
- Amateur Radio
- General Radio

The materials are designed to assist licensees to make a simple assessment of whether their transmitting facilities comply with the EMR standard.

The self-assessment materials are available for trial from **15 September 2000 to 15 January 2001**. Licensees using the materials are required to return an evaluation questionnaire to the ACA. Participants may also be offered a free validation of their assessment through measurement by the ACA.

Licensees wishing to take part in the trial may obtain the materials via the ACA's website www.aca.gov.au/standards/emr.htm or by contacting the ACA on telephone:

(02) 6256 5552.

The Active Loop Converter at VLF

The Tuning Range of the Converter can be extended down to VLF with the addition of a few components

Lloyd Butler VK5BR

The original active converter as published in the July 2000 issue of Amateur Radio was made to tune the LF range of 128 to 490 kHz. Components have since been added to enable tuning down to around 12 kHz. The following text describes how this was done.

Circuit Detail

In previous loop circuits described by the writer (references 2 & 3), extension of loop tuning down to VLF was achieved by progressively switching in fixed shunt capacity across the loop using capacitance values as large as 0.47 microfarads. At the lowest frequencies, loop resonance was available at a number of spaced fixed frequencies with the shunt variable capacitor of 1350 pF having little effect . The system was workable between these spaced frequencies without fine tuning because with such a large capacitance across the 500 uH loop, the tuning response curve was very broad.

However the active loop circuit is aimed at very high values of Q which makes the tuning very sharp. Hence there is a need for fine tuning adjustment. So in this circuit, switching in of fixed shunt capacitance is limited to lower values and series inductance is added instead of large capacitance.

The circuit modifications are shown in figure 1. The original circuit provided the following tuning ranges:

Switch S1 pos. 1 - 195 to 490 kHz (no fixed capacitance)

" pos. 2 - 150 to 220 kHz (C2 in circuit)

" pos. 3 - 128 to 160 kHz (C3 in circuit)

A fourth switch position has been added to S1 which switches in C18 to provide tuning of 110 to 130 kHz without any series inductance.

A further addition is the inclusion of switch S2 which allows the progressive addition of series inductance by the selection of switch positions 2, 3, 4 & 5. By suitable selection of fixed inductance and capacity using both S2 and S1, peak tuning of the circuit using variable capacitor C1 is achieved for a continuous frequency range down to 12 kHz.

Apart from the ability to properly peak the loop circuit, the converter at VLF is far more lively loaded with inductance than with the shunt capacity. This probably results from the higher L/C ratio and the higher resultant static Q.

The inductors used are 2.2, 10, 22 & 50 mH. The 2.2 and 10 mH inductors are miniature chokes available from Dick Smith Electronics. The higher value inductors are ferrite pot cores which were retrieved from somewhere else. The 22 mH one was already wound for that inductance but the 50 mH one had to be rewound. As the characteristics of the pot core was not known, a test winding of a given number of turns was first made and the inductance measured. Given that inductance is proportional to the square of the turns, the correct number of turns for the required inductance was easily calculated form the initial number of turns and the measured inductance.

The effect of high Q

The publishing of the original article (ref. 1) has raised some discussion on the effects of running a very high loop Q. Here are some of these effects:

1. If the Q is set too high on AM or SSB the bandwidth could be too narrow and speech quality could be impaired.
2. Higher Q can be used with keyed CW than for speech because the bandwidth required is less. However there can still be an upper limit when the loop as a tuned circuit tends to ring and destroy the keying intelligibility.
3. Even a moderate value of Q might be sufficient to prevent a noise blanker circuit working in the receiver. Noiseblankers only work on impulse type noise i.e. high level pulses of short duration such as generated by spark discharge. The blanker works by closing down the receiver for the short duration of the pulse. If the pulse is fed through a high Q circuit, the short duration, high level nature of the pulse is destroyed and the blanker can't operate. Here is a case for having a switch to connect in a series resistor with the loop to reduce Q to a very low value. For broadband noise, use the maximum Q to reduce bandwidth. For impulse noise it might be an advantage to switch in the resistor and use the blanker with wider bandwidth. .
4. The ratio of signal level to noise generated by the loop interface amplifier can be improved by raising the natural loop Q to raise signal voltage. However this ratio is not improved by the enforced higher Q due to the feedback as the amplifier noise is itself within the feedback loop. The main advantage of the feedback is the lowering of the noise power in the narrowed bandwidth created by the higher Q. It also reduces the chance of high level signal or noise outside the received signal passband from causing intermodulation in the mixer stage.

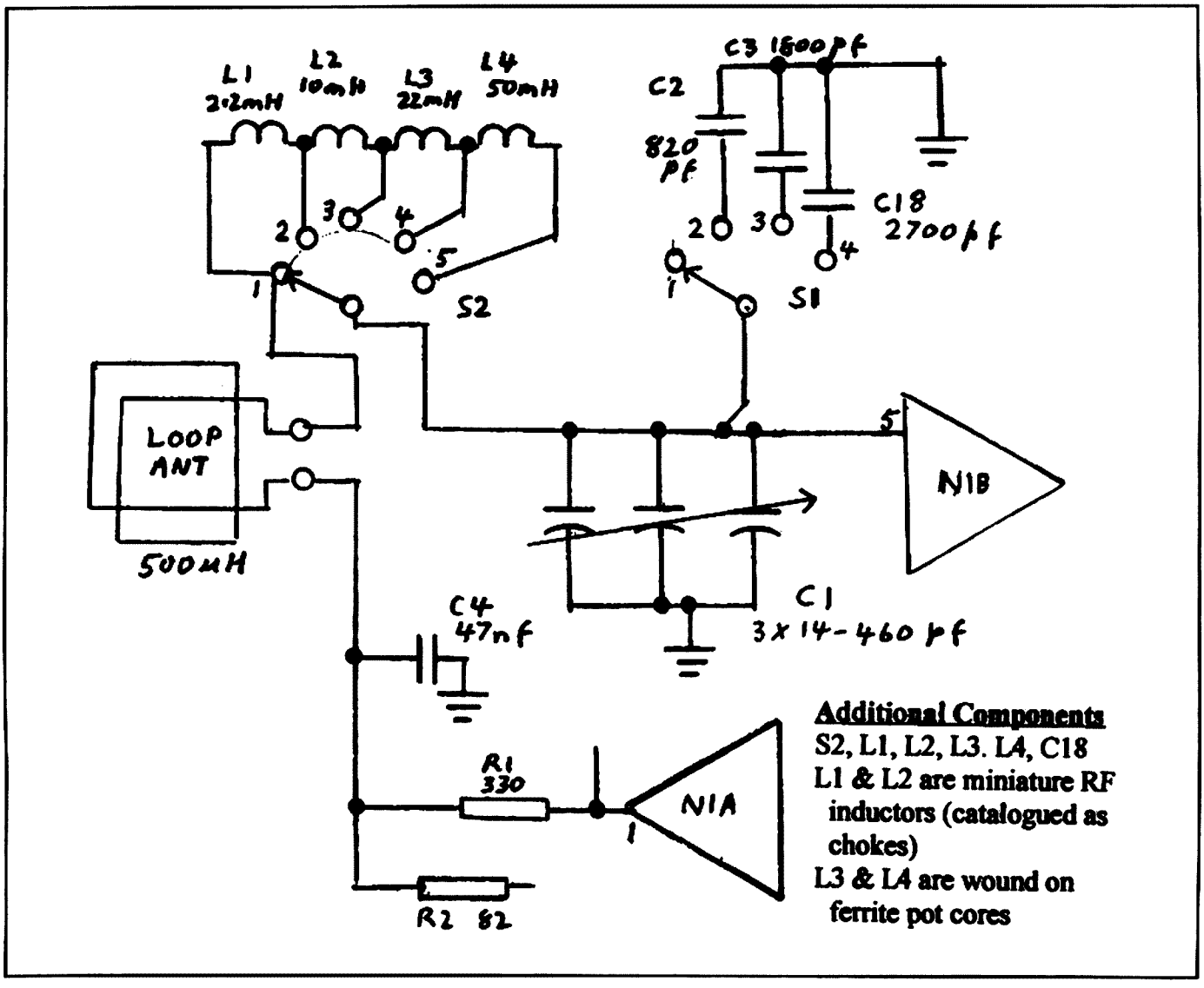


Figure 1

On this subject, signal level into the amplifier can also be raised by increasing the number of turns or increasing the area of the loop. However an interesting point on the loop's own noise has been raised in an article from Break-In (ref. 4) which was kindly sent to me by Richard Rogers VK7RO. The ratio of signal level from the loop to the noise level generated from its own loss resistance is improved by increasing area but increasing turns makes no difference to that ratio. On figures shown, the loop noise can be comparable in level to that of the incoming atmospheric noise if the loop area is too small. To ensure that the noise floor is set by atmospheric level and not the loop itself, the writers suggest that for a circular loop, its diameter should not be less than 1 metre. .

Summary

The main purpose of the article has been to describe how the Active LF converter is modified to extend its tuning down into the VLF region.

Before concluding we have also digressed a little into effects of enforcing the higher operating Q and commented on one factor affecting S/N ratio in the loop itself.

References

1 An Active Loop Converter for the LF Bands - Lloyd Butler VK5BR Amateur Radio, July 2000.

2. VLF-LF and the Loop Aerial - Lloyd Butler VK5BR, Amateur Radio, August 1990.

3. Modifications to the Bandwidth Limiting Converter to include VLF, Lloyd Butler VK5BR, Amateur Radio, March 1994.

4. LF Scene - Andrew Corny ZL2BBJ & Bob Vernall ZL2CA, Break-In, July 1997.

ar

Ham Log 4

A station log keeping program

We first reviewed Ham Log version 2·2 in *Amateur Radio* for April 1994 on page 13. Then the humble personal computer had started to prove itself as very adept at keeping data in a form that allows for easy recovery. That is now common knowledge.

Ham Log Version 4 is a progression incorporating concepts that have become apparent through use. They are operational and also a rare bug (relating to the first contact for a country) has been fixed..

The first thing is Y2K compliance. Remember that one? The reason for including this becomes apparent in the explanatory note at the end of the article. Ham Log 4 is Y2K compliant. (It is timely to note that the world did not collapse and hopefully it is the last time Y2K will be mentioned).

Ham Log was written to take advantage of the computer's ability to analyse data rapidly. It enables the operator to take advantage of past activity to provide information, at the touch of a button, relevant to a correct contact. This can range from an operator's name to working out if a particular station provides that all-important multiplier in a contest or would be a useless duplicate entry. In the big contests it can be the difference between stardom and being an also ran.

Entering contacts into *Ham Log* is made on a separate screen, requiring name, QTH, RST (both sent and received) and any comments. Other information is provided automatically by the program including the times that the QSO started and finished. Refinements with Version 4 are that the frequency can be preset and the QSO login screen can be configured to be start-up screen. When the QSO is complete, the system then prompts for a new call sign using the frequency of the last QSO. The frequency only needs to be entered after a QSY. Clearly the emphasis has been to make the program as easy as possible to log contacts. The old adage of log them first and worry about the paperwork afterwards applies.

This program contains the features that heavy log users need. It is light in the frills.

Since that comment was made about Version 2.2, improvements have been made that have been guided by experience. As examples to eliminate some of the error messages, only those requiring attention are now displayed. The rest is handled by the software.

The country and prefix listings have been revised for Ham Log 4.

As with any good database, *Ham Log*'s country listing can be revised as new prefixes are notified. Prefix listings also use time as a parameter. This means that having worked a particular prefix, the contact remains valid even with relocation of the prefix. Also, the correct country for that prefix at that time will always appear.

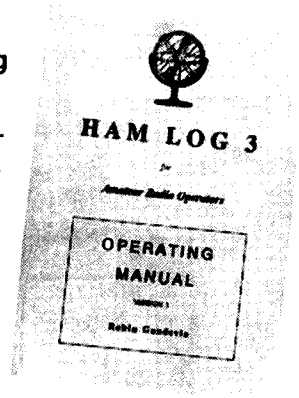
The text editor has also been revised to remove the necessity of using some of the control keys. This simplification has the effect of speeding up data entry during contests.

Alternatively, text can be entered for a particular date and this will be added to each QSO on that day. The text editor provides a method of including those extra notes that never conforms in a computerised log entry field and can be invaluable.

Ham Log keeps statistics on log contacts such as the number of countries worked versus the mode and frequency. The same statistics are kept for confirmed contacts, for quickly determining if the DXCC has been reached. Ham Log will also keep a list of stations for which a QSL has been promised and, if necessary, print the QSL label itself in any of three formats. The new version has incorporated some changes made under the DXCC rules eg entities

Changes have been made is the data searching and recovery area too. The Custom Field menu now allows for temporary changes like station call sign in the custom field. The only use I found for it to create a list that compensated for a station running multiple call signs in a contest, against the rules of that particular contest.

The file maintenance software is now separate from *Ham Log*. While it is there to repair files with corrupted data, I never had a reason to use it. In the review of version 3 *Norton Utilities* had to be used to corrupt the data to see if the software repair works. It worked then and I suspect it still does. Data corruption has never been a problem.



The manual does come as a text file on disk. This seems to be the current environmentally friendly mode for providing manuals, but I find that it is best to print it. While the manual doesn't get that much exercise, I find that there is nothing quite like the printed word. My first port of call will remain the manual that came with version 3 (pictured).

The program is meant for IBM compatible computers running MS-DOS version 6.or later. My old 386SX operating under DOS 5 was able to run the program when some of the device drivers were loaded into the upper memory blocks. It has been operating as DOS program within *Windows* (with its own icon). The program has also been used on a 10 year old Toshiba laptop that was made redundant by modern software; it worked well on the field day. As most modern PCs don't come with less than 1 Mb of RAM, memory is not a problem.

The review copy came on a 3.5 inch 1.44 Mb floppy disk. Our copy was provided by Robin Gandevia VK2VN of Applied Bytes, 6 Carrington Road, Waverley NSW 2024, Telephone 02 9369 2218, Facsimile 02 9369 3069

Editor's note

This article was very late going to print; something that we regret. It was due to a change in production houses and a computer upgrade Thankfully all articles are registered by the office on receipt. It was due to record keeping that we recovered this review.

Our apology to Robin Gandevia VK2VN.

ar

Club News

Adelaide Hills Amateur Radio Society

The end of the year is a busy time for us all and for the AHARS it signals the big event of the year, the Buy and Sell. This year it was held on 25th November and was the usual gathering of Adelaide radio amateurs as well as a busy venue where equipment of all sorts was exchanged.

Over 20 tables of goods were on display and over 200 people passed through the doors. Most of them had 'treasures' in their hands as they left but all of them had renewed friendships with amateurs they may only see once a year. At times the noise is almost overwhelming but is an indication of the talk that is going on within the hall.

It was a hotter day than ideal but the air-conditioning worked marvelously so despite the numbers in the hall the temperature remained comfortable.

On December 2nd the year's club activities finished with the Christmas Dinner. Nearly 60 people attended and a thoroughly enjoyable time was had by all. If there was any problem it was that most of the raffle prizes were won at one table.

The first meeting in the New Year will be at the Elizabeth Radio Club's water tower that will be interesting to everyone.

If you are visiting Adelaide at any time, remember the AHARS monthly meeting are held on the third Thursday of the month and all are welcome. Please contact the President, Geoff VK5TY or the Secretary, Alby VK5TAW for details QTHR the callback

Correction

Diagram correction for ***Phased Verticals for 10 metre Mobile Use*** December AR Page7

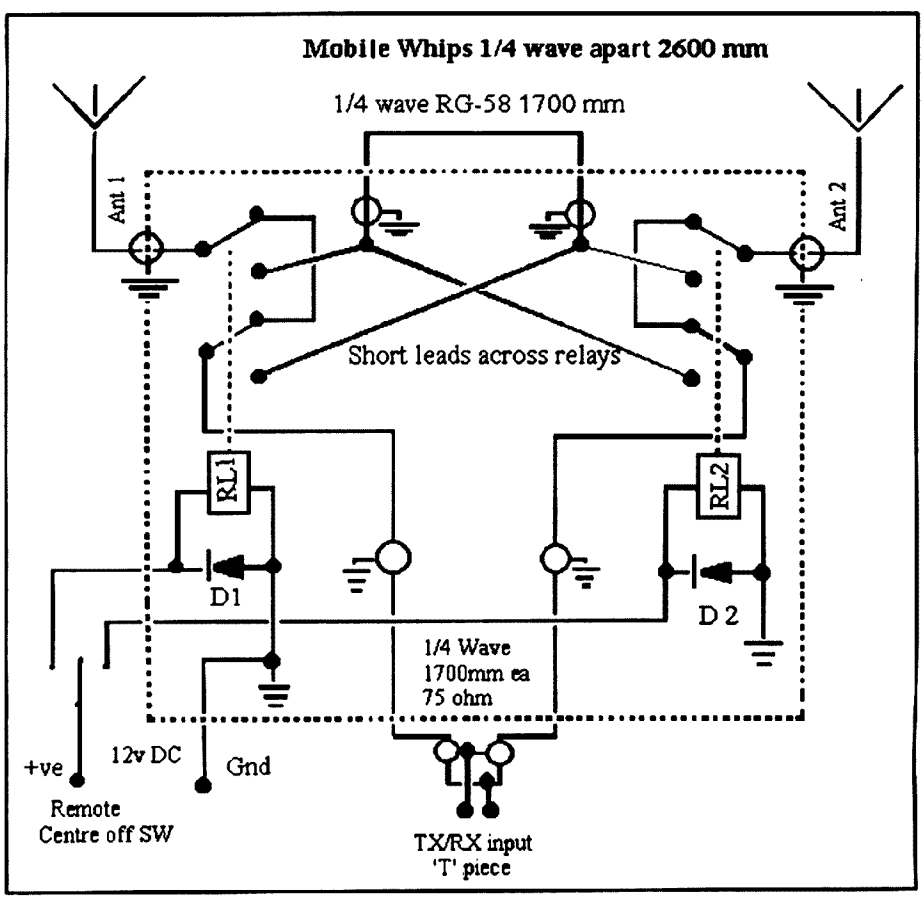


Figure 1

Geelong Radio & Electronics Society

HISTORICAL RADIO DISPLAY

Portarlington Summer Festival, Saturday 20 January, 2001.

Admission FREE

GEELONG RADIO & ELECTRONICS SOCIETY wish to remind everybody of the Historic Radio display at the Portarlington Summer Festival to be held on Saturday January 20th.on the foreshore reserve commencing at 10 o'clock. A large selection of Antique and Historic radios will be on display as well as working HF & VHF units.

We extend an invitation to all to come along and have a day out and view our display.

We also remind all that our Historical Radio Museum is open every weekend at the HISTORIC Geelong Prison Myers Street Geelong.

ar

A W2PV 4-element Yagi for 6 Metres

Drew Diamond, VK3XU,
45 Gatters Rd., WONGA PARK, 3115.

Regular readers of the VHF/UHF column in this journal will often see news of exciting DX on 6 m. One of the great attractions of 6 m is the possibility of spectacular openings (in VHF terms) on that band. Naturally, to have a better chance of working long distances, a reasonably good directional beam antenna is required.

It is generally agreed (Ref. 1) that a Yagi style antenna offers the most acceptable performance in terms of material cost, ease of construction and commissioning, mainly because the device may be fabricated from ordinary aluminium tube, the feedline connects only to a single element (the driven element), and the structure occupies a horizontal plane, which makes the Yagi easy to mount and rotate.

It is claimed that the W2PV beam (Ref. 2) has about the highest gain (8.6 dBd) obtainable for a 4-element array. The elements are spaced approximately one quarter-wavelength, which makes the boom rather longer (at about 4.6 m) than a scaled-down HF array would be, but is not so long that the assembly becomes difficult to work with single-handed. Such wider element spacing renders element length less critical, improves operating bandwidth, and increases the radiation resistance of the driven element, which therefore reduces ohmic losses in that element (Refs. 3, 4 and 5).

The dimensions given in Fig. 1 are for operation at the low end of the 6 m band. After adjustment of the gamma match (described later), SWR for my model is less than 1.2 from 50 to 50.5 MHz, less than 1.5 from 50.5 to 51 MHz, rising to 2 at 52 MHz. Measured front to back ratio is about 16 dB near 50.2 MHz (using a TV transmitter spur as test signal).

For the main boom I have used a 4.6 m length of 25 mm/1 " aluminium tube. All four elements- Reflector, Driven Element, Director 1 and D2 are made from 12.5 mm/0.5 " al. tube. The elements are mounted upon the boom using clamp plates made from 110 x 70 mm, 3 mm thick al. sheet, drilled to accommodate suitably sized zinc-plated U-bolts (Photo 1). The clamp for the driven element will require a right-angled extension bracket to accept the SO-239 coaxial socket for the gamma and feed-line.

To better support the element and prevent crush where the U-bolts are tightened, the element should be inserted through a 150 mm length of al. tube whose inside diameter is slightly larger than the element diameter. The support tube must have one hack-saw cut longitudinally before it is slipped over each element. The saw-cut allows the tube to compress a little, thus firmly clamping the element in position. Upon assembly, the cut must be located at the 3 or 9 o'clock position.

Zinc and aluminium are quite close on the cathodic corrosion scale. However, in all instances where there is a metal-to-metal contact, particularly between zinc and al., and on threaded components, apply a smear of petroleum jelly when the components are assembled in order to fill small voids and exclude moisture.

Ordinarily, the balanced impedance at the centre of the driven element of a Yagi is not a particularly good match to 50 ohm coax, so some kind of impedance and balanced-to-unbalanced matching device is required. The most popular scheme is probably the gamma match. Working from the centre of the element, the coax is tapped into the 50 ohm point along the element's length. However, there will always be some residual inductive reactance present, so an appropriate amount of series capacitive reactance is required to cancel the inductive component and thus obtain a resistive (non-reactive) match to our 50 ohm coax. The actual physical capacitor must be adjustable, of high Q, he capable of withstanding high RF voltages, and exclude dust, insects and moisture.

In this application, one of the easiest

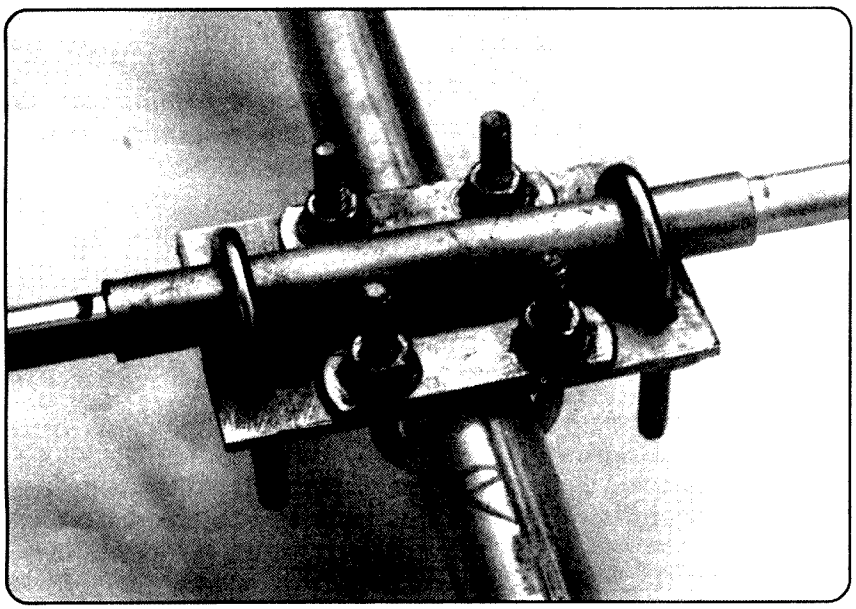


Photo 1: element clamp plate

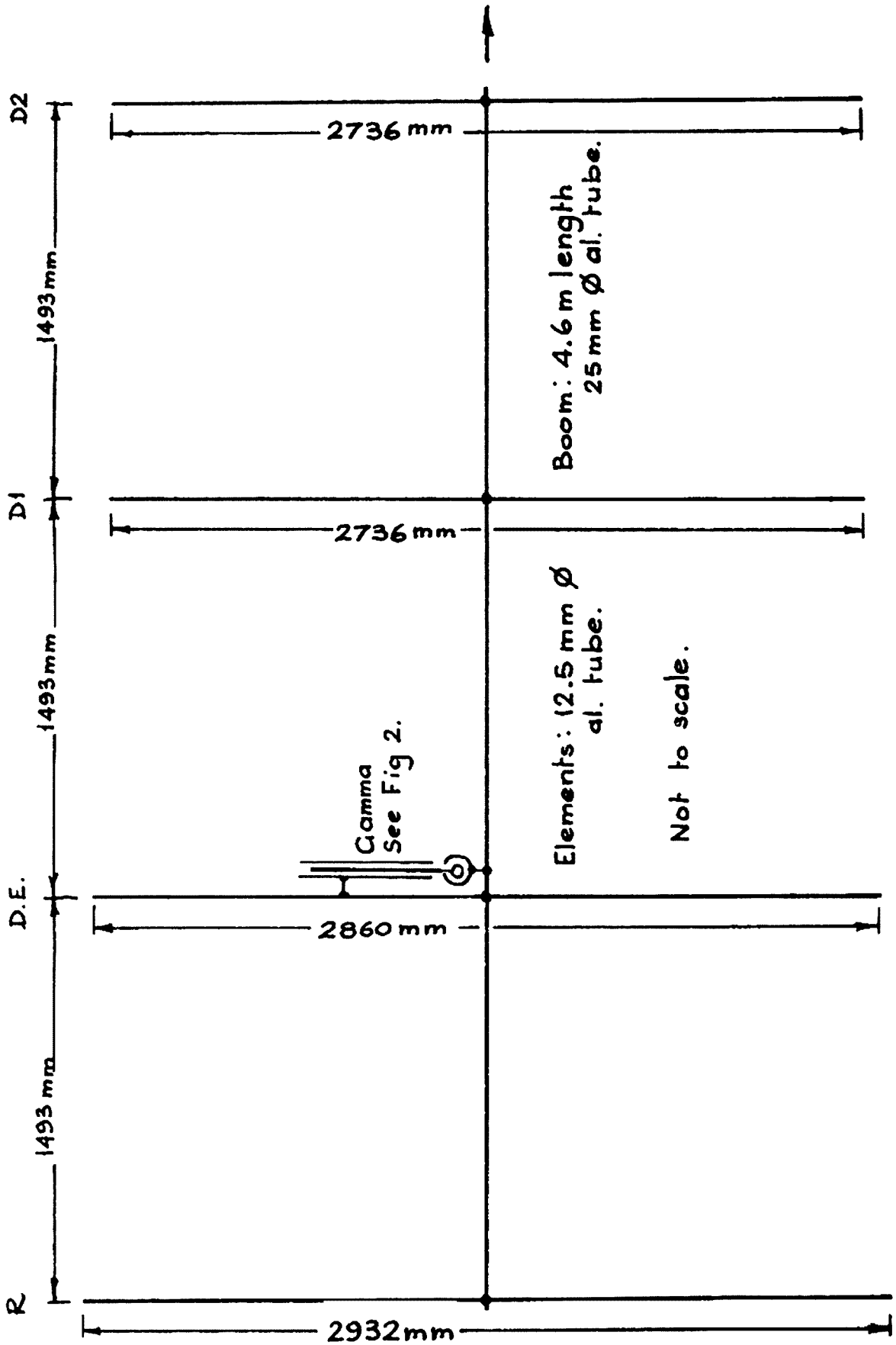


Fig. 1.

Figure 1

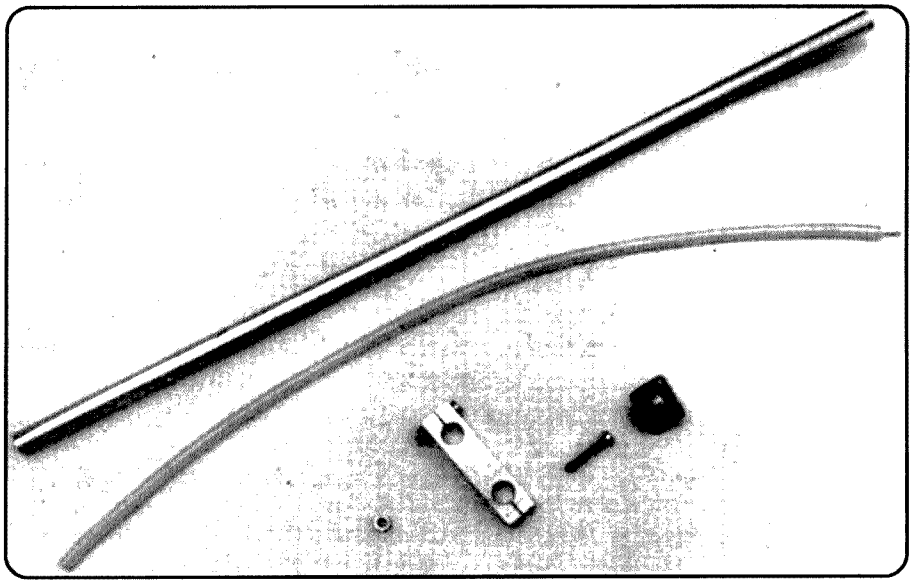


Photo 2: Gamma components

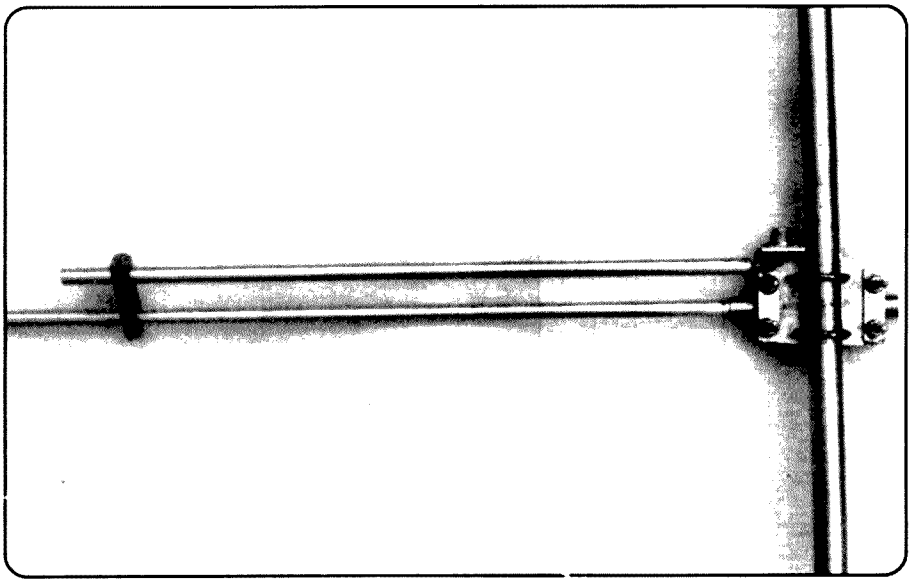


Photo 3: Gamma assembly

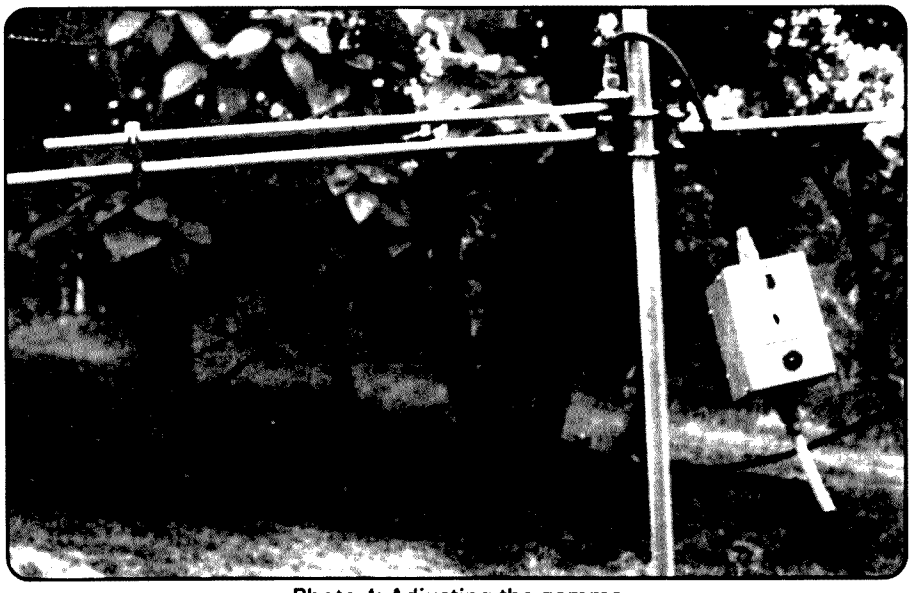


Photo 4: Adjusting the gamma

to make and most effective capacitors is obtained by simply inserting a length of RG-8 coax inner conductor inside a suitable length of al. tube to make an adjustable coaxial capacitor. The components of the gamma are shown in Photo 2 and Fig. 2. The slider may be comprised of a rectangular section of al. rod with drilled holes spaced 40 mm as shown. A slit is made at each end of the slider, which is also drilled to accept a pair of M5 X 25 mm zinc-plated clamp screws and matching M5 nuts. The complete gamma assembly is shown in Photo 3.

Use a large flat surface as your work area during assembly, which greatly assists in getting all the elements to lie straight and parallel. Appropriate felt-tip pen markings upon all elements will ensure their correct order (label them as they are cut to size) and their central positioning upon the boom.

If it is not easy to set the gamma with the antenna in position, it may be adjusted at ground level. Using a convenient sky-hook, mount the antenna in a clear spot (well away from any metal objects, and particularly anything that looks like it may be resonant at 6 m) with the boom vertical and the reflector at or near ground level. Connect an SWR meter in the feedline close to the gamma using a short length of 50 ohm line (Photo 4). On a clear frequency (but see last para. below), apply the smallest CW carrier signal that gives a meaningful reading on the SWR meter- say 1 W. Remove power whenever you make an adjustment- although it should not burn if accidentally touched. Start with the slider about 70 mm from the rod end, and about 50 mm of coax inner exposed. Experiment with slider position upon the driven element and the amount of capacitance (depth of coax insertion in the gamma rod). You should find a combination of settings which gives a very low SWR reading. If you intend working over a wide frequency range, some compromise will be necessary- otherwise adjust for best SWR at your favourite frequency. It should be found that the SWR alters little when the antenna is mounted in it's final clear position. When satisfied with the match, seal both ends of the gamma rod with acid-free silicone.

Fabricate a mast mounting plate similar to those for the elements, with U-bolts to suit your pipe mast. Photo 5

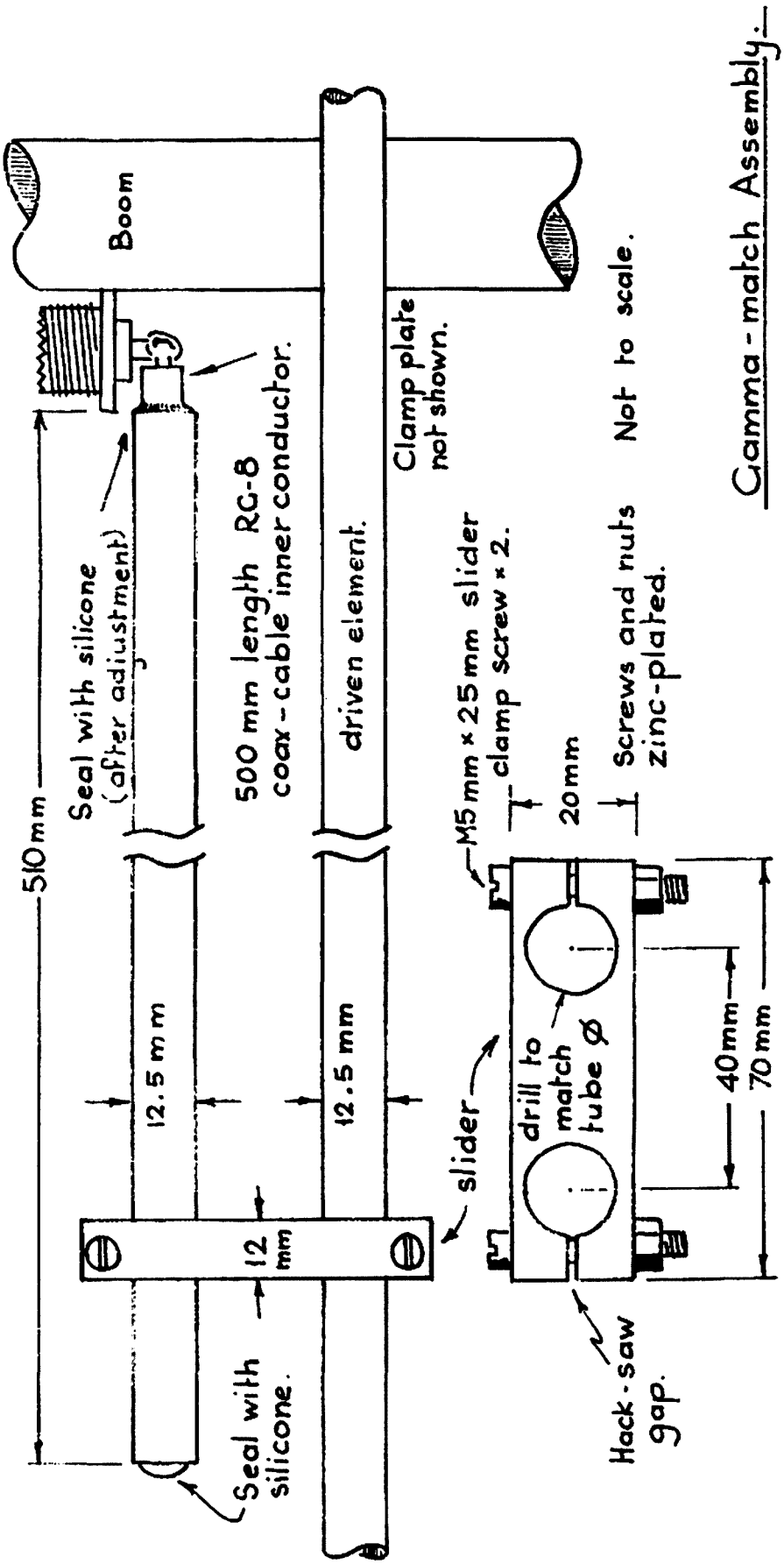

Boom
Seal with silicone (after adjustment)
500 mm length RG-8 coax-cable inner conductor.
driven element.
Clamp plate not shown.
510 mm
12.5 mm
12.5 mm
12 mm
Seal with silicone.
slider
M5 mm x 25 mm slider clamp screw x 2.
20 mm
Screws and nuts zinc-plated.
Not to scale.
drill to match tube Ø
40 mm
70 mm
Hack-saw gap.
Gamma-match Assembly.
Fig. 2.

Figure 2

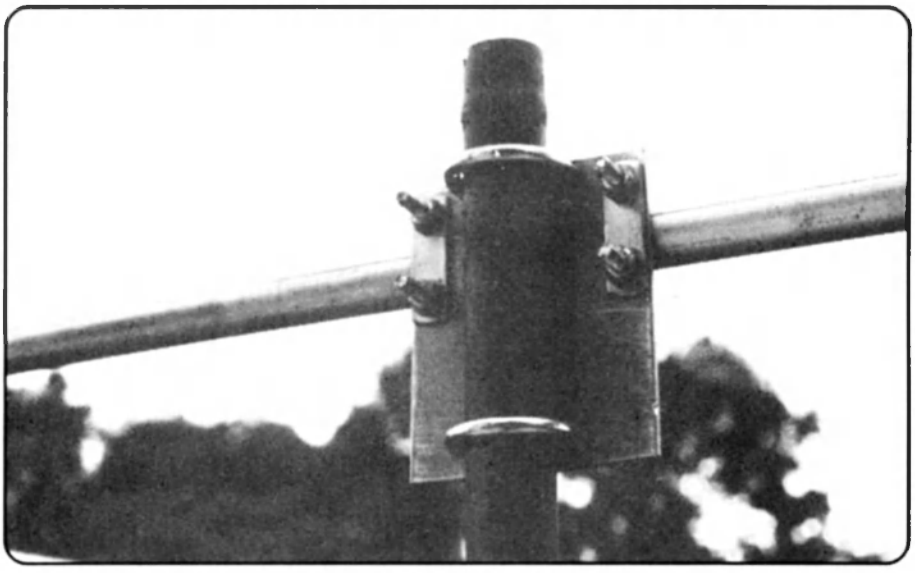


Photo 5: Mast/boom bracket

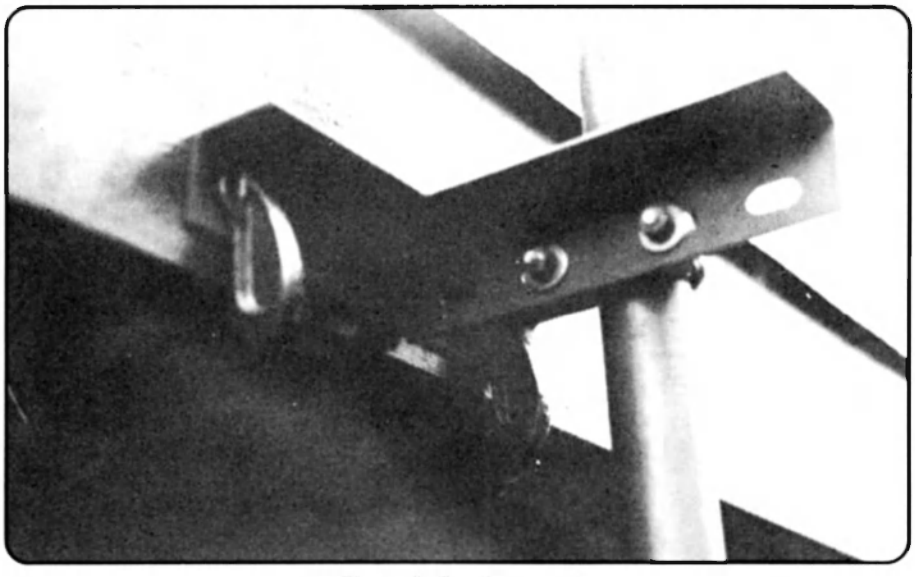


Photo 6: Fascia mount

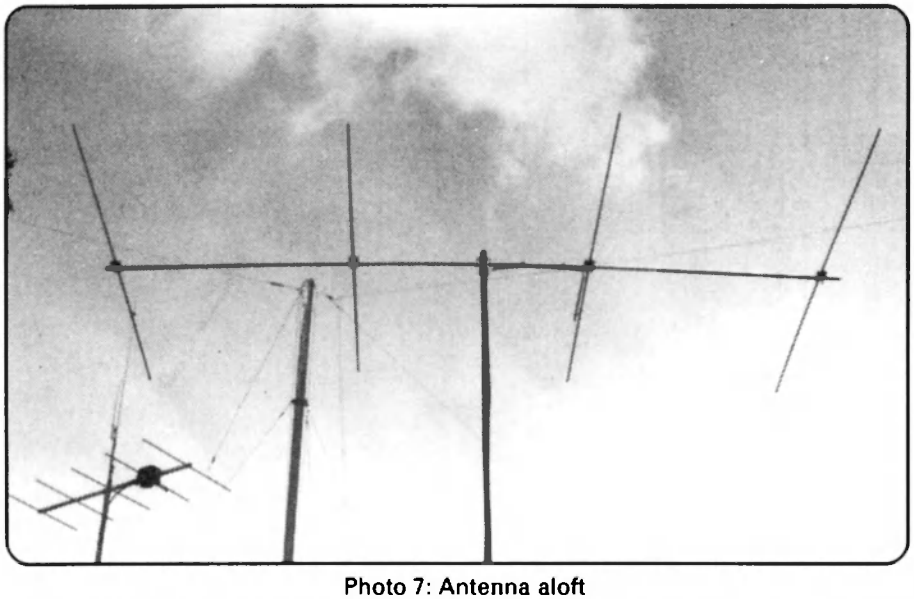


Photo 7: Antenna aloft

shows the antenna bolted to a Radio Parts 'zip-up' TV mast. Use good quality low loss 50 ohm coax (RG-8 or similar) to connect the antenna to your radio. Wrap several layers of black PVC tape around the PL-259 connector in order to keep moisture out of the coax fittings, and tape the coax feedline onto the boom and mast at appropriate intervals.

Depicted in Photo 6 is a suggested simple method of securing a mast to the fascia of the shack using a right-angled 'angle-iron' welded bracket and two G-clamps. The pipe is fixed to the bracket with a muffler clamp- just tight enough so that the mast may be turned by the 'Armstrong' method. The bottom of the pipe mast rests upon a steel rod and collar driven into the soil. The completed beam is shown in Photo 7.

Interestingly, the very weekend that the beam was ready (1100Z Sat. 111100) 6 m fans enjoyed a marvelous opening, with many JA's and other DX pouring into VK3. If new to 6 m, it is strongly suggested that you consult the band-plan in the WIA Callbook, and do some serious listening first (look for CW beacons between 50.0 and about 50.1 MHz) to get a 'handle' on the rather different characteristics and operating techniques used there.

References and Further Reading

1. The VHF/UHF DX Book; I. White, G3SEK (ed.) and nine authors. DIR Publishing.
2. Yagi Antenna Design; J. Lawson, W2PV, ARRL (1986).
3. Any recent ARRL Handbook.
4. Radio Handbook, 23rd edition; Wm. Orr, W6SAI (ed.), H. Sams Publishing Co.
5. Radio Communication Handbook, 7th edition; RSGB.

ar

SILENT KEYS

The WIA regrets to announce the recent passing of:-

J H L (John) FIELD VK2AKF

W C GOODMAN VK3JFQ

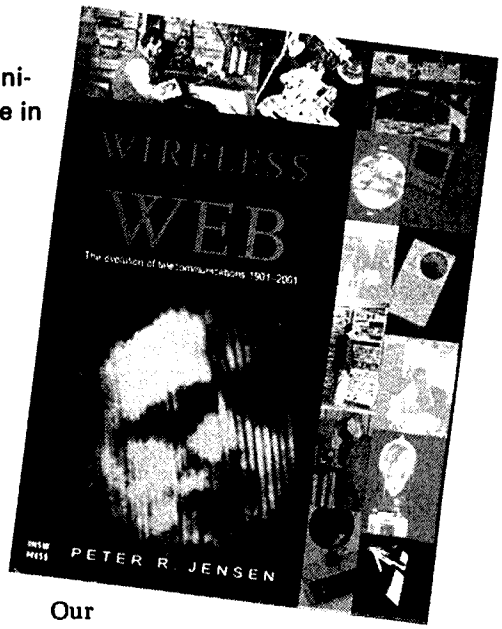
(Les) Bell VK4LZ

P L (Philip) HAY VK6AQO

Book Review

From The Wireless To The Web

In a fascinating 18 chapters and 300 pages, well known radio amateur and author Peter Jensen VK2AQJ leads us through the evolution of telecommunications from its first days of experimental use in the 1830's to current usage in GPS receivers and the World Wide Web.



Published by the University of New South Wales Press, the book is profusely illustrated with many diagrams and photographs from many sources including the author's own archives.

It is not a technical treatise, nor was it intended to be one. No one book could possibly cover the intricate pathways connecting early attempts at long distance communication using firstly wires and progressing to the electromagnetic medium. In Peter's words, "Here is the story of the creation of the system of international communications based on the cable, then radio, and more recently, the satellite". It also relates how the need for secure communications during world wide wars was the catalyst for a change in technology.

Peter has not forgotten the work of those whose inventiveness and sheer genius, eventually led to the development of the modern day computer. The work of Pascal, Babbage, Liebnitz and others is described, relating the frustrations and eventual triumphs of these men. Later in the book he links computers to modern communications systems, and the World Wide Web.

The author has broken his work into time related sections, thus being able to discuss improvements and development of technology. From Marconi's early spark transmitters in the early 1900's, Mawson's use of radio during his expeditions to Antarctica, through the invention of the transistor and consequent miniaturisation of devices and different modes of communication. Early experiments in television are also not forgotten.

This reviewer was at first a little intrigued at the inclusion of material devoted to codes and encryption, the invention of the German "Enigma" encoder/decoder machine and Britain's "Colossus" computing machine as envisaged by Turing, Newman and others at Bletchley Park. But of course, coded messages were transmitted and intercepted by radio, so the connection is very clear.

The part played by amateur radio operators is also not forgotten, noting that just as today, many of these first amateurs were also highly qualified electrical engineers.

Having seen the great strides made in communications technology, particularly since the late 1930's (many of these as a result of the exigencies of war), a reader of this book could hardly put it down without wondering what the next half century will reveal.

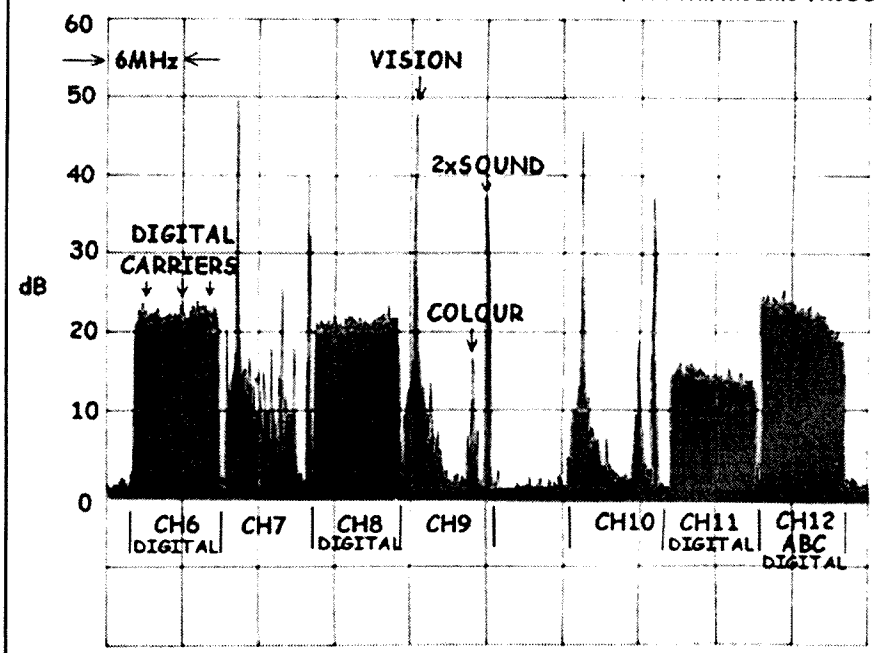
A thoroughly good read, and one that is recommended for the radio amateur, and those interested in the technology.

Our review copy was received by courtesy of the Publishers, the University of New South Wales Press, Cliffbrook Campus, 45 Beach Street, COOGEE NSW 2034.

ar

Digital TV Signal

from Will McGhie VK6UU



Digital TV Spectrum as of 22 December, taken from a spectrum analyser in Perth

The 'Good Enough'

A fifty-cent Morse key that's easy to build

Peter Parker VK3YE
12/8 Walnut Street, Camegie, 3163 Email
parkerp@alphalink.com.au

Do you need an extra Morse key for portable operation'? One that's small, light and cheap? If you're lucky, you might come across an old Army type at a ham fest. If not, it might be time to build your own — after all, what can be easier than a simple switch?

The 'Good Enough' may be the homebrew key for you. Unlike other designs, its assembly requires no lathes or other power tools. The project can be built in about two or three hours. All parts are easily obtainable and are common junk box items. The only purchase made for the prototype was the polyethylene chopping board for the base - bought for fifty cents from the local op-shop.

As its name suggest, several compromises have been made to make construction possible for the average amateur without access to a fully equipped workshop. These include the absence of conventional contact points, the fulcrum at the end, rather than in the centre, and the lack of an adjustable tension setting. As the photos demonstrate, the original 'Good Enough' is hardly an example of fine craftsmanship.

Gathering the materials

Most of the items required for the key are common household or amateur shack items. Many can be purchased from hardware or electronic stores. Ideas for improvisation are given in the parts list below.

Assembly

After gathering the materials, consider how they will fit together and cut to size, if necessary. Without assembling anything, play with the arm and available springs to find the one with the keying action most to taste. This is done by using one hand as the fulcrum and using the other to press the knob end.

Figure One is a scale drawing of the key. All major items are labelled. Start work on the arm of the key. Use a vice or bending tool to bend the fulcrum side of the arm back on itself A bend that is too sharp may weaken the metal, while one not sharp enough will not allow the arm pivot sleeve to fit snugly. A drill bit or similar may be useful as a mandrel around which to bend the metal.

With the gentle assistance of a

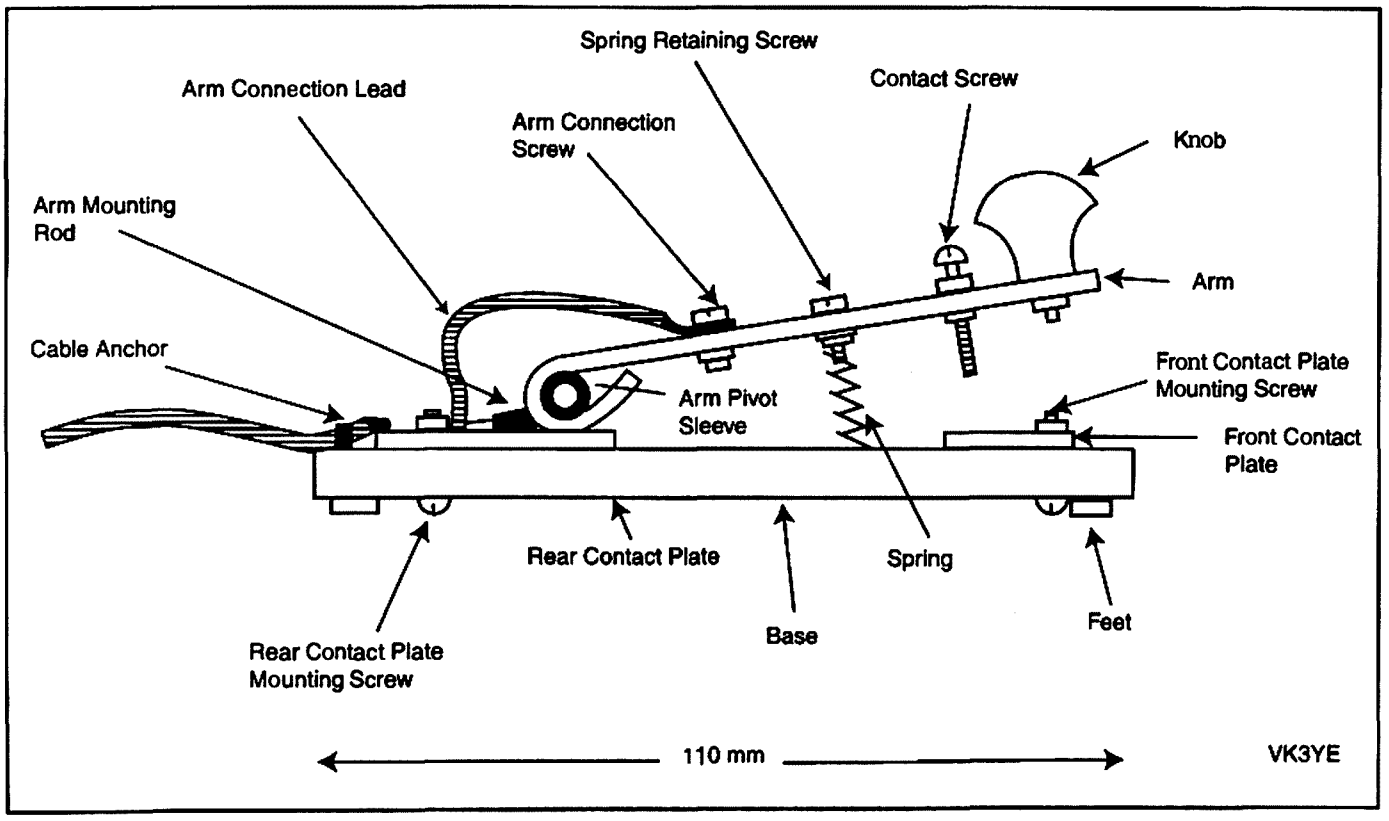


Figure One: Drawing showing construction of key

hammer, install the arm pivot sleeve. It may be necessary to bend this sleeve with pliers so that it is no longer circular. This is acceptable, provided that the arm-mounting rod can still be slid inside. Use glue if necessary to anchor the arm pivot sleeve to the arm. Note that no electrical contact between the arm and the arm-mounting rod is required - a reliable connection is provided by the flexible arm connection lead.

Drill the four holes required in the arm. These are for the knob, contact screw, spring retaining screw and the arm connection screw. Mount the knob, contact screw, spring retaining screw and spring (don't forget the washer) and the arm connection screw (including eye terminal for arm connection lead) to complete the arm. Note that the contact screw has two nuts to allow the contact spacing to be varied.

Tin the two PC board contact plates. With the completed arm, find suitable spots for these plates. Bend the coat hanger arm-mounting rod so it can be conveniently soldered to the rear contact plate. Before soldering, sand and tin the mounting rod ends - this will make soldering easier. Check that the arm can move up and down freely with a minimum of sideways sway. Then find a suitable location for the front contact mounting plate. This plate should be insulated from the spring at all times. Space should be left for the cable anchor. In the prototype, this was mounted on the base near the rear contact plate.

When the best positions have been found, drill appropriate holes. Both contact plates are mounted with Just a single screw, though more could be used if desired. Sand and tin both nuts and solder them to their respective boards. Solder the free end of the arm connection lead to the rear contact plate.

Thread two-conductor cable through the cable clamp. Cut the ends of the cable to size - the side making contact with the front contact plate should be the longest. Solder each lead to a contact plate and fasten the cable clamp with a screw. Glue the bottom of the spring to the base (though a screw, washer and nut may provide better long-term reliability). Finally stick the adhesive feet to the underside of the base.

Testing and operation

Use a practice oscillator or audible continuity tester to check that the key

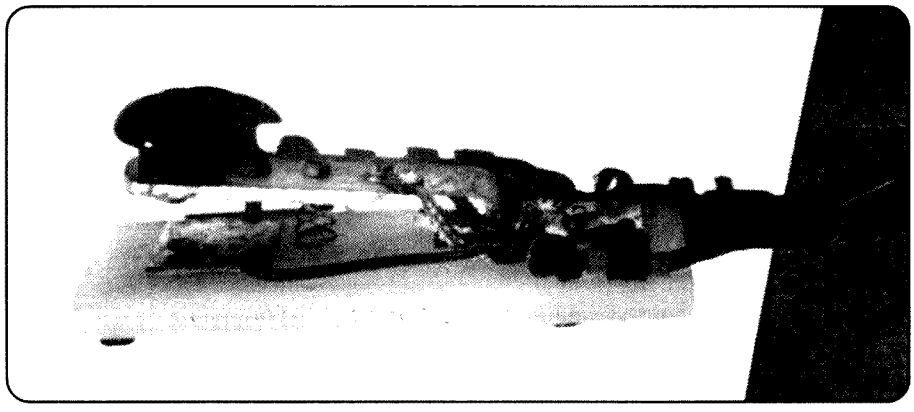


Photo One: The completed key - side view

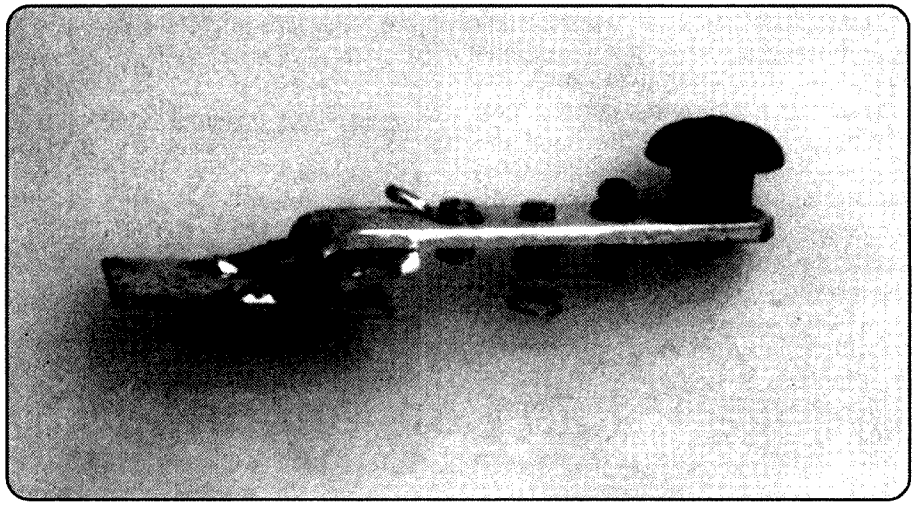


Photo Two: The completed arm

Parts list

Base: Insulated material 110 x 40 x 6 mm (eg cut from polyethylene chopping board)

Feet: Self-adhesive - four required (or use glued rubber squares)

Knob: 15mm diameter with thread (use door knob or mobile mounting bracket knobs)

Arm: Aluminium. 80.x 13 x 3mm

Spring: compression type, 6mm diameter, 10mm uncompressed

Front contact plate: Blank PC board material 20 x 20 mm

Front contact plate mounting screw: 3mm diameter, 12mm long, with nut.

Rear contact plate: Blank PC board material 20 x 40 mm

Rear contact plate mounting screw: 3mm diameter, 12mm long, with nut.

Contact screw: Brass — 3mm diameter, 12mm long, with two nuts.

Spring retaining screw: 3mm diameter, 6mm long, with washer and nut.

Arm connection-screw: 3mm diameter 6mm long with eye terminal and nut

Arm pivot sleeve: 13mm of3rnm diameter. metal tubing (brass tubing from old model shops or a section of telescopic antenna)

Arm connection lead: Copper braid: 40mm long (from RG58 coaxial cable or desoldering wick)

Cable anchor: Plastic cable clamp for 4mm cable, screw fit

Cable anchor mounting screw: 3mm diameter, 15 mm long, with washer and nut

works. Pressing the key should cause a sound to be heard. If not, look for bad connections. Likely problems include the contact screw not making contact with the front contact plate when the key is pressed and a poor connection between the arm and the rear contact plate via the arm connection lead.

Adjust the contact screw to vary the spacing between it and the front contact plate when the key is up. A spacing of I to 3 mm is adequate.

Conclusion

A Morse key has been described which is both cheap and easy for the amateur without a workshop full of power tools to duplicate. It makes use of available materials and can be built in a few hours. Though not a replacement for the main station key, it should be 'good enough' for most short-term and portable operation.

ar

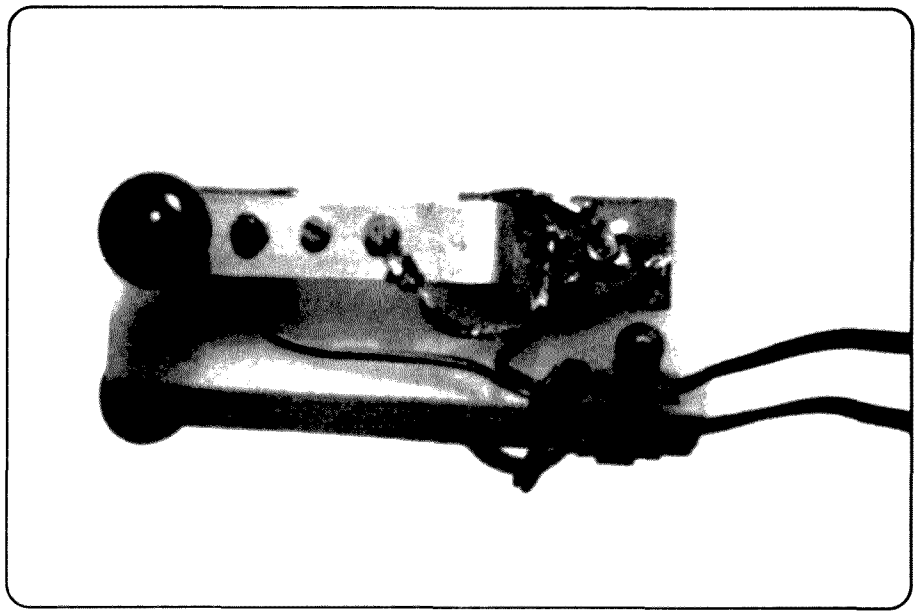


Photo Three: The completed key - top view

Club News

Urunga Radio Convention 2001 13 – 15 April

The next Urunga Radio Convention will be held over the Easter weekend of 13th ,14th and 15th of April.The convention is the first and longest running in Australia, so come along and join in the events and rag chew.

Special events are now available for the up and coming generation of Hams, with events on 3.5meg and 2 mtrs. Bring any surplus gear and sell or swap, no commission charged.

A programme of events will be published in February AR. together with a photograph of the gathering of participants at the 1950, ie second convention.

Contestants in Pine Creek State Forest 1988. Ham on right of picture holding unit is John Meagher VK2AMW who is now silent key.

World War 2
Clandestine Communications
Part 1

by Malcolm R Haskard VK5BA

In recent years there has been renewed interest in World War II electronic equipment. Having a passion for both miniature electronics and HF communications it is not surprising that an area of particular interest to me is clandestine HF communications equipment. This three part article seeks to provide an overview of several WW2 organizations involved in secret operations and the HF communications equipment that they used. In doing so I hope that your interest and enthusiasm is stirred, ensuring that what equipment still remains will be valued, restored and preserved.

I would particularly like to thank those who have assisted me in this operation (providing me with photographs, allowing me to photograph their sets or loaning technical documents) including Tony Bell VK5UA, Rodney Champness VK3UG, Peter Holland, Mike Kelly VK3CZ, Colin MacKinnon VK2DYM, Neil Wain of the Royal Signals Museum, Simpsons Barracks and Bill Smith Editor of Radio Waves.

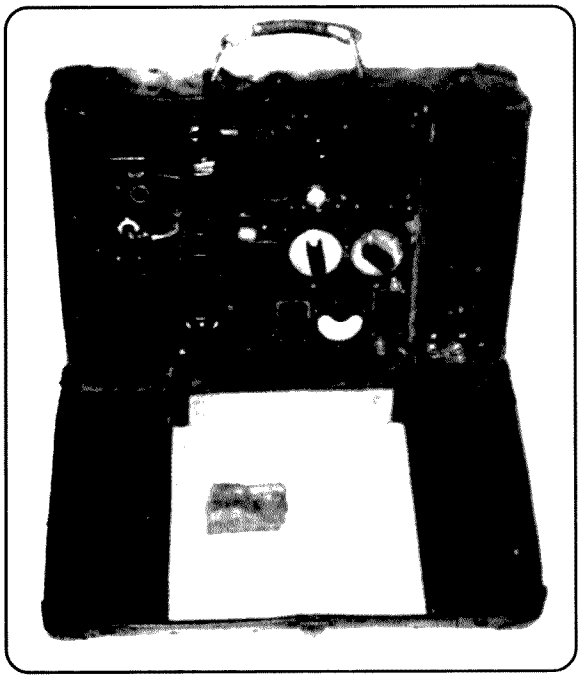
The Special Operations Executive

The decision to establish the Special Operations Executive (SOE), a small tough secret fighting service under the British Ministry of Economic Warfare was made in March 1939. Its purpose was to work with all forces of resistance, to sabotage and overthrow the Axis forces. Staff were either service personnel detached from regular units or specially commissioned personnel for these secret activities and their operations were given the classification, Most Secret. During the SOE initial days there was considerable in-fighting between the numerous secret services, which included the Special Intelligence Service, founded in 1909, and now known as MI6. Gradually SOE grew, establishing training centres and groups in various regions, code named Forces, examples being Force 101 in Ethiopia, 133 Egypt, 136 the Far East, 139 Poland and Czechoslovakia and 266 Yugoslavia and Albania.

An important part of the clandestine operations was communications and a range of HF transceivers were developed, all using CW operation. The transmitters were crystal controlled while receivers could tune the lower half of the HF frequencies. Many, transmitters and receivers were integrated into one package, but later it was realised that separating into receiver, transmitter and power supply modules made things easier to transport and conceal. The receiver could be left in a more convenient and "permanent" location, separated from the frequently moved transmitter and its tell tale RF signal for Axis tracking stations to lock onto. Scheduled transmitting and reception times allowed time gaps for decoding/encoding messages and for operators to move between transmitter and receiver. The principle of operation was that each clandestine group was allocated one or more crystal frequencies and must report to the main SOE base in the area, the base maintaining a 24 hour per day monitoring service. No communication between individual clandestine groups was allowed. Unfortunately in the Far East region this often meant that intelligence gathered by one group reached another too late to be of use.

Force 136 had responsibility for a wide area, from India across to China. The distance was such that a request was made to urgently set up a facility in Australia. It was initially opposed by the Australian Government and its armed services, but in March 1942 the Inter-Allied Services Department (IASD) was set up in South Yarra, Melbourne. The name then suggested for this new facility/organisation was Z Special Unit, its directive being to coordinate and administer groups whose activities ranged from sabotage to gathering of intelligence. In July of that same year the IASD and other Special Units came under the control of General McArthur and the Allied Intelligence Bureau was formed. The SOE used a whole range of code names to confuse and for Australian operations these included Force 137, the Services Reconnaissance Department, the Inter-Allied Services Department and Special Operations Australia. Bases and training centres were established and included, Trinity Bay south of Cairns, Fraser Island, Garden Island, Wilson's Promontory and Darwin, the latter code named the Lugger Maintenance Section. HF listening posts were set up in Darwin and Melbourne.

Australian personnel who worked with the SOE were all volunteers. They participated in many British clandestine activities on the islands to our north and the communications equipment taken with them was that developed by the SOE for European operations. Originally the heavy type B1 transceiver was used and this was quickly replaced by the now famous B2 set, or suitcase set (more commonly known in Australia as the Type 3 Mark II), developed by John Brown. These sets were not tropical proofed so almost daily had to be dried out in front of a fire to keep them operational. Carrying a small suitcase in a city appears normal, but in a jungle situation would raise suspicions. The sealed metal case versions were therefore more appropriate for jungle



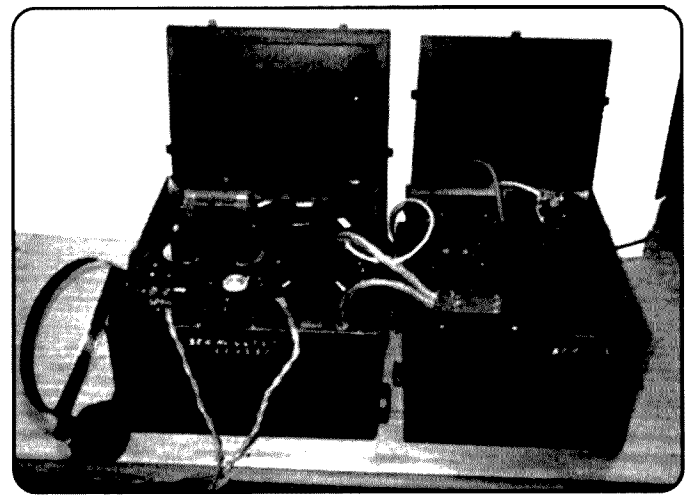


Figure 1a (left) and 1b (above)
The two versions of the Type 3 Mark II, suit case (a) and metal case (b). Only the metal case version is connected for operation.

work, particularly when the team and equipment was parachute dropped. Later sets employed were the compact Type A Mark III using American valve types (John Brown's design again) and the MCR 1 or "biscuit tin" receiving set. This set could be placed in an overcoat pocket, the dry battery pack in the other pocket, allowing the operator to listen to broadcasts while on the move. Most likely the MCR 1 was the type that Nancy Wake, the famous Australian resistance fighter in France, had as her personal receiver to obtain confirmation of drop sites via the BBC broadcasts.

Since mains power was not often available, battery operation was the norm. The SOE developed a number of generators to charge the 6 volt batteries. Petrol driven generators were heavy and noisy and fuel was not always handy. A steam driven generator was developed, as were pedal and hand generators, the latter although very portable were tiring to use.

The operations were classified Most Secret, so even today few have been written up, and unfortunately those that have, rarely give much attention to the communication equipment used. More often than not, it is passing references to difficulties of not getting through or the constant need to charge batteries. In spite of these problems the sets appear to have performed well, even in the tropics, conditions for which they were never designed.

The SOE formally closed down on 15th January 1946.

Clandestine communication equipment

1. Type 3, Mark II Wireless Set

The set consisted of four modules, transmitter, receiver, power supply and spares box, the latter also containing the Morse key, headphones and aerial wire. All were painted in black wrinkle paint and the all up weight of the four modules unpacked was 13.5 kg. The modules came in either a small suite case, 18" x 12" x 6" (460mm x 305mm x 150mm) or two water tight metal cases labeled G, 12" x 10 1/2" x 6" (305mm x 270mm x 150mm), containing the transmitter and receiver and H, 12" x 9" x 6" (305mm x 230mm x 150mm), housing the power supply and spare parts box. Both configurations are shown in Figure 1. When the metal containers were used, also supplied were two 6 volt lead acid batteries in a watertight metal container, a 6 volt 30 watt hand generator with cables in a further sealed metal case and webbing carrying straps for all units. Crystals were supplied separately for they differed from mission to mission.

The CW transmitter, which could operate over the frequency range 3 to 16 MHz, consisted of an EL32 crystal oscillator, the crystal plugging into the front panel. Cathode and anode tuned circuits were switchable so that the oscillator could operate at the fundamental crystal frequency or a harmonic. To make tuning easier for the operator, both switches were labeled in MHz range. The oscillator output drove a 6L6G final power amplifier (PA) which had a single pi coupled output to match into the aerial. The tank circuit was external, plugging into the front panel. Physically four coils were supplied and by reversing the direction each was plugged into the panel socket, two different frequency ranges were available for each tank coil. In this way the frequency range 3 to 16 MHz was covered. Controls for the transmitter were the oscillator cathode switch called the crystal selector, the oscillator anode or waveband switch with tuning capacitor labeled PA grid tuning, the three PA pi impedance matching controls labeled anode tuning, aerial matching and tank coil plug, meter switch and control switch with the three positions tune/send/receive. In the tune position power to the PA is reduced and the aerial is disconnected so that no tell tale signals are unnecessarily transmitted. Power out is typically 20 watts on the crystal fundamental dropping to 15 watts if the output is on the crystal third harmonic.

The four valve receiver covers the same frequency range in three switched bands. The converter is a 7Q7 valve, 1st IF amplifier type 7R7, 2nd IF amplifier

and BFO a 7Q7 valve with the detector and audio amplifier a 7R7. The IF frequency is 470 kHz. Controls are minimal, wave change switch, main tuning having a 50:1 reduction drive, BFO control and volume. The BFO control is a small capacitor which changes the frequency, oscillation ceasing when a depression on one of the rotating plates shorts the capacitor. The volume control simply changes the grid bias on the converter and 1st IF amplifier. The main tuning has a 0 to 180 dial scale so each receiver is supplied with calibration curves for the three bands. Receiver sensitivity is better than 3 micro volts for 10 mW output at 1kHz, with selectivity 3dB down at 1kHz and 20 dB at 9kHz.

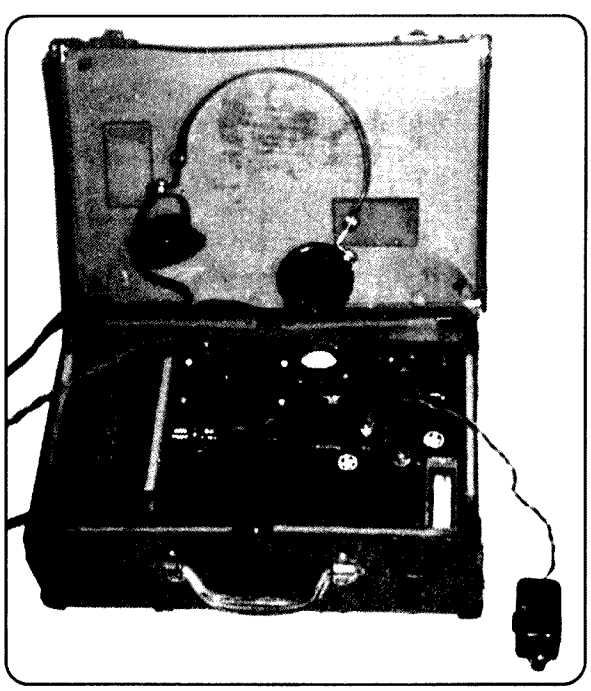
The power supply is general purpose accepting 6volts DC and a range of AC mains voltages, depending upon the settings of the mains/battery and voltage selector plugs.

2. Type A Mark III Wireless Set

This was the most compact transceiver produced, transmitter and receiver integrated into a single module with valve sharing. In the same unit was the AC mains supply, while the 6 volt battery vibrator supply was separately packaged. A spare parts box, the same size as the vibrator supply, included the Morse key, headphones and aerial wire. Total weight of the set was 7 3/4 kg, surprising light for a 1940s valve transceiver. The three metal cases, painted in black wrinkle paint, were like the Type 3 above, supplied in either a small case, 13 3/4" x 9" x 5" (350mm x 230mm x 125mm) or in two sealed metal boxes, the one marked C, 10 1/2" x 9" x 4 1/2" (270m x 230mm x 115mm), housing the transceiver proper and the one marked D, 9" x 6 3/4" x 5" (230mm x 170mm x 125mm), containing the vibrator power supply and spare parts box. In the suit case only the transceiver and one of the two other boxes could be accommodated, normally the spares box. The two package styles are shown in Figure 2.

The transmitter had two colour coded frequency bands, blue being 3.2 to 5.2 MHz and red 5.0 to 9.0 MHz. The Pierce crystal controlled oscillator valve was a 7H7 and it drove a 7C5 tetrode class C power amplifier/doubler. Power out at the crystal fundamental is 5 watts dropping to 4 watts when the final acts as a frequency doubler. The superheterodyne receiver likewise has matching blue and red bands. It consists of a 7Q7 valve pentagrid mixer / oscillator, 7H7 IF amplifier, 7H7 regenerative detector and the transmitter 7H7 oscillator valve also used as the receiver audio amplifier. The IF frequency is 1.215 MHz and at + and - 5 kHz bandwidth the signal is 20dB down. Receiver sensitivity is typically 3 micro volts for 1 milliwatt output into an 800 ohm load. Maximum audio output in the phones is 100 milliwatts. The in-built mains power supply accommodates 100 to 130 and 200 to 250 volt AC in 10 volt increments, the voltage selected by two screw in plugs. To minimise size and weight an auto transformer is used so the case is at neutral line potential. Controls for the transceiver are minimal. Starting from the top left hand side, top row (Figure 2) AC voltage selector, meter, frequency check push switch, aerial matching; middle row being power change pull switch (AC to 6v DC), socket for DC supply, mains on/off switch, crystal socket, key socket, anode tuning; bottom row, reaction control with headphone plug below, wave change switch, neon power lamp with volume control below, receiver tuning. The latter has fine and course tuning, the scale divided into 100, so that a calibration curve is required for each band. With the frequency check switch the receiver is used as a wave meter (neon indicator) to ensure that the transmitter is tuned to the correct crystal output frequency (desired x1 or x2 and not x3).

The aerial wire supplied with the set was 60 feet in length while the earth wire was 10 feet. A screw driver, the Morse key and headphone ear pieces were included in the spares box, while the headphone head band sat on top of the transceiver. Spares included one of each valve type, 1 and 10 amp fuses, mains



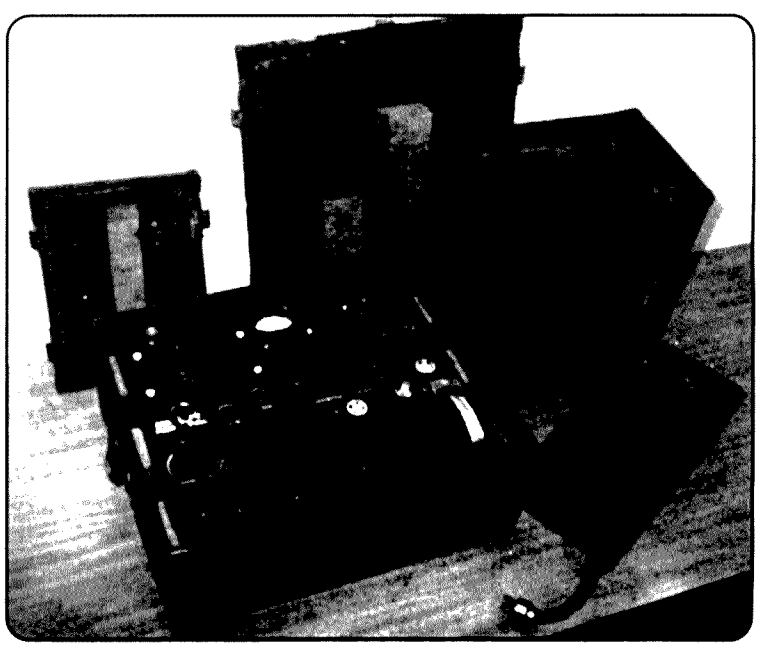
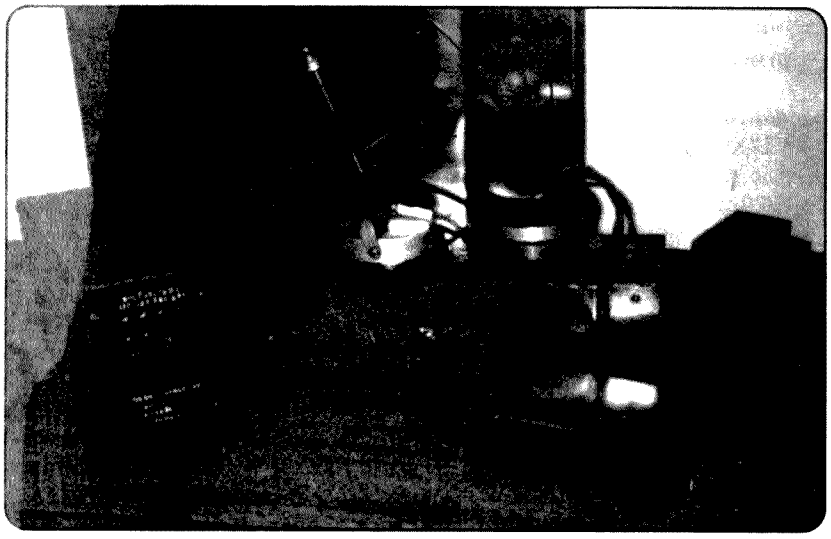


Figure 2a (left) and 2b (above)
The suit case version (a) and metal case version (b) of the Type A Mark III set. The suit case version is connected for operation.



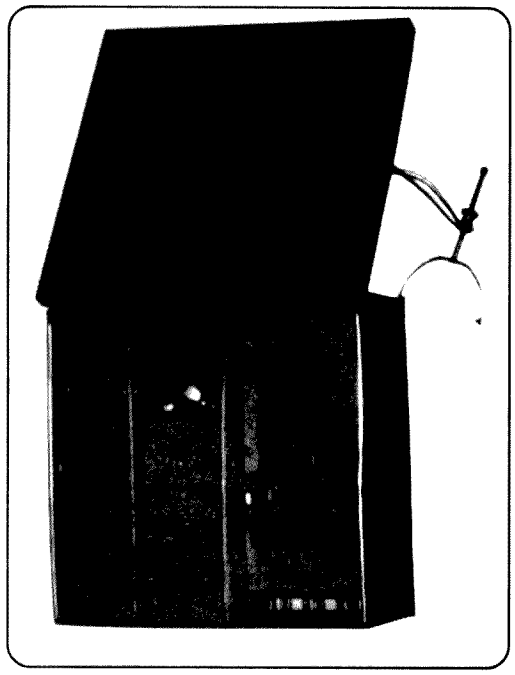


Figure 3a (above)) and 3b (right)
The MCR 1 receiver (a) came packed in a Huntley and Palmer biscuit tin (b). It allowed agents to listen to BBC and other broadcasts. At the end of WW2 some 1500 of these sets were dropped on prisoner of war camps to allow Australians to follow what was happening, a great morale booster.

adaptor pins, as well as battery clips.

3. Type MCR 1 Receiver

This small receiver (MCR standing for Miniature, but sometimes Midget Communications Receiver) was supplied to operators in a Huntley and Palmer biscuit tin, in the hopes that it might be over looked during searches. The receiver proper was housed in a gray painted metal case, 7.5" x 3.25" x 2.25" (190 x 83 x 58 mm) and had four simple controls; main tuning, reaction, sensitivity or volume and aerial trimmer. Four bands were available, selected by plugging in the appropriate coil box onto the end of the receiver. The main tuning scale was 0 to 100, however each coil box had its own etched brass conversion scale allowing the receiver to be approximately tuned to the in coming signal. The four bands were; Range 1 - 100 to 1600 kHz, Range 2 - 2.5 to 5.0 MHz, Range 3 - 4.5 to 8.0MHz, Range 4 - 8.0 to 15.0 MHz. Miniature glass 7 pin valves were used, a 1R5 for the mixer and four 1T4 valves for the local oscillator, IF amplifier, regenerative detector and audio output. The IF frequency was 1730 kHz. Sensitivity and selectivity figures are not given in the handbook.

A matching mains power supply was also included in the biscuit tin. Physically the same size as the receiver, and painted gray, one end contained a voltage selection panel so that by inserting a screw in plug into the correct hole mains input voltages from 100 to 250 volt, either AC or DC, could be accommodated. Again to minimise size and weight an auto transformer was used for AC voltages while series dropping resistors were used for DC main supplies. A dry battery pack was also available.

References

a) General

1. Foot, M. R. D, (1984), *SOE. The Special Operations Executive, 1940-46*, British Broadcasting Corporation, London
2. Loran, P, (1983), *Clandestine Operations: The Arms and Technology of the Resistance, 1941-1944*, Macmillan Publishing Company, New York. English translation by David Kahn
3. Cruikshank, C, (1983), *SOE in the Far East*, Oxford University Press, Oxford
4. Horton, D. C, (1983), *Ring of Fire*, Macmillan Company of Australia, Melbourne
5. Braddon, R, (1956), *Nancy Wake*, Cassell and Co., London

b) Technical

1. Portable Transmitting and Receiving Equipment, Type 3 Mark II. Description and Operating Instructions
2. Portable Wireless Set, Type A Mk.3. Description and Operating Instructions
3. Champness, R, (1978), *Portable Army Wireless Sets of World War II*, Amateur Radio, Vol 46, No. 11, Nov, p30
4. Miniature Communications Receiver (M.C.R.1) Installation and Operating Card (Supplied with Set)
5. Midget Communications Receiver M.C.R.1 Handbook. Description, Operating and Fault Finding Instructions.

ar

Pactor Bulletin Board Service — *A Voice for the Far Outback*

by Rob Gurr, VK5RG

Communicating from the far reaches of the outback can be difficult.

PACTOR BBS, courtesy of AHARS, addresses the problem

The Adelaide Hills Amateur Radio Society (AHARS) meets monthly at Blackwood in the Adelaide Hills. The Society membership at July 2000 was over 100. For many years AHARS has made monetary donations to other Radio Clubs in South Australia, to assist in the installation and upgrade of their voice and packet repeaters. Over $1,000.00 has been donated to the South Australian Amateur Radio community. In addition to a technical lecture programme and two social dinners, AHARS convenes a major amateur and electronics equipment sale each year at the Westbourne Park Community Centre.

IN 1997, a group of AHARS members suggested that the Society establish its own repeater for general use. Following discussions with other groups, it was decided to establish a PACTOR BBS, which could be used by Amateurs throughout Australia for interconnection to the AX25 Packet Radio Network. At the time, PACTOR forwarding and mail box facilities were available from only a few dedicated private operators, with no institutional (Radio Club) support for this activity. Meetings between a number of Packet Gateway operators and the Society revealed great support for a dedicated High Frequency BBS. It was considered that with Internet backup, the existing gateway and forwarding facilities were quite adequate for all current requirements.

The initial aim was to provide a facility for outback travellers and Australian stations, out of reach of the VHF/UHF AX25 network, with particular attention to Intermediate Class Licensees. With the opening of further High Frequency bands to this group of Amateurs, this parameter has been reconsidered, and the system is now available to all Australian amateurs on the main High Frequency bands.

A sub-Committee

An initial approach to the Committee of AHARS resulted in formal approval being given for a major BBS facility to be constructed. A sub-committee was established to oversee the project. A number of meetings, with guests from associated groups such as the South Australian Packet Users' Group (SAPUG), Packet forwarding operators, BBS SYSOPs, etc. was held over the next two years.

Operating Mode

Why use PACTOR?

Of the operating modes available, the chosen mode would be that with the maximum speed and the minimum cost. We have advanced well beyond morse code for digital communications. Radio Teletype is subject to selective fading and with no error correction, it was not favoured. The first error correction mode for HF was AMTOR (a derivation of the Commercially used SITOR), which was very advanced in early days, as an extension of the Baudot Code, with mail-box facilities, error correction (ARQ). This mode has no facilities for the transmission and reception of anything but plain text and numerals.

The next choice following this was PACTOR, which has 200 baud capabilities, ARQ, and forward error correction (FEC). It also has the facility for text and data file transfers, similar to that of Packet. Although the speed of 200 bauds is adequate, a number of manufacturers have developed "Company Specific" modes such as G-TOR, PACTOR II and CLOVER, which are capable of higher speeds. These modes require more expensive equipment, and there is no software available with these advanced modes, to enable the use of simple modems.

PACTOR modems are available from several suppliers, and usually include 1200 baud Packet plus a few other options. The price is reasonable.

There is also, however, software available which can be used with a simple modem, similar to those used some years ago for RTTY. Remember the "clank " of the Creed 7B, Teletype Corp. Model 15, 19 etc., and the Seimens Model 100? If readers wish to try PACTOR using the earlier modems such as the ETI730, ST5, ST6 and DT600, the step to PACTOR, is as simple as installing a programme called "Terman93" by HB9JNX (from his home page on the Internet) or "BMKMULTY" from G4BMK, and modifying the PTT, receive data and transmit data circuits.

Unattended Operation

This aspect was very important. The establishment of such a station, at an existing licensee's residence, precludes the use of any other High Frequency receiving or transmitting equipment at that location. Both the host licensee's equipment and the BBS will at some time clash in normal operation, with possible damage to equipment. Such

conflict could be tolerated in the development of the BBS. However, the permanent location at a member's home seemed most unlikely. A further parameter here is to have a UHF path to the AX25 network.

The initial solution to this aspect of our planning was simple. The Society agreed to fund, develop and service the equipment and then donate it to the South Australian Packet Users' Group (SAPUG) for installation alongside the AX25 Packet and Rose network equipment. This would be at the "Burley Griffin Building", co-sited with the Wireless Institute of Australia, SA and NT Division, (WIA), VK5WI. The plans of all three organisations were disrupted in 1998, when the Thebarton Council, amalgamated with the West Torrens Council, and sold the building. SAPUG moved to new premises, where there is restricted space for their equipment, and the WIA fragmented its facilities to other Radio Clubs. AHARS is examining options for an alternate site, following the successful completion of the project. Presently it remains situated at the writer's home, in the south-eastern suburbs of Adelaide

The BBS operates on PACTOR under the AHARS callsign (VK5BAR); Morse code identification has been included in the close down message to indicate the exact location of the equipment, with the call sign of the host licensee.

Equipment For The BBS

Initial estimates included the need for the items listed below. A fund raising activity was established, with the early donation by member Graham VK5GH of a modified Philips FM92 144MHz transceiver, which was raffled with many ticket books thrust into unwary faces at conventions, club meetings, etc.

Another, and ongoing, source was the donation of various unwanted items by Society members at general meetings. AHARS runs a large Garage sale for the general public each year, and a private sale night for members only. On normal meeting nights, members are encouraged to place surplus items on a rear bench. Buyers donate whatever their conscience suggests to the Society's Treasurer. In this way, members have shown continuing support for the project.

The following is a list, and the source, of the equipment in use:

Item	*Source*
ICOM IC737A Multiband High Frequency Transceiver	*Purchased by the Society*
12 Volt 20 Amp Power Supply	*Donated by member J Tregallas (VK5XJT)*
"Coman" Multiband Vertical, High Frequency Antenna	*Purchased by the Society*
KAM Plus Packet/PACTOR Modem	*Purchased by the Society*
UHF 440MHz Transceiver	*Loaned by SAPUG*
UHF Antenna	*Donated by Amateur Radio Experimenter's Group (AREG)*
12 Volt 10 AMP Power Supply	*Donated by member J Tregallas (VK5XJT)*
TNC for Packet links	*Purchased by the Society*
ICOM CT17-V Level converter	*Purchased by the Society*
Scanning hardware	*Donated by member Rob Gurr (VK5RG)*
Computer, AT486 DX2-66	*Purchased by the Society*
Mobile equipment trolly	*Loaned by member Rob Gurr (VK5RG)*
Various sundry items	*Manufactured and donated by Society members and friends*
Software (MSYS)	*Installed and manipulated by Colin McCarthy (VK5EB) and Joseph Kasser (VK5WU ex G3ZCZ)*

The equipment has been assembled on a mobile equipment trolley, for ease of access during construction. It operates on 240 Volt 50Hz AC power. No provision has been made for operation during power failure. The purchase of a "Lap-top" computer, and substantial battery supply with charger, is considered unnecessary at this stage.

The antennas are mounted on TV antenna brackets clamped to the square tube verticals of a carport. Removal to another location would not be difficult.

Handbooks, circuit modifications, backup software, are stored in drawers at the bottom of the trolley.

Modem Choice for the BBS

There was little choice. The programme required the use of a Kantronics KAM Plus modem, and one was purchased from Kevin Cavanaugh, (VK4SP), who understood what we were setting up.

The 1200 baud UHF link to VK5SPG was catered for with an MFJ1270B (TNC-2) purchased from SAPUG.

Both units have performed well in the project, however the KAM+ was difficult to set up, and recent power surges have caused some intermittent operation. The BBS presently survives on a borrowed KAM+, while the problem with the Society's modem is assessed.

Modem Choice (including Home Construction) for users.

When a potential user considers purchasing a Modem for use on PACTOR, a number of choices are evident.

Some modems (frequently called Multymode TNCs and other vaguely related names) are fitted for PACTOR only, while others give all H/F modes, including CW, RTTY, AMTOR, G-TOR, and Packet (VHF and HF). Most are expensive, but it is worth paying the high price if continuous operation on these specialised modes is intended.

For technical enthusiasts, a home brew modem, suitable for use with software available on the Internet, is a practical option. Suitable Printed Circuit Boards and construction information is available within Australia. In the October and November 1999 issues of QST, a comprehensive article covered this very suitable alternative. Modems used by RTTY enthusiasts in the 1960s to 1980s may also be modified to operate on PACTOR, with these programmes. The main consideration is the widening of the lowpass filters, location of a suitable point for RS-232 take off and the realignment for the appropriate Mark and Space tones. Cost savings may be considerable, depending on which approach is used.

Modems known to be easily modified for use with TERMAN93 (or "BMKMULTY", another suitable software package from G4BMK), include the following:

ST5	DT600
ST6	ETI 730
AEA CP-1	AEA MP-64
AN-93	

Home constructed and commercial Modems using PLL XR2211/XR2206 combinations have also been used successfully.

Some limited success using the World Chip Modem (AM7910), has been reported by associates. However internal timing properties appear to limit its usefulness in this application.

In 1997 Johnny Melvin, (G3LIV) introduced me to his "P-Par" modem, mentioned in the UK Amateur Press. His assistance led me and Norm Rosenzweig (VK5ZAH) to develop a printed circuit board for a dedicated RTTY/PACTOR modem, using parts which are readily available from suppliers in Adelaide. A useful feature of this modem is the use of strip LED indicators to facilitate tuning the incoming signal. Norm is able to manufacture the board on direct order. (see his web-site, listed below).

System Considerations.

The overall system was designed to give a connecting operator the impression he was connected to a "standard" Australian packet network BBS. The programme used in a number of BBSs is by F6FBB, under a variety of operating systems including LYNUX, Windows or DOS. The choice of software for the VK5BAR BBS was limited, with a programme "MSYS' developed by Michael Pechura, (WA8BXN) chosen. This allowed the connecting station access to a significant number of bulletins, and an ability to send and receive messages, when connected on HF. Additionally by using a "NODE" available on the programme, a further connection to the AX25 network, via a 440 MHz link, gave access to the BBS controlled by SAPUG. This meant that the field operator, using a laptop computer, sitting under a gum tree away from any other BBS, could be looking at the same screen as a VHF operator in Adelaide, if connected to the same BBS on 144MHz. From that point on, access to the total network, including the "Wormhole", the Internet through "NETlink" stations and the DX Cluster, etc., would be possible. This depends on the number of users and the reliability of the HF path.

Software Limitations

Although the sub-committee had spoken to some Australian licensees with success with MSYS, few, if any seemed to have utilised the "Scanning" properties of the programme. This was desired to ensure coverage of the vast continent, day and night, summer and winter, without the presence of an operator at VK5BAR. The few experienced with MSYS in HF BBSs , appeared to have used dual stations and PCs, when operation on more than one band was desired. We also found that whilst MSYS was designed for scanning on a Kenwood transceiver, and the Documentation indicated success with ICOM and Kenwood equipment, we encountered some time consuming difficulties. We finally combined software with a little hardware, to overcome this problem. The system now continually scans four frequencies, one in each of four bands, remaining on each frequency for 5 seconds.

It was necessary to modify the scanning sub-routine, (encouraged by the author in the MSYS documentation) for use with our ICOM 737-A transceiver. Joseph Kasser (ex G3ZCZ now VK5WU), author of many other software programmes, and Colin McCarthy (VK5EB), kindly spent many hours assisting with the development. A suitable piece of hardware, including a small scan timing unit, so necessary to this aspect of the project, was constructed.

This was necessary, due to the failure of the programme to recommence scanning after the completion of a QSO. The construction of a simple timer, to break the scan control line, and restore it some 10 seconds after the last PTT operation, was required. Although needing only a few components, this unit caused me more consternation, and wasted more time, than some of the main assembly. A "dead bug" construction on a piece of PCB worked well. However, when correctly and neatly constructed, it failed to work. A second and final attempt proved too much for me! If the unit had contained many stages, a logical approach would have located the source. However, as it was simply a combination of two 25 pin DIN connectors, a relay, a couple of diodes, and a 30,000 uF capacitor...?

At this stage I decided to write this article.

Equipment Problems.

There were some problems. Those encountered were mainly in such items as cable connectors, position and tuning of the multiband antenna, etc. Interconnection of audio lines using 3.5mm plugs and sockets proved unreliable and these were changed to RCA line plugs and sockets.

The two multiband vertical antennas donated to the project were both without 80Metre resonators. These were unobtainable. A "Werner-Wulfe" vertical antenna was purchased to solve this problem. This antenna operates on the 5 main bands, and is adjusted for best SWR on the frequencies used by the BBS.

Location of the equipment in my home workshop, where I am constantly constructing, testing and operating other radio equipment, was a disaster during this stage. My 400Watts transmissions on 80 Metres one night, did some front end damage to the ICOM 737A. We opted to freight it to Melbourne for service, from where it was reported "no fault". On return, it performed well for a day or two, then failed again, even without being subject to excessive overload. This time we serviced the ICOM ourselves...a faulty switching diode in the front end had failed.

The ICOM 737A transceiver scans continuously, stopping on each of four frequencies for 5 seconds before moving on to the next. This causes a continuous selection of bands, and the operation of relays and the tuning motor. Although little information is available to predict the life of these components operation so far has been quite reliable.

This all proved that an isolated location was necessary. Shortly after these adventures, I sought support from AHARS to move the system to another location.

Radio Frequency Interference

When the system was first operating, it crashed many times, due to the Transmitter RF getting into the Computer, through all leads. The problem showed up as uninvited ASCII characters appearing on the Menu screen of the programme, when the BBS transmitter was operating.

The filtering required was quite conventional, using ferrite toroids, obtained from salvaged computers, power supplies and printers. The power leads were twisted through ferrite cores from Television tube "yokes". Data leads to all ports were wound around ferrite rings recovered from old computers, and "clamp on" ferrites used when available. Audio leads into each item were also fitted with toroids. Generally 6 to 10 turns around these toroids, was adequate.

As the system is mounted on a mobile

equipment trolley, little effort was made to earth the unit, other than by the AC Mains, GPO earth. Fitting of a mains line filter, or the main power lead wound around an old TV yoke, may be necessary if further interference is experienced at another site.

Computer Considerations

An AT486 DX2-66 with 100MB hard drive, 1.2 and 1.4MB floppies, an SVGA monitor, and operating under DOS, was considered adequate. The use of four ports was demanded by the programme, if we wanted to use a Mouse. Suitable software for analysis and backup of programmes, files, etc. was also included.

Operating Frequencies

Our original intention was to serve all licensees who were authorised to use PACTOR. This meant using frequencies allocated to Intermediate Class licensees and consequently the early access to the BBS was restricted to the 3.5, 21 and 28MHz bands. With the recent authorisation of these licensees to also use other bands, the final setup is for scanning on 3.5, 7, 14, 21 and 28MHz bands.

The scanning routine allows listening for PACTOR calls to VK5BAR for 5 seconds on each frequency, before scanning to the next, etc. Thus a caller may have to wait up to approximately 20 seconds for a response, depending on the band chosen for the call. Once the call is detected, the transceiver "locks" on to the frequency, and following the completion of the "QSO", recommences the scan. It is therefore likely that a caller on one frequency may have an indeterminate period of waiting, if the BBS is being used by another station on another frequency. Other private HF BBSs have solved this problem by using two or more complete installations on separate frequencies. We considered the above approach to be adequate for the present system.

All frequencies used have been in the "FSK" sections, as published in the WIA Band Plans. Regrettably we suffer some interference from voice stations, particularly on the 3.5MHz band, with most stations moving away when they become aware of the purpose of the installation. There continues to be some rejection of digital techniques, and it reminds me of the difficulties we had when experimenting with SSB transmissions in the 1950s, before the usefulness of that mode, to amateurs generally, became evident,

Transmissions are SSB (Lower Sideband) with a Mark tone of 2095Hz. Frequencies in use at present, are :

3632kHz	7035kHz
14080kHz	21075kHz
28075kHz	

i.e. on MARK frequencies of 3629.905, 7032.905, 14077.905, 21.072.905, and 28072.9 kHz.

It is not proposed at this stage to include 10, 18 or 24MHz in the group, but this can be arranged if there is any such demand.

Using the System

A station set up for PACTOR operation should set its transceiver to LSB on a VK5BAR frequency. A command, "C-VK5BAR" (or whatever your programme requires), should be sent. After a few calling cycles, VK5BAR will respond, in PACTOR, with a connect message, addressed to the calling station. Answer the prompts only, and do not 'turn' the transmission around, but follow the instructions sent to you by the BBS. A set of instructions on all the commands is available by typing "?" at the long line of prompts.

VK5BAR has Bulletins under a number of titles, and 100 in total, which may be read. Additionally you may send a message to another station, in a similar manner to a VHF etc., BBS. But as there is no "Telephone Book" held on VK5BAR, it is necessary to use the full hierarchical address. This takes the usual form, e.g. VK7DSB @ VK5SPG. #ADL.#AUS.OC.

The most useful facility is the ability to connect direct to VK5SPG and the AX25 network direct (including the Rose Network and the Wormhole), through a NODE command. VK5BAR during its "welcome" screen, mentions this, but at the end of the long Command line, a user should type in BLOCK letters "NODE".

On receipt of this, VK5BAR will send a "NODE" message, and a short command line. At this point type "C1 VK5SPG" and a direct link to VK5SPG will be established. The screen facing the user now is the same as that facing a person connecting to VK5SPG on VHF or UHF.

From this point on, the normal BBS functions are available.

On sending a "B" or good "Bye" command, after use of VK5SPG, the connection will be cut VK5BAR. There is no provision for return to VK5BAR from VK5SPG, except by disconnection, and to again call VK5BAR on HF.

The following is a sample of the connect text and operating lines:

(Italicised words are from the calling station)

C VK5BAR
[MSYS-1.20beta4-MHI$]
Hello Rob, Welcome to VK5BAR's MSYS BBS in Adelaide, SA
To connect to VK5SPG or VK5SPG-2 netrom node,
type NODE (in uppercase) then...
C1 VK5SPG or C1 VK5SPG-2
Msgs to the following catagories ('TO' fields) are present:
50MHZ AFARN APRSWX ATV BBS CARS CONTST DEFENC EVENT JOURNA KWOOD MANUAL NEWS OC PACKET SPACE TECH THANKS TST UIVIEW VHF WIA WICEN
To read the messages in a category, use R category
To list the messages in a category, use L category
VK5RG DE VK5BAR
Enter command:
A,B,C,D,G,H,I,J,K,L,M,N,P,R,S,T,U,V,W,X,Y,?,* >
NODE
MSYS K Node in Adelaide, SA. [BBS at VK5BAR]
CONNECTED TO NODE VK5BAR-7(VK5BAR)
Enter command: B,C,H,J,N?
C1 VK5SPG
Attempting to connect to VK5SPG
using Port 1 (UHF)
###LINK MADE
[FBB-7.00g-AB1FHMR$]

continued next page

```
Hello Rob, Welcome to VK5SPG - Adelaide Central LAN BBS (439.050)
Your home BBS is registered as VK5SPG.#ADL.#SA.AUS.OC.
New Messages 185617 - 211283, There are 829 active.
Type ? <return> for help.
Mailbox Menu
B: Bye              C: Conference     D: DOS Area       F: Facilities
K: Kill Mail        L: List Mail      O: Options        R: Read Mail
S: Send Mail        TH: News-Groups   !: System Info    ?: Help
VK5SPG BBS 31>
LL 5
*** : TO Field Filter is set to:- [ * ]
Msg #  Origin  TSD  Size  To     Route   From              - Title -
211283 02-Jul  B$   2031  FACTS  @WW     VK3LCW STRZELECKI
211282 02-Jul  B$   1803  FACTS  @WW     VK3LCW GOULD
211281 02-Jul  B$D  2093  STEAM  @WW     M1ACA 7+ BRINORTH.JPG 8/8
211280 02-Jul  B$   2254  ATV    @VKNET  ZL1ABS AK ATV
                                         proposed STSP Repeater
211279 02-Jul  B$   1626  ATV    @VKNET  ZL1ABS AK ATV email list
Mailbox Menu
B: Bye              C: Conference     D: DOS Area       F: Facilities
K: Kill Mail        L: List Mail      O: Options        R: Read Mail
S: Send Mail        TH: News-Groups   !: System Info    ?: Help
VK5SPG BBS 31>
B
Connected time: 1mn 20s - Bye Rob, Thanks for using VK5SPG BBS
```

What we would do next time!

The project was conceived at the time when PACTOR was overtaking AMTOR for use by High Frequency BBSs. Development of HF digital techniques (with error correction) has been rapid over the last few years, with Clover, G-Tor, and PACTOR II, evolving as significant and faster modes. The construction of Modems for these is not within the ability of "Home Brewers". Consequently, a user would need to spend a lot of money to use these modes. Another problem is that they are "company specific", which means that they may be used only for contacts with stations using the same brand of Modem. PACTOR was included in the hardware from a number of manufacturers, and as mentioned above, software for home construction was available.

The recent higher speed system, developed by the "inventors" of PACTOR, (SCS) has been PACTORII. The modems for this mode operate on the earlier PACTOR as well as PACTORII. The cost of importing one of these modems, plus the purchase of transceivers, Packet Modem, computer, etc. for the project, was questionable, and out of our reach financially.

The SCS Group have now developed a new Modem, PACTORII-e, which has adequate features to establish a BBS, using one of these units in conjunction with a computer. Presently a number of privately used "HF Gateways" are operating using these items. The cost is comparable with that expended on modems and software for this project.

It is possible, subject to the success of the present BBS, that AHARS may consider upgrading this area of the BBS, providing suitable funds are available.

Thanks to:

- AHARS Committee who have supported the project, following the enthusiastic approach of the sub-Committee.
- sub-Committee members, VK5EB, VK5NU, VK5XJT, VK5GMH , VK5RG
- SAPUG support via VK5ZAR
- Potential users VK5KDC, VK5KJJ, VK5AFO, VK5GH, VK5AKE
- Test stations, VK5EV, VK5AFO, VK5EB, VK5RV, VK5ZD
- Software assistance VK5WU, VK5EB, VK5XKN
- SYSOP. VK5EB
- Significant donations, VK5GH, VK5XJT, VK5TY
- Gateway operators who gave encouragement VK5UJ, VK5HB, VK5ATB
- AHARS members and friends who helped the fundraising projects.
- My very lovely wife, Carlein, for her continuing support, and hospitality to all the many visitors.

Documentation

During the construction, extensive effort was spent on ensuring that the documentation was kept up to date. Should it be necessary to hand the management of the project on to another group, little instruction for its maintenance and operation would be required.

It is difficult to imagine how much we rely on photocopier machines to help us assemble such service and installation information!

Bibliography

ETI 730 Tom Moffat (VK7TM) "Electronics Today International" March 1979 to September, 1979

ST6 RTTY Terminal RSGB "teleprinter handbook" 1973, Pages 5.22 to 5.28

PACTOR Modem(Australian) Norm Rosenzweig (VK5ZAH) "http://george.mdt.net.au/~nrosie/pactor.html"

VolksRTTY II: For RTTY,AMTOR and PACTOR Terry Mayhan, (K7SZL), QST, Oct/Nov. 1999

(http://home.att.net/~k7szl/ Home page for construction information.

Kantronics http://www.kantronics.com

MFJ Enterprises http://www.mfjenterprises.com

Terman93. http://www.ife.ee.ethz.ch/~sailer/ham/ham.html#hfterm (check Terman93.zip)

AN93 , Analog Modem, Johan Forrer, (KC7WW) QEX June 1994

BMKMULTY Software, Mike (G4BMK) Email: Mike@bmk.softnet.co.uk

SCS PacCom (PacComII-e) http://www.SCS-PTC.COM

Clover, Fast data on HF Radio CQ May 1992

Comparison Clover and PACTOR CQ February 1994

PACTOR Comparisons: Apples v Oranges? QST May 1996

A Comparison of HF Digital Protocols QST July 1996

Factors in HF-ARQ System Throughput Communications Quarterly" Winter 1996

ar

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Simple Regen Radio

A simple regen radio appeared in QST September 2000 designed by Charles Kitchin N1TEV. The design is for a simple one band design using a handwound coil which should be simple to build. In the USA a printed circuit board is available but ugly construction using point to point wiring with components above a PCB laminate base board should work.

The circuit is shown in Fig 1. The components are standard types and should be easy to find. The Coil is wound on a 35 mm film container or alternatively on a pill container of 25 mm diameter or thereabouts. The coil consists of 13 turns of 22 gauge insulated solid core hook up wire with a tap as shown in Fig 1.

Tuning is accomplished with a variable capacitor of 150 pF or 365 pf as used in many radios. This should be an air dielectric type. These are widely available and are often seen at hamfests. A slow motion or vernier dial would be advantageous. A fine tune facility is shown in Fig 1. in the box in the bottom left hand corner. C15 should be a mica capacitor for this facility. This would help with tuning stations.

An unusual circuit detail is the floating detector made up of C4 and D1. This uses the leakage, or low back resistance, of the 1N34 Germanium diode as the return dc path for the detector.

The receiver should cover 40 metres and some international broadcast bands. It should not be hard to find signals.For AM reception operate just below oscillation. For CW and SSB the regen control should be advanced to allow Q1 to just oscillate. A little practice will soon allow you to find the optimum point.

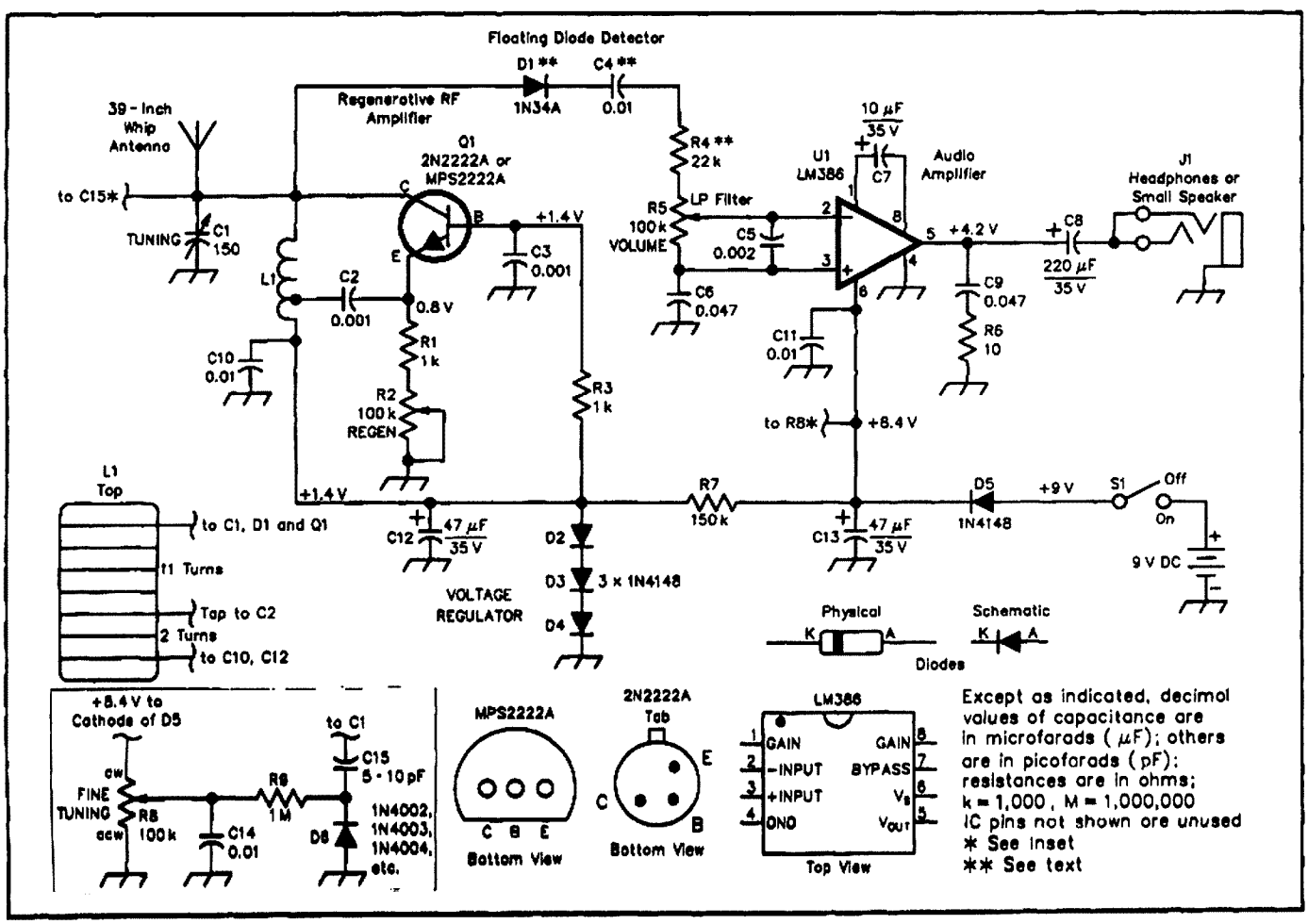


Fig 1. Simple Regenerative Receiver.

DOX Control of Yaesu FT847

An interesting circuit appeared in the Hints and Kinks column of Bob Schetgen KU7G in QST September 2000. The circuit allows data operated control, DOX, of an FT847 for use with PSK31 . The circuit comes from David Smoler AD6KI.

David did not want to tie up a serial port just to drive the transceiver PTT line when operating PSK31. He built up a circuit to interface the sound card in the computer to the Data I/O jack of his FT847. He noticed that the FT847 could be keyed by pulling the data line low with a 22K or lower value resistor. This also disabled the Microphone which was convenient for data operation.

The circuit he built up is shown in Fig 2. He built it into a small metal box. The leads on the PC side are shielded but are only grounded at the PC end. The lead to the transceiver is also shielded but is connected to the case at both the interface and transceiver ends. This important to avoid hum loops. In QST Nov 2000 David noted that the connections shown on J3 in Fig 2 are reversed. You should check this and refer to the FT847 handbook when wiring the connection.

The transformers used in the circuit were obtained from Radio Shack in the USA and may be available locally from Tandy. Alternatively Altronics, DSE, or Jaycar have suitable transformers in their catalogs.

The FET used is a small TO92 case MOSFET. It is listed in the Altronics catalogue and other suppliers have similar devices.

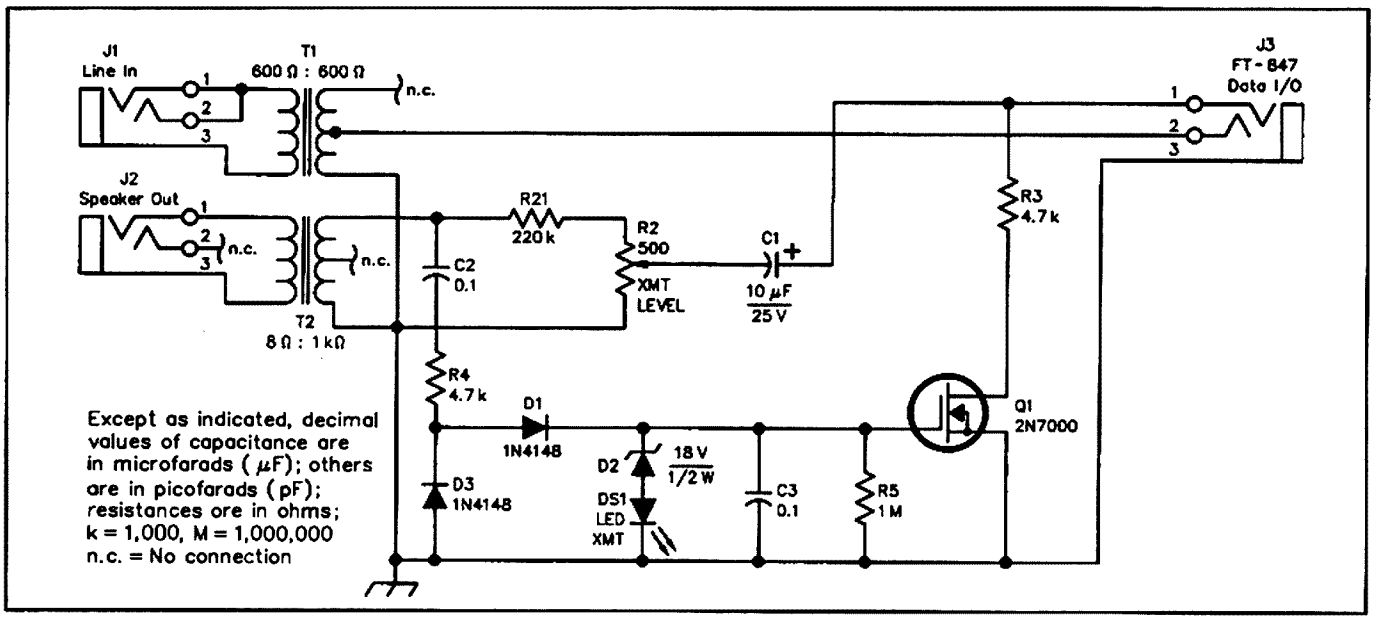


Fig 2. DOX Interface for FT847.

Simple Morse Practice Generator

A simple morse practice generator appeared in the Technical Topics column of Pat Hawker G3VA in the September 2000 Issue of Rad Com. The item originally appeared in Funk Amateur July 2000.

The design is shown in Fig 3. The circuit provides a tone between 450 Hz and 3 kHz as set by R4. A simple shaping circuit is incorporated to improve the keying characteristics. The IC used is the 4093 which is a common CMOS type containing four schmidt NAND gates.

Current drain should be light and a small 9 Volt battery should last a long time.

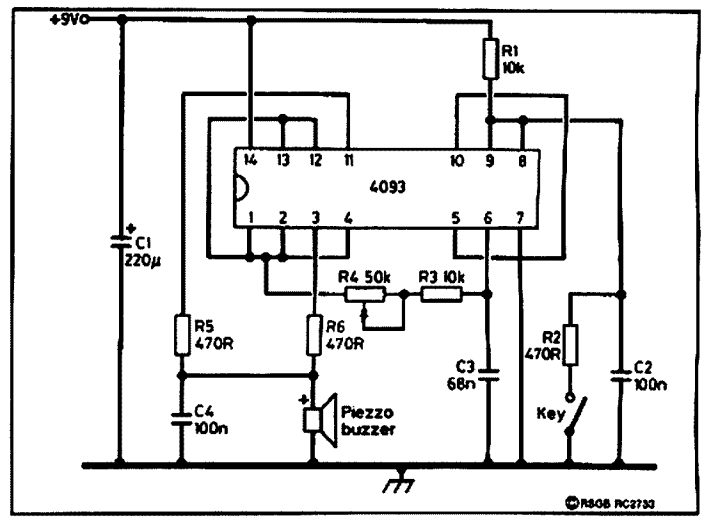


Fig 3. Simple Morse Practice Generator.

DON'T MISS THE ACTION!

Uniden 248CLT Desktop Scanner

Uniden's latest desktop scanner, the new 248CLT not only provides coverage of the VHF and UHF bands, but also covers the local AM and FM broadcast bands! Fully programmable, the 248CLT features a full frequency backlit LCD screen, 50 memory channels, an Alarm Clock function, Scan and Search operation, plus battery-free EEPROM memory backup. Covers 66-88, 137-174, and 406-512MHz, plus 520-1629kHz and 87.5-108MHz broadcast bands. Includes AC adaptor, telescopic VHF/UHF antenna, and detailed instructions. A separate antenna socket is also provided for connection of an external AM broadcast band antenna.

D 2747

$199

Uniden

Sangean ATS-505 Shortwave Receiver

Sangean's latest digital tune model provides coverage of local AM/FM stations, Longwave and Shortwave signals, plus provides SSB tuning for coverage of Ham, commercial and marine signals. Includes 45 memories for easy recall of your favourite stations, and a large backlit LCD screen. Requires 4 x "AA" batteries.

Features:

AM: 522-1710kHz FM: 87.5-108MHz, LW: 153-279kHz SW: 1.711-29.999MHz • Keypad frequency entry, auto-scanning, and manual tuning • Dual time settings • DX/local sensitivity switch • External shortwave antenna socket • Tuning steps: 1kHz/5kHz on SW, 1kHz/9kHz on AM, 50kHz/100kHz on FM • Variable BFO control for SSB reception • 14 SW band divisions • Complete with stereo earphones and carry case.

D 2807

SANGEAN

SAVE $28

$199

Yaesu VR-500 Multi-mode Scanner

The new VR-500 is more than just a scanning receiver, it's more like a miniature high performance monitoring station! Providing almost continuous coverage of the 100kHz to 1300MHz range, the VR-500 includes reception of narrowband FM, wideband FM (for FM and TV broadcast audio), SSB (for Amateur, CB, and HF reception), CW, and AM (for shortwave and broadcast station) signals. A large backlit LCD screen not only displays the receiver operating frequency, but also displays channel steps and reception mode. For monitoring band activity above and below your current listening frequency, the VR-500 even provides a 60 channel Bandscope to display local activity (within a range of 6MHz max when used with 100kHz steps). A total of 1091 memory channels are provided, with 1000 of these being "regular" memories with alpha-numeric tagging, and the balance being for special features (such as Search band memories, Preset channel memories, Dual Watch memories, and a Priority memory channel). A Smart Search™ function, which sweeps a band and finds in-use channels, allows you to allocate up to 41 memories that can automatically note these active frequencies. The VR-500 operates from just 2 x "AA" size alkaline batteries, and can be connected to an external 12V DC source (such as a vehicle cigarette lighter) using the optional E-DC-5 adaptor. For easier operation, the VR-500 can also be connected to your PC using the optional ADMS-3 interface/software package.

D 2799

YAESU

$699

PowerHouse stores

A shopping experience like no other!

Dick Smith PowerHouse stores not only offer an expanded range of those original electronics products that have made our stores famous, but now you can experience the fun of using a wide range of communication equipment in our hands-on demonstration area.

Called the "Ham Shack", each PowerHouse store has a dedicated area where licensed staff can show you the latest Yaesu, Uniden, or Magellan communications and GPS products, as well as an expanded range of accessory lines that may not be available in other stores.

Not involved in Ham Radio? Staff can also advise on the installation of a CB radio for your four-wheel drive vehicle, how to get involved in listening to Shortwave radio stations from around the world, or assist you in the selection of a suitable accessory for an existing piece of equipment. For bushwalking or boating users, you can also find out about the latest in inexpensive satellite based navigation receivers or emergency beacons, or just browse through an extensive selection of communications related books.

The PowerHouse is also the place to go if you simply need a component to finish that weekend project, to buy tools, or just to while away a few hours while checking out our in-store technical books, library CD-ROMs, or our dedicated customer use Internet terminals.

With over 20,000 product lines in the electrical, computer, and communications areas, our new PowerHouse stores get the wavelength right!

2096 DPS sp.col

DON'T MISS THE ACTION!

3-15V 25 Amp DC Power Supply

Our highest performance power supply, with current up to 25 Amps ICAS at 15 Volt, 20 Amps continuous at 13.8 Volts, and lower currents at lower voltages. It also has front panel metering, plus high-current banana-style and low-current output connections for extra flexibility. An internal heatsink and thermally-switched fan provides cooling without protrusions in the metal case (which measures 320 x 150 x 145mm). Don't confuse this power supply with look-alikes, it's been specially modified to DSE specifications for more reliable long-term operation, and uses a rugged 50 Amp bridge rectifier and a trifilar-wound transformer. We've also provided extensive overload protection through dissipation-limiting circuitry for the pass transistors, a 30 Amp instantaneous current limit, quality AC mains circuit breaker, a transformer thermal fuse and fused auxiliary secondary winding.

D 3800

SAVE $50 **$249**

Yaesu FT-90R 2m/70cm micro mobile

Another engineering breakthrough from Yaesu – a tiny-dual band mobile rig with high power output, a remoteable front panel, and a rugged receiver front-end. The FT-90R provides 50W RF output on the 2m band as well as 35W output on the 70cm band, a solid die-cast casing with microprocessor controlled cooling fan for reliable operation, and a large back-lit LCD screen, all in a package measuring just 100mm x 30mm x 138mm.

Also includes:

- Wide dynamic range receiver for greatly reduced pager breakthrough.
- Huge receiver coverage – 100-230, 300-530, 810-999.975MHz (Cellular blocked).
- 180 memories and a variety of scanning functions.
- Built-in CTCSS encode/decode, battery voltage metering.
- Designed for 1200 and 9600 baud packet operation.
- Tiny remoteable front panel (requires optional YSK-90 separation kit)
- Includes MH-42 hand mic, DC power lead, and easy to follow instructions.

D 3312 **2 YEAR WARRANTY**

AMAZING VALUE!

YAESU **$699**

YSK-90 Front Panel Separation Kit **$144**

D 3317

Yaesu FT-840 HF Mobile **ONLY 10 PCS AVAILABLE AT THIS GREAT CLEARANCE PRICE!**

An ideal first rig for home or vehicle use, the economical Yaesu FT-840 covers all HF bands from 160-10m with 100W PEP output, and provides continuous receiver coverage from 100kHz to 30MHz.

The FT-840 provides:

- SSB/CW/AM operation(FM optional)
- 100 memory channels, two independent VFOs per band
- Large back-lit LCD screen, uncluttered front panel
- Effective noise blanker
- Variable mic gain and RF power controls
- SSB speech processor for greater audio punch

2 YEAR WARRANTY

- IF Shift & CW Reverse to fight interference
- Dual Direct Digital Synthesisers for cleaner TX/RX operation
- Compact case size of just 238 x 93 x 243mm(W.H.D.)

D 3275 YAESU

FM module suit FT-840 **$109**

D 2932

SAVE $200 **$1383**

Some units may be shop soiled or missing packaging, but full warranty applies.

PHONE FAX AND MAIL ORDERS

direct link

PHONE: Within Australia: 1300 366 644 (Local call charge)

FAX: (02) 9395 1155 within Australia and (+612) 9395 1155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELECTRONICS, Direct Link, Reply Paid 160, PO Box 321, North Ryde NSW 1670 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected stores only. Other stores can place orders on a deposit-paid basis. Offers expire 28/2/2001. All prices shown are inclusive of GST.

2096 DPS col.

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernie Hosking	VK1LK

VK2 Division News South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Michael Corbin	VK2YC
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue & Thur 0930-1500)
Phone 03 9885 9261
Web: *http://www.tbsa.com.au/~wiavic/*
Fax 03 9885 9298
e-mail: *wiavic@alphalink.com.au*

President	Jim Linton	VK3PC
CEO	Barry Wilton	VK3XV
Secretary	Peter Mill	VK3APO

VK4 Division Queensland
GPO Box 638 Brisbane QLD 4001
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Colin Gladstone	VK4ACG
Secretary	David Jones	VK4OF
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*

President	Jim McLachlan	VK5NB
Secretary	David Minchin	VK5KK
Treasurer	John Butler	VK5NX

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.omen.net.au./~vk6wia/*
e-mail: *vk6wia@omen.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st and 3rd Sunday of the month at 8.00pm. Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $56.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $69.00 Pensioner or student $59.00. Without *Amateur Radio* $38.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $88.00 Pensioner or student $75.00. Without *Amateur Radio* $55.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

Division News

VK2 Notes

By Pat Leeper VK2JPA

Annual General Meeting

The VK2 Annual General Meeting will take place on Saturday 14 April 2001, at Amateur Radio House 109 Wigram Street Parramatta, commencing at 11.00 am.

Nominations for Council and "Motions on Notice" must be received at the office not later than 12 noon on Saturday 3 March 2001. The necessary nomination forms will be available in February from the office.

This is your chance to have a say in the running of this Division. New blood is needed on the Council to pursue aims for the betterment of Amateur radio - to protect our frequencies, and draw younger people to the hobby. The old guard is fading fast; it's time for the new generation to take a hand.

Remember to make your ballot count, by reading the instructions carefully and marking your choices for nine councilors.

We regret to report the resignation of Michael Corbin VK2YC from the positions of President and Federal Councilor due to health and family reasons. He is remaining as a Divisional Councilor so we haven't completely lost his expertise. Michael is retaining the job of Deceased Estates Officer

The Council unanimously elected Terry Davies VK2KDK (photo) as President for the remainder of the term. Terry is another of our country councilors, residing at Moonbi, north of Tamworth.

The Christmas get-together had a disappointing attendance. We were hoping for more members to turn up – we catered for extras, just in case. The event went well, with much eating and talking. Keep this in mind for next year – it's free!

That's it for this month. See you next time.

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

A 2-metre repeater has been established in Boundary Rd, Young (NSW) recently. Sponsored by the ACT Division, the repeater operates with the callsign of VK2RYG on a transmit frequency of 146.775 and receiving on 146.175 MHz.

The township of Young is situated 230 km North -West of Canberra and is surrounded by seven other important townships, all of which have main roads leading to Young, but none of which have an Amateur Radio Club - No club, No repeater.

To overcome this and to provide this important district with a repeater service, the ACT Division agreed to be the sponsor. All costs associated with this sponsorship are recompensed by a handfull of radio amateurs who live in the district. This includes Cowra, Boorowa, Yass, Gundagai, Junee, Tumora, and Grenfell.

All of these townships are covered by the repeater as it is located on top of a Shire Council communications tower which ensures coverage with a minimum range of 80 km. Next time you are driving around the Young district, try the repeater, and let us know how well the area is covered.

For those who want to know the repeater set-up. It is multi-coupled into split TX and RX, double-folded Arrays with large separation on the 75-metre tower.

With a great many thanks to Young Shire Council which allowed the use of their tower, the ACT Division for sponsorship, and to a small bunch of dedicated amateurs including Paul Bell VK1BX, Peter Page VK2APP, and Robert Milliken VK1KRM.

The next general meeting will be held on January 22, 2001 at Room 1, Griffin Centre, Civic. Cheers.

Silent Key

RON DUNNE VK3MEH

Ron was keen on electronics from boyhood in Flinders and during his early adult life he built several small portable radios. Later he built the home amplifier and record player system.

He learnt Morse code as a Scout and built on that foundation as he studied at TAFE in Wantirna in the early seventies. From then on he collected more equipment and enjoyed contacts with numerous other operators. He particularly liked taking the small 'handheld' when we were travelling, making some interesting contacts in the Gippsland and Peninsular areas. On retirement in the mid eighties, he valued increasingly his talks with radio people and when interest waned, due to a long illness, he still liked to listen to ordinary shortwave radio for many hours.

He was a quiet man who valued one to one contacts. Ron died at home in Upwey on May 10, 2000

Heather Dunne.

VK3 Notes

Web site: www.wiavic.org.au Email: wiavic@wiavic.org.au

By Jim Linton VK3PC

Congratulations!

To be heartedly congratulated on his milestone is John Kelleher VK3DP, the WIA Federal Awards Officer, who has begun his 10th year in the voluntary job. A keen DXer himself, John is responsible for the administration of the 11 awards in the WIA awards program including the DXCC and compilation of the Australian DXCC table.

It is understood he was amazed when David McAulay VK3EW arrived recently on appointment to claim his DXCC for all 334 entities (countries).

John was delighted in checking David VK3EW's "full house" of DXCC QSL cards - the only one in VK to achieve this level of DX success. Congratulations to Electric Wireless.

Congratulations to John Martin VK3KWA on his decade of achievement through a combination of roles - chairman of the WIA Federal Technical Advisory Committee, VHF/UHF contest management and VHF/UHF distance records judge.

The average radio amateur would be unaware of the contributions made by John VK3KWA that includes input to WIA policy, the WIA/ACA liaison process, band planning and improvements to the regulations for the Amateur Service in Australia.

This "quiet achiever" has the respect and cooperation of the individual Technical Advisory Committees in each WIA Division, and is able to make the system work for the benefit of us all. Well done John Martin VK3KWA.

There are a number of other VK3's who have made long-term and ongoing voluntary contributions to the WIA.

They include:

David Wardlaw - IARU Vice President, previously WIA senior office bearer

Gil Sones VK3AUI - AR magazine including the position of Editor

Brenda Edmonds VK3KT - Federal Education Officer

Peter Gibson VK3AZL - AR magazine including Technical Editor

John Edmonds VK3AFU - Federal Historian

Ron Fisher VK3OM - AR magazine including equipment reviewer

And congratulations to a pair just starting out on a hopefully long involvement with amateur radio.

Tim Broomhead VK3HTB, 11, and Sam Jackson VK3HXR, 12, are both recent graduates from the EMDRC class conducted by Jonas Sadauskas VK3VF.

Are your details correct?

A recent crosscheck of the WIA Victoria member database found some inconsistencies. If you have changed your callsign please let us know so we can update our records.

The QSL Bureau should be notified separately. Could those who receive AR magazine please check the address label and let us know if it is not accurate.

VK7 Notes

"QRM"

As the year ends the "silly season" takes over in the Tasmanian Institute affairs same as in the TV etc., and all our activities wind down to just the festive celebrations.

The November Sewing circle barbecue at Rosie Vanyan, the QTH of Bill Vk7AAW near Hobart was, as usual, a great success with a host of Amateurs attending from all over the State. The Hobart southern branch held their end of year Barbie at their clubrooms on the Domain , the Launceston northern branch ran a most successful barbecue at Myrtle Park beside the lovely St. Patricks River while the northwest coast branch finished the year with a dinner at Ulverstone with about 30 attending.

The Joan Fudge Award, for service to the north-west branch and issued in memory of our first north-west lady ham who filled the post of Secretary for some years was this year won by Phil Harbeck, VK7PU, for his outstanding work organizing our involvement as the communications group for the Tasmanian car rallies.

Finally the Tassie branch wishes to acknowledge the work of our Federal Executive under the fine leadership of Peter Naish and to wish them, and, indeed all the executives of out State Divisions a very successful 2001 year

Cheers for now

Ron Churcher, VK7RN

Silent Key

Well known DXer becomes a silent key

Amateurs all around the world were shocked with the accidental death of Alan Mills, currently with the call EA7BA and living at Vera in the province of Almaria in Spain.

Alan would have had to be the most well known Spanish Dxer always putting a booming signal out on 14.153 MHz. His logbook recorded hundreds of Australian stations among the tens of thousands logged.

Alan died in mid-November as a result of a motor cycle accident near his home when a car came out of a side road without stopping to check. He never regained consciousness and died 2 hours later.

Alan started his amateur career as GW3NNF in Anglesea, Wales where he was the Chief engineer of a nuclear power station. He designed and built quad antennas as a sideline but following some really bad storms he diverted his attention to Yagis. On retirement he moved to southern Spain and set up his home on the only hill in the area for 5 km. in any direction – if his signal wasn't "10 Over" there was no propagation !.

The writer has spent a week visiting Alan and his dear wife Karla in Spain. Karla seems to be coping well but his demise has left a very silent hole in the amateur spectrum.

From all your friends around Australia – thanks Alan for being there for us.

Ron, VK7RN.

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or
geencee@picknowl.com.au

Novice Winner

Susan, VK7LUV (previously VK4LUV) was so thrilled recently when she received the Keith Howard Trophy for the highest Score by a Novice in the VK Novice Contest 2000 that she suspended all her plans for the day till she had found a suitable place to display the trophy and put it there!

Last year she won the VK7 section of the contest that was a thrill but to win overall was even better.

Well done Susan, you join a select group which includes the current President of ALARA, Bev VK4NBC who has always made the effort to use her Novice licence to the full.

Also

In November Susan received a certificate for her DXCC *on 15 metres* (she could hardly contain herself long enough to find a suitable place on her "brag" wall for it). It is hard enough to gain a DXCC alone, but to get it for just one band and using novice power is an enormous achievement, especially as Susan is also a full time Mum to primary school aged children. Well done, Susan!! Now that Susan is allowed to operate on 20 and 40 metres I expect she will be trying for DXCC on those bands, too. Keep watching to see how soon she makes it!

Two Recent Silent Keys

The news that Brian VK6AI, OM of Bev VK6DE had become a silent key was a shock to the ALARA community. Bev and Brian were well known in the amateur world and on the Travellers' Net. They toured much of Australia and made the ALARAMEETS part of several trips. Bev was the co-ordinator of the MEET in Perth and was one of the VK YLs in Hamilton, NZ and Norfolk Island at which time we were not aware of any problems. Our deepest sympathy is with Bev and her family.

A less sudden SK was the passing of John VK5KX father of Janet VK5NEI. John has been in poor health for some time; nevertheless, he will be sadly missed by his family and friends. Our sympathy to all concerned.

An Early YL Becomes A Silent Key

In November of last year Betty Wallace (nee Geisel) became a SK. Betty was recognised as the first YL in VK5 to hold an amateur licence. She gained her licence in 1936 at the age of 16 and was given VK5YL as her callsign.

Betty built her own transmitters, first with a type 42 valve in an electron-coupled oscillator that produced an output power of 10 watts. Later she built a transmitter that used a 38 Tri-tet crystal oscillator driving a pair of 42s in the final amplifier. This increased her output power to 15 watts.

Her receiver was a two valve regenerative unit with a type 30 in the RF stage and a type 18 in the audio stage. She did build a superhet receiver after she moved to Adelaide to work but the details are missing.

She ran all the equipment from batteries while she was living in Murray Bridge though once she was in the city she used mains power. She even made her own high tension batteries using the carbon electrodes extracted from 'dead' dry cells and fitting them in Marmite jars. The negative electrode was made from a rectangle of zinc amalgamated with mercury and the electrolyte was either sal ammoniac or common salt. In this day and age to go to this much trouble is unimaginable!!

Betty operated mostly on 40 and 80 with some 20 metre contacts and used CW almost exclusively. The aerial was a half wave dipole on 40 metres supported by a 40 foot Oregon pole erected by two local OM amateurs.

Betty worked for National Radio in Adelaide, doing the same work, repairing radios, as the young men sitting beside her but was paid only about half as much, so she changed jobs to work in Gerard and Goodmans radio store where her work and knowledge was more highly valued.

During this time she also gained her First Class Commercial Operators Certificate in 1941 but was told she was unlikely to ever be able to use it as only males were ever employed in the radio rooms on ships at sea !! Both Betty's amateur and commercial certificates were on display in the Telecom Museum

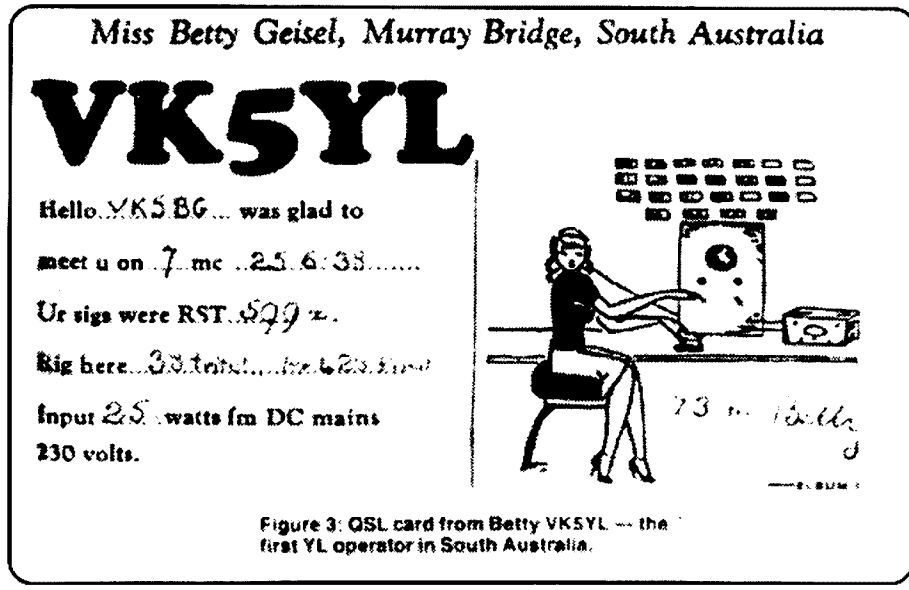


Figure 3: QSL card from Betty VK5YL — the first YL operator in South Australia.

in Adelaide until it closed and are now in storage with all the other historic items.

Betty stopped operating when WW2 came and all amateur radio equipment had to be sealed and by the end of the War she had taken up other interests. She worked for a time as a tracer in the Drawing Office of the Adelaide Electric Supply Company and studied maths and physics at night. Subsequently she got married and later took up teaching.

She continued to live a busy and varied life including bush walking, cycling and hand spinning. She is survived by a husband (Neil) and three grown children and will be missed by her many friends many of whom did not know about her amateur radio interests until they heard about it at her funeral.

My thanks to Lloyd VK5BR and Peter VK5XQ for the above information.

AX9YL Shack

"VK Thrives": Standing — Faith VK5HFC, Jean VK5TSX, Meg VK5YG, Jeanne VK5JQ, Christine VK5CTY and Jean Day VK3/SWL. Seated — Tina VK5TMC and Marilyn VK3DMS

Several years ago ALARA did contact Betty with an invitation to meet some of us for lunch but we did not actually ever get together, however we did make Betty aware that we knew about her and recognised her contribution to the YL amateur radio world.

ALARA Contest Logs

I hope you remembered to send off your logs to Marilyn VK3DMS. Conditions during the day were less than satisfactory but the evening activity on 80 metres was excellent.

Because of the disappointing participation rates over the last few years there may be some changes for next year. Watch this space for details.

YL Awards

In the November issue of AR there was over a page and a half of various awards available for making contact with YLs. Most of these are available to all amateurs and would make interesting talking points when they adorn the 'brag wall' of your shack. Why not keep that copy of AR nearby and aim for the appropriate number of contacts. This could be your project for 2001. Have a go!!

VK5 YL Participation In The AHARS Buy And Sell

Because it happens that most of the VK5 YLs are also members of AHARS the ladies run a food stall at the Buy and Sell. This year we had a number of visitors as well as the regulars of Jean VK5TSX, Tina VK5TMC, Meg VK5YG and Christine VK5CTY with Marilyn VK3DMS (almost a regular, too) and Jean Day also from VK3 and the latest VK5 YL, Faith VK5HFC. A photo was taken, entitled the "VK Thrives" as this is what Marilyn frequently uses, living in Mildura she feels she is geographically closer to VK5 than to VK3!!.

The photos of the Hamilton International were studied with interest. Many of the faces there were recognised from the ALARAMEETS, others were of interest because they have been contacted but never seen before.

ar

AMSAT

Bill Magnusson VK3JT

Phase 3D Successfully Launched

A new era in amateur radio communications was ushered in on November 16, 2000 (UTC) as AMSAT-DL Executive Vice President and P3D Mission Director Peter Guelzow, DB2OS, informed AMSAT News Service that the launch of the Phase 3D satellite from the European Spaceport in Kourou, French Guiana was successful. "It was a textbook launch" said Peter, "from the first minute of flight, until P3D separated from the Ariane 5 launch vehicle, all received telemetry indicates the launch went perfectly and our satellite appears to be in very good health." Launched with three other satellites - the large PAS-1R communications satellite and the smaller STVR-1C and 1D satellites, Phase 3D was placed into geostationary transfer orbit, from where it will be nudged into its final elliptical orbit. The Ariane 5 flight proved to be a record setting mission as it marked the first use of the ASAP-5 platform. The ASAP-5 enables the launcher to carry auxiliary micro and mini satellite payloads.

P3D is the largest amateur radio satellite ever built and launched. AMSAT-NA President Robin Haighton, VE3FRH, welcomed the news of the launch, noting "that the design, building and financing of P3D by international volunteers is a great achievement." Immediate AMSAT-NA past President Keith Baker, KB1SF, told ANS that he was "delighted" by the news of the Phase 3D launch. "Obviously this is a big thrill for all of us who have spent the better part of our lives over the past ten years bringing the satellite to fruition. I have no doubt that today will be regarded as one of the greatest days in the history of amateur radio." AMSAT-NA Board of Directors Chairman Bill Tynan, W3XO said, "I can't begin to tell you how happy I am to see P3D in orbit, as I followed the launch sequence, I thought of the many people who have been involved with this project from the very beginning and how pleased everyone must be to see the reward of such hard work."

Although safely in orbit, there is much work to be done with Phase 3D before the satellite is opened for general amateur radio use. At the time of writing initial housekeeping tasks are underway to verify the health of the many complex systems onboard - followed by bringing these systems online. P3D was placed into a transfer orbit used for geosynchronous satellites. To move P3D from this orbit several motor burns will be necessary using the spacecraft's 400 Newton motor and the 'Arc-jet" motor. When these maneuvers are completed and three-axis stabilization is achieved, the satellite solar panels will then be spread out to receive full sunlight. It is anticipated that at this time the satellite will be fully operational for use by amateur radio operators around the world.

The above information was downloaded from the Amsat News Service (ANS). You can receive regular bulletins from ANS if you have an internet connection. Visit the AMSAT-NA site at www.amsat.org and you can register to receive these bulletins by email.

In accordance with tradition and now that it is in orbit and functioning, Phase 3D has been allocated an "OSCAR" number. It will be known as AMSAT-OSCAR-40 or AO-40. As mentioned above the orbit of AO-40 will undergo almost continuous adjustment for many months. As its services come on line, or if you are wanting to follow its progress through the 400 baud engineering beacon telemetry, it will be necessary to update your keplerian element set as new figures are published. Once AO-40s orbit is finally established it will be very stable and the keps should last for several months without updating. Next month I'll take you through the process of decoding and (hopefully) making sense of the telemetry stream that is so important in monitoring the 'health' of our latest flagship.

"S" Band Beacon Tests on AO-40.

At the time of writing this column the "S" band beacon on AO-40 has been activated and is working very well. The attitude of the spacecraft is being adjusted in preparation for the motor burn to lift AO-40's apogee to 50 000 km. The current attitude means that we are essentially looking at the side of the spacecraft and this is producing some interesting Doppler frequency modulation effects on the 2.4 GHz beacon. The 2.4 GHz antenna is mounted near the outer edge of the spaceframe. The side-on attitude and the current, temporary spin stabilisation of the satellite mean that the 2.4 GHz antenna is alternately moving away from and closer to the observer on the ground. This movement produces a small but noticeable positive and negative Doppler effect. The same effect would be there

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA. 5001.
Graham's email address is: vk5agr@amsat.org

for any of the antennas mounted near the edge of the spaceframe but on 2.4 GHz it is particularly noticeable and even though the 400 baud PSK signal is very strong, this "wobulation" as it is known, makes it difficult to tune in the telemetry beacon. On a recent test I managed to only decode 2 blocks with a positive CRCC OK check out of a half hour or so listening. This compares with the perfect decoding of the 2 metre beacon telemetry blocks. Thankfully this condition will not manifest itself once the satellite is 3-axis stablilised and nadir pointing. But it is certainly an interesting effect. I will be monitoring the 2.4 GHz beacon using a variety of antennas during the next month or two and I'll publish the results in this column.

6 monthly Update of Operational Amateur Radio Satellites

Compiled from information available on the AMSAT News Service.

International Space Station / ARISS

Worldwide packet uplink: 145.990 MHz
Region 1 voice uplink: 145.200 MHz
Region 2/3 voice uplink: 144.490 MHz
Worldwide downlink: 145.800 MHz
TNC callsign RZ3DZR

The ARISS station has been heard and worked in USA and Russia but I have no reports to hand at the time of writing of any VK contacts.

MIR Space Station

145.985 MHz (FM) voice and SSTV (Robot 36 Mode)
Launched: February 18, 1986

Status: Unmanned. All amateur radio gear switched off. It is very unlikely that any further amateur radio operation will take place from MIR. Reports from many sources suggest it may be briefly manned with a 'clean-up' crew early in 2001 prior to ditching the spacecraft in a remote area of the Pacific Ocean sometime in February 2001.

OSCAR 10 AO-10

Uplink 435.030 to 435.180 MHz CW/LSB
Downlink 145.975 to 145.825 MHz CW/USB
Beacon 145.810 MHz (unmodulated carrier)
The old 'war-horse' still surprises with sometimes-excellent signals.
Definitely still worth checking out. With the advent of AO-40, AO-10 may see more activity as people ready their stations for AO-40 operations.

UoSAT OSCAR-11 ... UO-11

Downlink 145.825 MHz FM (1200 baud AFSK)
Mode-S Beacon 2401.500 MHz

Status: Operational. Oscar-11 does not carry any transponders. It's beacons transmit telemetry data which is used by schools and scientific study groups. The 2.4 GHz beacon is an excellent test of "S" mode gear. It is transmitting only a fraction of a watt and quite sensitive gear is needed to hear its signal.

RADIO SPORT ... RS-12

Uplink 21.210 to 21.250 MHz CW/SSB
Uplink 145.910 to 145.950 MHz CW/SSB
Downlink 29.410 to 29.450 MHz CW/SSB
Downlink 145.910 to 145.950 MHz CW/SSB
Beacon 29.408 MHz
Robot Uplink 21.129 MHz
Robot Downlink 29.454 MHz
Status: unconfirmed operation on mode KT or mode T.

RADIO SPORT RS-13

Uplink 21.260 to 21.300 MHz CW/SSB
Downlink 29.460 to 29.500 MHz CW/SSB
Downlink 145.860 to 145.900 MHz CW/SSB
Beacon 145.863 MHz

Still some confusion about exactly which mode this satellite is in. Best advice is to listen for beacon activity and try uplinking and listening for your signal being repeated on either 2m or 10m.

UoSAT OSCAR-14 UO-14

Uplink 145.975 MHz FM
Downlink 435.070 MHz FM
Status: Operational, mode J

I have not received any reports lately but as far as I know this satellite is still operational in FM repeater mode.

RADIO SPORT RS-15

Uplink 145.858 to 145.898 MHz CW/SSB
Downlink 29.354 to 29.394 MHz CW/SSB
Beacon 29.352 MHz (intermittent)
SSB meeting frequency 29.380 MHz (unofficial)

Spasmodic operation. Some activity has been heard in VK.

PACSAT AO-16

Uplink 145.90 145.92 145.94 145.96 MHz FM (using 1200 baud Manchester FSK)
Downlink 437.025 MHz SSB (RC-BPSK 1200 baud PSK)
Mode-S Beacon 2401.1428 MHz not on at present.
Broadcast Callsign: PACSAT-11
BBS Callsign PACSAT-12

Status: Semi-operational. The VHF uplink and the UHF PSK transmitter are operational (TX power at 1.5 watts).

LUSAT LO-19

Uplink 145.84 145.86 145.88 145.90 MHz FM
(using 1200 baud Manchester FSK)
CW downlink 437.125 MHz
Digital downlink 437.150 MHz SSB (RC-BPSK 1200 baud PSK)
Broadcast Callsign LUSAT-11
BBS Callsign LUSAT-12
Status: Semi-operational in beacon mode only. No BBS or transponder are operating.

JAS-1b FO-20

Uplink 145.90 to 146.00 MHz CW/LSB
Downlink 435.80 to 435.90 MHz CW/USB
Status: Operational. FO-20 is in mode JA continuously

Tak JA2PKI, reported the FO-20 control station operators believe that the UVC (Under Voltage Controller) now is regulating the transponder. The UVC monitors battery voltage and tries to protect the batteries from over discharge. Tak notes that FO-20, launched in 1990, is now over 10 years old.0

UOSAT UO-22

Uplink 145.900 or 145.975 MHz FM 9600 baud FSK
Downlink 435.120 MHz FM
Broadcast Callsign UOSAT5-11
BBS Callsign UOSAT5-12
Status: Operational in 9k6 baud digital data mode. Still carrying heaps of SatGate personal mail traffic for the terrestrial packet radio network. UO-22 has been a consistent performer with strong downlink signal and sensitive uplink.

KITSAT KO-23

Uplink 145.900 MHz FM (9600 baud FSK)
Downlink 435.170 MHz FM
Broadcast Callsign HLO1-11
BBS Callsign HLO1-12
Status: Intermittent with the downlink transmitter operating at unpredictable intervals depending on battery condition. KO-23 may be nearing the

end of its useful life. It was for many years a most capable satellite. Its high orbit meant that passes as long as 20 – 25 minute were common. It was for years the satellite-of-choice for most digital satellite operators.

KITSAT KO-25

Uplink 145.980 MHz FM (9600 baud FSK)
Downlink 436.500 MHz FM
Broadcast Callsign HL02-11
BBS Callsign HL02-12
Status: Operational in 9k6 baud digital data mode.

ITAMSAT IO-26

Uplink 145.875 145.900 145.925 145.950 MHz FM (1200 baud)
Downlink 435.822 MHz SSB
Broadcast Callsign ITMSAT1-11
BBS Callsign ITMSAT1-12
Status: Semi-operational, the digipeater function is on and open for APRS users

AMRAD AO-27

Uplink 145.850 MHz FM
Downlink 436.795 MHz FM

I still have no confirmation of this satellite being active in the southern hemisphere.

JAS-2 FO-29

Status: Operational
Voice/CW Mode JA
Uplink 145.90 to 146.00 MHz CW/LSB
Downlink 435.80 to 435.90 MHz CW/USB
Digital Mode JD
Uplink 145.850 145.870 145.910 MHz FM
Downlink 435.910 MHz 1200 baud BPSK or 9600 baud FSK
Callsign 8J1JCS
Digitalker 435.910 MHz

Mode schedule alternates between digital and analogue.

TMSAT-1 TO-31

Uplink 145.925 MHz (9600 baud FSK)
Downlink 436.925 MHz (9600 baud FSK)
Broadcast Callsign: TMSAT1-11
BBS Callsign TMSAT1-12
Status: Operational with many detailed terrain pictures from all round the world.

TECHSAT-1B 00-32

Downlink 435.225 MHz using HDLC telemetry
Status: Semi-operational with efforts underway to bring GO-32 on line. The satellite transmits a 9600-baud burst every 30

PANSAT PO-34

Uplink/downlink frequencies have never been released
Launched: October 30, 1998 by the Shuttle Discovery

Status: Unknown, nothing heard of the fate of this satellite from the Naval Postgraduate School. It was reputed to have spread-spectrum transponders and software was to be developed for radio amateur use. No further news since shortly after launch.

SUNSAT SO-35

Mode J Uplink: 145.825 MHz FM
Mode J Downlink: 436.250 MHz FM
Mode B Uplink: 436.291 MHz FM
Mode B Downlink: 145.825 MHz FM
Status: Operational.

SunSat is currently transmitting a greeting to AO-40:

'Greetings AMSAT OSCAR-40, 73 from SunSat OSCAR-35' The SunSat package includes 1200 and 9600 baud digital store-and-forward capability and a voice 'parrot' repeater system that will be used primarily for educational demonstrations in addition to Mode B/J operation. The satellite has two VHF and two UHF transmit-receive systems.

UoSAT-12 UO-36

Uplink 145.960 MHz (9600 baud FSK)
Downlink 437.025 MHz 437.400 MHz (38k4 baud FSK)
Broadcast Callsign UOSAT12-11
BBS Callsign UOSAT12-12
Status: Operational UO-36 carries a number of imaging payloads, digital store-and-forward communications and mode L/S transponders.

SAUDISAT-1A

Uplink frequency yet to be published.
Downlink 437.075 MHz
Broadcast Callsign SASAT1-11
BBS Callsign SASAT1-12
Status: Commissioning stage, initial housekeeping tasks underway SaudiSat-1A will operate as 9600 baud digital store-and-forward systems as well analog FM repeater mode capability. One of two new ham satellites from the Kingdom of Saudi Arabia built by the Space Research Institute at the King Abdulaziz City for Science and Technology.

SAUDISAT-1B

Uplink frequency yet to be published.
Downlink 436.775 MHz
Broadcast Callsign SASAT2-11
BBS Callsign SASAT2-12
Status: Commissioning stage, initial housekeeping tasks underway SaudiSat-1B will operate as 9600 baud digital store-and-forward systems as well analog FM repeater mode capability. One of two new ham satellites from the Kingdom of Saudi Arabia built by the Space Research Institute at the King Abdulaziz City for Science and Technology.

TIUNGSAT-1

Uplink 145.850 or 145.925 MHz 9600 baud FSK FM
Downlink 437.325 MHz 38k4 baud FSK FM
Broadcast callsign MYSAT3-11
BBS Callsign MYSAT3-12

The 38k4 baud FSK downlink began operating in early December 2000. TiungSat-1 is Malaysia's first micro-satellite and in addition to commercial land and weather imaging payloads offers FM and FSK Amateur Radio communication. Spectacular, highly detailed images from all round the world. This brings to two, the number of amateur radio satellites operating in high speed digital mode. TiungSat-1 and UO-36 may well be the forerunners of amateur radio satellites with even faster downlinks.

Note that SaudiSat-1A, SaudiSat-1B and TIUNGSAT-1 at the time of writing are yet to be allocated "OSCAR" numbers.

DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

In all the rush to get December's 'DX Notes' off to Colwyn I forgot to pass on my Seasons greetings to everyone. I trust that Santa filled your stocking with lots of useful gadgets and hopefully heads were not too fuzzy on the first morning of the 21st century. I hope you all have a safe, healthy and successful year in 2001.

The CQ WW 'DX' CW on the 25th and 26th of November was a great opportunity to work some good DX. I managed to work 12 new countries, 5 on 20m, 1 on 15m and 4 on 10m. The bands were really alive, 10m especially, and conditions seemed to be good. I experienced some local QRN on the Saturday afternoon from a faulty magneto on a neighbours petrol driven brush-cutter (I had a word with him on the Sunday over a beer and we fixed the problem together). I had no intentions of really attempting to enter the contest, but the wealth of stations calling was too much to resist, and the chance to add to my country score could not be passed up. Is the participation rate in, and therefore the relevance of, this contest going to decline in the years ahead due to the 'dumbing down' of the Morse test? Personally, I doubt it. CW seems to be alive and doing particularly well all over the world.

The experts say that the sun-spot cycle has reached its peak, this being the case we should expect some spectacular propagation on the upper HF bands this summer. The 10m band is one of my favourites and I am looking forward to working some good DX. For the last couple of years propagation into Europe in the evening, and the USA in the morning, has been routine. But I would like to work some African or South American stations on 10m or 12m. Planning and perseverance will be called for here. Over the next few months I hope to be able to spend more time on the air so perhaps I will achieve my wish. Hopefully I'll work some of you on the bands.

The DX

5R8FL, MADAGASCAR. Andre has bee heard often using SSB on 20 metres. The best time to catch him is around 0300z. [TNX The Daily DX]

9G, GHANA. A group of Dutch (PA) operators are currently active from the Dormaa-Hospital in Dormaa-Ahenkro, Ghana. The following stations should be active on CW and SSB on 40m, 20m and 15 metres; 9G5. L (QSL via PE1LUC), 9G5WP (QSL via PE1PFN) and 9G5GM (QSL via PA3GGM). Also, look for activity from the club stations 9G1AA and 9G1OO. QSL for both club stations is via PA3ERA. [TNX OPDX Bulletin]

9X, RWANDA. Charlie, N4CT (ex-T5CT, SV0CT, G5BAU, GC5BAU, TJ1AW, K4PHY/ YV5, DL5IX) will be in Kigali from the 12th of January until the 12th of March. He will be working at the US Embassy. He is hoping to find a local amateur who will allow him to operate as a guest while he is there, any info would be greatly appreciated. Charlie can be contacted via E-mail at n4ct@onebox.com

AP, PAKISTAN. Bob, AP2JZB, has been quite active on 12 and 10 metres. He has been complaining to some regarding the apparent lack of activity on the bands. Check 24955 and around 28527 kHz between 1330 and 1430z and if you hear Bob give him a call.

C56, Gambia. Between Christmas and January 5, 2001 Peter, G2YT, expects to be QRV from The Gambia as C56/G2YT. Look for him on 10 through 80 metres on SSB and possibly on PSK31. Ron, G3NKO, also expects to be QRV during this time frame on CW. He has applied for a C56 call. [TNX The Daily DX]

D6, COMOROS (Update to OPDX.486). Josep, EA3BT, sent out another short press release this past weekend requesting input from the DX community on what "bands and modes" he and his wife (Nuria/EA3WL) should be active on from Comoros. Their activity will be from January 13-28th. You can find information on their DXpedition and leave your input on what bands and modes they should operate on at http://www.qsl.net/ea3bt [TNX OPDX]

EA8, Canary Islands. Heijo, DJ1OJ, will be active as EA8/DJ1OJ for a few months. Heijo arrived on Canary Island in mid November and will be active until he leaves Tenerife sometime in March 2001. QSLs should be sent to his home callsign via the bureau. [TNX DJ1OJ and OPDX]

EP, Iran. The club station EP4PTT has been active recently on 28331 kHz and 28341 kHz around 1400 to 1430z. Information provided to "QRZ DX" states that the station is in Shiraz and operated by Hamid/EP3HR and Yar/ EP3SP. QSL route is via c/o Directorate of Telecommunications, Box 11365-931, Tehran, Iran.

EP2MKO. Ali is also very active from Iran and is often found on 30m, 12m and 10m between 1300z and 1500z. He is sometimes on 30m as late as 2330z. If you are lucky enough to manage to work him, QSL is via UA6HCW. [TNX EP3HR and OPDX]

P4, Aruba. Martin, VE3MR will be active as P40MR from Aruba (SA-036) from the 2nd of December through until April 2001. QSL via VE3MR. [TNX The Daily DX and 425 DX News]

SU1HM, Angola. Hossam is back in Angola and expects to be QRV as SU1HM/D2 on 20 metres SSB (no CW) until February 2001. [TNX The Daily DX]

VP5, Turks and Caicos Islands. Donald, KN4UG, will operate as VP5AZ from the 19th to the 30th of January 2001from Providenciales Island and he intends to take part in the 160 Metre CW Contest. All QSLs go to KN4UG: Donald Namm, 103 Birkhaven Drive, Cary, NC 27511. [TNX OPDX]

XT, Burkina Faso. Harold, XT2AW, has been very active on CW on the WARC bands as well as 10 metres recently. He has been heard on 7007, 10106, 14035, 18070, 24902 and 28028 kHz. Most of his activity takes place between 0030 and 0630z. QSL via DF2WO. [TNX OPDX]

YI, Iraq. Two stations have been quite active on 12m and 10m recently. YI9KU has heard on CW operating on 28026 kHz around 1530z (QSL via DL9KU) and Peter, YI9OM, has been heard on 24894 kHz SSB between 1330 and 1430z (QSL via OM6TX).

IOTA Activity

OC - NEW. An Australian team comprising Wally, VK6YS, Dan, VK8AN, Bruce, VK6CX, Nigel, VK6KHD and Jim, an unlicenced member of the team, are planning to operate from Breaksea Island. Operation is scheduled to take place between the 18th/19th until the 22nd/23rd of January 2001. The callsign to be used is VK6BSI. Breaksea Island is classified as a class 'A' reserve and requires the issue of a special permit from the Conservation and Land Management for visitors to the island to go ashore. This is the first time amateur operation has taken place from Breaksea Island and a new IOTA reference number will be issued when operation begins. The island is located at 35 deg 11.334 mins South 118 deg 3.703 mins East, just south of Albany, Western Australia. QSL will be via Alan Roocroft, VK4AAR, PO Box 421, Gatton 4343, Queensland, Australia.

FO0WEG & FO0POM —> SP9FIH and SQ9LR logged more than 15,000 QSOs in 11 days from Tubuai (OC-152, Austral Islands) and some 5,300 QSOs in 4 days from Nuku Hiva (Marquesas Islands, OC-027). They operated barefoot on all bands from 80m to 6m. Antennas used in the operations were with a tribander, a vertical and a 5 element beam for 50 MHz. QSLs are expected to be mailed out at the end of December 2000. QSL via SP9FIH (P.O. Box 480, 44-100 Gliwice, Poland).

ZV7G, Santo Aleixo Island (SA 046). QSL cards for this operation should be sent to either PT7AA or PY7MEU (bureau cards accepted). ZV7G was active from Santo Aleixo Island (SA-046) in September 1999. [TNX PT7WA and OPDX]

Special Events

R1, Antarctica. The "DX News Letter" has been informed that Gennady will be active from the Russian base "Progress" and will be on the air as R1ANP on 14160 kHz between 1500 and 1800z in the near future. [TNX OPDX Bulletin]

DXpeditions

Two Spanish operators, Josep, EA3BTand Nuria (YL), EA3WL, have announced they will be QRV from the Comoros Islands in January 2001. They will be active on 80 through 10 metres using CW, SSB and RTTY. The two plan to have two stations running simultaneously, one for 10, 15 and 20 metres and another on the WARC bands and 40 and 80 metres. Activity by D68BT and D68WL is expected from January 15 to 28. QSL is via EA3BT, Josep Gibert, Collegi, 1 08800 Vilanova I La Geltr£, SPAIN. For more information visit their web page at http://www.qsl.net/ea3bt/Comoros-Introduction.htm. [TNX The Daily DX]

Round up

Validity of the recent operation of BY/R1ANF has been called into question. Apparently Oleg, UA1PBA, was visiting the Chinese Antarctic base 'Great Wall' located in the South Shetlands (King George Island) and not China itself. Alan, BA1DU, has issued a press release stating "According to current radio regulation of China, it is impossible to issue such a BY/ callsign. The authorities never permit foreigners to operate amateur radio stations independently in China, and all holders of Chinese guest amateur radio operating license can only operate under a BY club callsign/guest's home call sign. Although there are no national boundaries in Antarctica, Chinese authorities never permit that callsign operation". If you managed to work this station the QSL address, for what it may be worth, is QSL via RK1PWA: Nick Shapkin, P.O.Box 73, 164744 Amderma, Arkhangelskaja, Russia. [TNX OPDX]

Although the UN forces stationed in Kosovo have been there on duty for over a year there are only two active stations on air at the moment. These are owned by Andy, 4O8/9X0A (RW3AH), and Bojcho, 4N8/LZ1BJ. Another amateur, Paul, G3SEM, has just recently arrived in Kosovo and is awaiting the appropriate licencing paperwork. There are quite a few other amateurs who are stationed in Kosovo but are not QRV, these include Bruno, 5X1A, David, GW0HHT, Bob, KA7FBV, Joe, N5XY, Alfredo, EA1FH/9U5CW and Jean-Pierre, 9U5DX. As yet, the two Club stations, 4N9P and YU8FFG, have not received licensing from UNMIK/KFOR. [TNX The Daily DX]

As the colonial empires of the past dissappear, so do the technologies that helped support them. On the 15th of December 2000, the Radio Agency of The Netherlands celebrated the 50th anniversary of former intercontinental radio reception station "NERA", Nederhorst-den-Berg Radio. The station had been used in conjunction with the Kootwijk transmitter (110km further east) to keep in touch with the Dutch colonies around the world. During the celebrations a special event amateur radio station was set up and operated on the weekend of the 9th and 10th of December. The station was manned and operated by employees of the Radio Agency and the callsigns PC50N and PC50R had been applied for. This is interesting as the callblock 'PC' has never been issued to radio amateurs in the Netherlands before. Activity took place around the clock on CW, SSB and PSK31 on all bands from 160m to 70cm, something for everyone. A special QSL card was printed and will be issued for all contacts and correct SWL reports. QSL cards are to be sent automatically for all QSOs via the bureau. Further information on the event, and information on the role NERA played in Dutch communications, can be had from Ben Witvliet, PA5BW c/o NERA, Radioweg 3, Nederhorst-den-Berg, The Netherlands. E-mails can be sent to the following address, ben.witvliet@rdr.nl

Another 'special' event station on the air last December was EN23RW. This station was to commemorate the final closing down of the Chernobyl Atomic Power Plant. In my opinion, considering the deaths and increased cancer risks inflicted on the Ukrainian population and the contamination of arable land over large areas of Western Europe, the plant should have closed down a long time ago. Be that as it may, a group of Ukrainian operators comprising UX1RY, UX2RV, UY2RA, UY2RO, UR0RR, US5RR, UT0RW and UZ8RR was active using the special call EN23RW. QSL is direct to Andre Arsiyanz UX2RY, P.O. Box 14, Slavutich-3, 07100 Kiev oblast Ukraine.

Sources

All the information above has been gleaned from a number of sources on the Internet and from the following sources. VK6YS and his team, DJ1OJ, EP3HR, PT7WA, The Daily DX, OPDX Bulletin and 425 DX News. We can show our appreciation by getting on the air and working some of these stations. If you do then please let me know who and what you worked so I can use the info in DX Notes. 73.

ar

AR Awards

John Kelleher VK3DP, Federal Awards Officer
4 Brook Crescent, Box Hill South Vic 3128, (03) 9889 8393

Another year has come and gone. It has been exciting, with the addition of new entities, and the country total rising to 334. One outstanding VK operator has produced proof of working all countries on the current DXCC list. That, of course, includes the elusive P5.

Congratulations to David, VK3EW (Electric Wireless to his friends).

On the home front, I have been plagued by applications for DXCC awards listed in alphabetical order of countries. This is in opposition to my earlier fervent requests to list your applications in alphanumeric order by callsign prefix; repeat PREFIX. To explain, as your applications are received, I transfer all data to Master Sheets, which are constructed in PREFIX order. Consider my situation when confronted with a sizable list in alphabetical list by COUNTRY. This latter procedure eats up valuable time, and slows down processing applications from other operators. I do know that logging programmes can be configured to list by prefix.

The fees for WIA Awards were increased to US$10.00 almost twelve months ago, but I am still receiving applications that contain the lesser amount of US$5.00. These fees were increased because postal charges for dispatch of awards far exceeded the former lesser amount. I feel embarrassed to ask for another US$5.00. To help with upgrades to DXCC, please include an SASE with your requests.

My congratulations to our YL operators for their successful expedition to Norfolk Island.!

I am still looking for input from Clubs and organizations that sponsor local awards. This magazine is read by DX operators who are always interested in working a few VK local awards. In fact, I have had correspondence with requests for information on these awards.

Australia - The Zone 29 Award.
Work 25 stations in CQ Zone 29. This includes the VK6 and VK8 call areas. Contacts after Jan 1 1952. No cross-band contacts. Minimum RS/T is 33/8. GCR list and fee of 5 Irc or Aus$2.00 go to Jim Rumble VK6RU, Box F319, Perth WA 6001 Australia.

Belgium - Antwerp CW Series.
General requirements: Fee for each award is 10 Irc or US$5 – No stamps please. GCR list OK. All bands and modes. SWL OK. Apply to:
Jan Van der Auwera ON4NM
Dieseghemlei 87
2640 Mortsel Belgium

Benelux Award
Contact stations in the Benelux countries of Belgium, Netherlands and Luxembourg.

Europeans need 7 ON, 7 PA, 2 LX. Others need 5 ON, 5 PA and 2 LX. Contacts since 1964.

WOSA Award.
Contact stations in the City of Antwerp since 1954. ONs need 12, Europeans need 10,and the rest of the world need 8.

Brazil - CWAS Series.
General requirements: GCR list and fee of 7 Irc or equivalent go to:
CWAS Award Manager
PO Box 27
88001 Florianopolis SC
Brazil.

Worldwide QRP Award.
Make CW contact using less than 10 watts to the antenna. 50 QSOs with at least 5 countries, including your own country. Contacts since May 1 1987.

Canada - Birthplace of Canada Award.
Contact 3 VE1's in Prince Edward Island after Jan 1 1967. VE1's or VO1-2 need 6 DX outside North America need 2. Charlottetown, PEI is where the Canadian founding fathers assembled to join the provinces and territories under one flag and united the country. All HF bands may be used. GCR list and US$3.00 or 6 Ircs go to:
Wiltshire DX Association
PO Box 2494
Charlottetown PEI
Canada C1A 8C2

England - Rabbit Award.
I am told that "Rabbit" is slang for talking for a long time, similar to the better known "Ragchew" or "Rattle". To earn this award, make one (hopefully more) QSO of at least 15 minutes duration with another amateur. Hello and goodbye contacts are too common today, and the sponsor wishes to encourage the opposite. Any band or mode will do the trick. GCR list and fee of US$5.00 or 10 Irc to:
Roger Betts G0TRB
15 Cleasby
Tamworth Staffs
England. B77 4JL

Estonia - Estonia Award.
Contact ES stations since Jun 1 1990. All modes and bands. SWL OK.

European Requirements:
1. HF 20 ES in 5 call areas. Endorsements 50 or 100 different.
2. VHF 10 ES in 5 Locator districts
3. UHF 5 ES on 70cm
4. SHF 3 ES on 23cm and above.
5. 6M 10 ES in 5 Locator districts.
6. Satellite 5 ES by amateur satellite.

DX Requirements:
1. HF 10 ES. Endorsements for 50 or 100.

4-4 as above. For 2 ES above 144 MHz.

5. 6M 5 ES
6. Satellite 3 ES.
7. SWLs, use EU rules above.

GCR list and US$5.00 for basic award. Additional sticker endorsements are US$2.00. Apply to:
EARUE
PO Box 125
EE- 0090 Tallinn
Estonia.

Malaysia - All Malaysia Award.
Work 10 9M2, one 9M6 and one 9M8 after Aug 31 1957. Endorsements available for any combination of band or mode. SWL OK. GCR list and fee of US$5.00 go to:
Marts Award manager
Eshee Razak 9M2FK
PO Box 13
10700 Penang
Malaysia.

I thank you sincerely for requesting some of the above. Keep your requests coming.

Best regards es 73 de John, VK3DP

ar

Contests

Contest Calendar January – March 2001

Jan	1	ARRL Straight Key Night	(CW)	
Jan	6/7	ARRL RTTY Roundup (Digital)		
Jan	13/14	Summer UHF/VHF Contest		(Dec 00)
Jan	12-14	Japan International DX Contest Low-bands		
Jan	14	Ross Hull Memorial Contest last day		
Jan	20	LZ Open Contest	(CW)	
Jan	21	HA DX Contest	(CW)	
Jan	26-28	CQ WW 160 Metres Contest	(CW)	
Jan	27/28	REF (France) DX Contest	(CW)	(Dec 00)
Jan	27/28	UBA DX Contest	(SSB)	
Feb	_	Mexican RTTY Contest	(RTTY)	
Feb	10/11	WW RTTY WPX Contest	(RTTY)	
Feb	10/11	PACC Contest	(CW/SSB)	
Feb	10	Asia-Pacific Stprint	(CW)	
Feb	10/11	RSGB 160 Metres Contest	(CW)	
Feb	17/18	ARRL DX Contest	(CW)	
Feb	23-25	CQ WW 160 Metres Contest	(SSB)	
Feb	24/25	REF (France) DX Contest	(SSB)	(Dec 00)
Feb	24/25	UBA DX Contest	(CW)	
Feb	24/25	RSGB 7 KHz Contest	(CW)	
Feb	25	High Speed Club Contest (	CW)	
Mar	—	ARRL DX Contest	(SSB)	
Mar	10/11	RSGB Commonwealth Contest	(CW)	
Mar	10/11	World-Wide Locator Contest	(CW/SSB)	
Mar	17/18	John Moyle Field Day Contest	(All modes)	
Mar	17/18	Russian DX Contest	(CW/SSB)	
Mar	17/18	Bermuda WW Contest	(CW/SSB)	
Mar	17/18	DARC HF SSTV Contest		
Mar	24/25	CQ WW WPX Contest	(SSB)	

Results CQ WW DX CW Contest 1999

Australia only (Call\band\score)

VK2IA	All	2,312,019	
VK8AV	All	1,372,572	
VK4EMM	20	704,184	
VK5GN	80	21,960	
VK7WB	All	119,658	(Op. W6FA)
VK4XW	All	5,616	
VK4ICU	10	170,746	
VK4TT	20	33,894	
VK2BNG	20	28,194	
VK3TZ	80	12,095	

Results ANARTS WW RTTY Contest 2000

From Colin VK2CTD, Contest Manager

(Australia only. Place\call\score\award)

3	AX2000	21,558,600	1st VK2
5	VK4UC	16,195,020	1st VK4
11	VK6GOM	8,929,998	1st VK6
71	VK2SG	1,257,360	2nd VK2
129	VK2BQS	348,950	3rd VK2

Repeater Link

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
VK6UU@VK6BBR
will2@iinet.net.au

420 MHz Gone!

It has been a real wake up call that secondary status on any amateur band is becoming very tenuous. With the news, as at time of writing, that the 420 to 430 MHz band looks like no longer being an amateur band. We are left with real problems on how to link voice and data systems. Many systems are linked on the 420 and or 440 MHz. In VK6 this frequency separation of 20 MHz made it easy to operate link systems using these two frequencies bands in close proximity. One of our systems operates into the same aerial, with just the addition of two cavity filters to diplex the transceivers together. Now what do we do? UHF transceivers are easy to obtain and modify. This has formed the backbone of linking voice and data systems together. Now, even with a major reshape of the 70-centimetre band plan, it is not going to be that easy anymore. Added to this LIPD's on some of our repeater inputs and suddenly the 70-centimetre band no longer looks so attractive for linking. However this could be but the beginning. The complete 70-centimetre band is secondary, meaning we could lose 440 to 450 MHz. Perhaps all that "protects" 430 to 440 MHz is the satellite allocation.

I have difficulty in knowing whether to be outraged as an amateur or accepting as a consumer of modern communications needs. We use all manner of non-amateur spectrum from mobile phones to television, broadcast radio, Internet, computer radio links, and soon to be digital television. The list is a long one; there are just so many new uses for spectrum. We as amateurs sit on a lot, or at least we hoped we did, but we are secondary uses on all UHF and above frequencies, right up to 24 GHz where we have primary status. That means one day we may have very little UHF and above spectrum. We have all known why we had access to so much UHF and above frequencies, no one else wanted them! This is changing rapidly.

In my work situation spectrum limitations cause problems as well. All our 7 GHz microwave links had to shift frequency to 8 GHz due to frequency re-allocation. The 2.5 GHz electronic news gathering band is over crowded with only 8 frequencies to be shared between all television stations in Australia. This resulted in the ABC, for example, having two 2.5 GHz frequencies, one of which is of limited use as it is the closest of the eight frequencies to the microwave oven band, centered on 2,450 GHz. Microwave ovens drift a bit in frequency and cause considerable interference to 2,477 GHz. Consultation with the ACA has been unable to find any alternatives, as there is just no more room in the 2.5 GHz allocation.

When it comes to running a business or starting a new one reliant on spectrum, pressure placed on the ACA or via Government could be considerable. A proposal to generate new facilities, jobs and money has a momentum that is difficult to stop. It would be interesting to know just what the percentages are of spectrum used by broadcasting, mobile phones, commercial communications, data, the list is very long, and amateur. Of the entire spectrum available just how much do we have access to? Not the large chunks above 24 GHz that few want at the moment but spectrum that can be put to use. Perhaps we need to really find out just how much we have access to, as it is easy to make assumptions.

Primary

It looks a bit gloomy for us amateurs as we have little tenure on secondary bands. If someone wants to use them for better mobile phones or what ever we probably won't even be consulted until after the event, as has happened with the 420 to 430 MHz band. There has been a call to gain primary status for some of our UHF and above bands. This started me thinking, what does primary mean. All I could come up with is interference protection. I asked the opinion of the VK6 WIA council just what does primary mean, and we all were at a loss. Even if we are able to move up to primary status on some UHF bands would that make much of a difference if big business wanted that band?

Where to?

What I find difficult is to know is how much investment in time, effort and money in installing repeater link systems is worth while, if they could loose their frequency assignments just like that. There is no certainty in life but it does make it harder spending considerable time installing repeater and link systems with the now real threat of much of the effort being wasted. We can engineer around many of these problems but what I have found frustrating is the limitations regulations place on amateurs. There may well be an engineering solution but the current regulations prevent such an idea. Changing these regulations takes a great deal of time.

The WIA have been working hard to maintain the 420 MHz band but the bottom line is, it is not our band. It was only "ours" till someone else wanted it and was prepared to pay for it. In my opinion making a lot of protest about the loss is not productive. We can express our disappointment to the ACA via the WIA. If we did not know before, we know now, that many of our UHF bands are on appro until someone wants them.

ar

Spotlight on SWLing

Robin L. Harwood VK7RH

The Digital Arrival of the 21st Century

Well another year has commenced and did you notice that some stations said that the 21st. Century has officially arrived now? What will happen during this year will be more experimental tests of the *Digital Radio Mondiale* format. Some broadcasters have been running tests on behalf of the DRM consortium in analogue and the digital platform. Usually they commence in the standard modulation mode with announcements in various European languages with snippets of various musical styles. After about five minutes they switch over to DRM and presumably the identical format to gauge the difference between analogue and digital modulation. Apparently the preliminary results are very impressive, particularly on shortwave. I believe there are samples on the web.

Digital Tests

I came across my first DRM test broadcast on the 5th of December on 17875 kHz at 2230z. It was probably from either Pori in Finland or Germany. I did not hear any station identification although both are currently conducting tests. Another group of tests is underway in the Russian Federation but these are not regularly scheduled. Apparently the Shepparton senders of RA may not be DRM compatible. DRM will also be employed on the domestic broadcasting allocations and will make a difference on the MW band. The drawback is that no DRM receivers are yet commercially available although the standard has been universally accepted.

There was a European standard known as Eureka 147 and test broadcasts were commenced on the FM bands there, but because few commercial receivers were manufactured, these were phased out once agreement was reached on the worldwide DRM format. Yet I stress that regular DRM broadcasting has not commenced although agreement has been reached at the Broadcasting and manufacturing level. I believe that 2003 may be a date depending very much on the ready availability of suitable receivers.

On November 8th, millions of listeners and viewers tuned in to see whom the next President of the United States would be. Usually the result comes out after the various state results are known and the media made a prediction that George Bush had won the pivotal state of Florida around 0530z, only to retract it an hour later. Not content with making one booboo, they again announced that George Bush had won the race and that challenger Al Gore had conceded around 0800z only to find out again there was a dispute over the voting totals, which had Vice President Gore retract his concession. As we now know the result was a cliffhanger and was finally resolved through the Courts a month after the election was held.

On the 8th, The VOA in Washington had an array of frequencies at their disposal but had not counted on such a dramatic anticlimax, necessitating some juggling of frequencies and transmitters. Interesting also was the reaction outside of the US to the Presidential election. Many nations have been roundly criticized over the VOA for their questionable election practices and they were pouring scorn on the Americans for getting themselves in a muddle over the logjam. Some commentators even suggested that they send their election "experts" who have conducted polls with 99.9% turnout with results of a similar amount for one candidate to show the people of Florida how to conduct an election!

The next President will be inaugurated on the 20th of January at 1600z and this will be broadcast live over the VOA.

The Slot Machine

I have recently come across a new undefined mode within the maritime allocations, which we have called the Slot Machine because it sounds similar to one. We cannot work out what it is doing but speculation is rife. The station is on two frequencies in the 8 MHz allocation and also on 6 MHz. Hugh Stegman in California and I have definitely narrowed it down to the Pacific or North Asia. I thought it was located in Hawaii yet Hugh favours Asia. We also though that the signals originated from an identical location but a Queensland listener is noting that they have different signal levels and are fading in at different times although close in frequency. This indicates that there are two separate locations.

The frequencies are as follows: 8703 and 8590 and 6449 and 6419 kHz, fading in here at 0900z. We have not been able to find them on any other channels.

The choice of maritime allocations does seem to point out it could be either navigational or a new communication mode.

I gave my Father an automatic door opener for Christmas and he is very pleased to have it, because he doesn't have to leave his car. However I was staggered to discover that it operates on 433.92 MHz! So far the door hasn't opened by itself from any 70 cm operator. Apparently the manufacturer previously was allocated 319 MHz but changed after a visit of an American aircraft carrier to Hobart. They had electronics running on that channel, rendering auto garage devices useless whilst the carrier was in port. The first channel allocated in the initial stages was on 27 MHz and because of the proliferation of CB, a higher allocation was hastily found.

Well that is all for this issue. Keep listening and 73 – Robin L. Harwood VK7RH

ar

Pounding Brass

S.P. Smith VK2SPS
4/6 Taranto Rd
Marsfield NSW 2122
(H) 02 9876 8264
(M) 0419 602 520

What they did in the Olden Days

A technical look at early American hand keys and mainline relays and sounders.

Most American keys can be easily recognized due to their low operating profile, about 90% of these had metal extensions projecting from an oval shaped base. The metal extension at the front of the key i.e. -closest to the operator, passed through the base and was insulated from it by a hard rubber bushing, mounted on top of this was the 'Anvil' a cone shaped cap which carried a small platinum contact. Above the anvil was the 'Hammer' a small projecting contact also made of platinum which was fixed to the underside of the lever, the lever is supported at its trunnion by two set screws.

A circuit closure was provided on all keys, it was pivoted at one end of the base at the rear and could be held in position at the other ie the front by the use of a small flat strip of metal extending out a small distance from the cap. Telegraph circuits were operated as a series of closed circuit loops. Shorting switches or circuit closure were always kept closed except when actually sending messages, the line was always under test with this arrangement. The operating lever and circuit closure were fitted with hard rubber to protect the operator from operating voltages and currents that were always present.

The Lever contained two set screws, to the rear of the lever was a small metal extension which when set by the operator moved the platinum contacts closer or further apart as required, the other set screw at the front was fitted with a metal spring which set lever pressure.

Brass contacts were first used in early telegraph keys then later changed to platinum. The reason being - each time the telegraph circuit was opened a small spark occurred at the point of opening. This soon became oxidized and non-conducting, some operators filed the contacts which gave temporary relief, further filing reduced the contacts even more and in some cases the key had to be replaced at the expense of the operator. Platinum being much more durable and virtually non-oxidizable was to replace brass contacts.

The standard telegraph key were Bunnell, Steiner and Victor Key.

An important point to note here is that the above-mentioned keys were sometimes called "Leg Keys". Suitable holes were drilled into the operators desk to make room for the keys metal extensions, wing nuts held the key along with wire terminals fast to the under part of the operators table.

Mainline Sounders and Mainline Relays

Large centres commonly called 'Relay Offices', were the terminal points for dozens of smaller branch lines which covered a particular part of the country. A small office having a message for a station on its own wire could call that station directly and send its message. Otherwise, the message was sent to the relay office, which then retransmitted it on another line to the desired branch station.

Mainline relays were wound to 150 ohms - two types were encountered. In the first type the armature was part of the lever while in the second type the armature is a separate piece of soft iron, carried by a brass lever. The main object of relays were to 'relay' or repeat' the signals passing over the mainline to the sounders.

Other Sounders Used

Pocket Relays: Used for line testing, these were placed directly into the mainline.

Pony Relays: Were similar to Pocket Relays but smaller in size mostly used on private lines.

Box Relays: Same as the mainline relay except that a square or oblong wooden box covers the coils. This increases the sound of the signals and makes them clearly perceptible without the aid of a sounder. The operator could connect sounders if required.

Hope to have some great pictures on these in the next issue.

Hope to catch you on air soon.

73 Steve Smith VK2SPS

ar

VHF-UHF AN EXPANDING WORLD

David K Minchin VK5KK
Postal: PO Box 789 Salisbury South Australia 5108
E-mail: tecknolt@arcom.com.au Web page: http://www.ozemail.com.au/~tecknolt
Fax: +61 8 82346396 Phone: 0403368066
All times are in UTC

Tropo DX across the Tasman Sea

Here we are at the end of December and the first two-way contacts on 144 MHz, from VK5 to VK6 Albany, have yet to occur! The 144.567 MHz beacon has been heard a few times from Albany but no contacts as yet! Atleast the eastern seaboard has done a little better!!

Alan Johnson, VK2DXE reports ...."This evening 21/12 at around 07.35Z I worked Nick, ZL1IU at 5x2 both ways....the first ZL contact for the season. I subsequently phoned Gordon VK2ZAB, who phoned Guy VK2KU. They both worked Nick shortly after. Several other stations in the Sydney area, including Bob VK2TG and Gerry VK2APG at Kiama came up a short time later, although I'm not sure if they made contacts. Conditions down the coast from Sydney seem to be extremely good" ...Alan Johnson VK2DXE

The following is an extract from Neil VK2EI, Port Macquarie, logbook. 22/12/2000 0553 ZL1IU 5 1 4/5 1 Nick Okaihau. 0605 ZL1IU 5 2 5 2. 1820 I monitor the Auckland TV Ch9 video on 210.25MHz and 1st heard S1. Only audible for hour or so and not heard again! 1825-1943 ZL3MHB Greymouth Bcn peaking to S1. 1845 ZL2TAL 4/5 1 5 2 Ray New Plymouth. 2013 ZL2TAL 5 1 5 1. 2330-2359 ZL1VHF Auckland Bcn peaking to S2. 2349 ZL3NE 5 2/3 55 Bob Auckland

On 23/12/2000, 0000-0625 ZL1VHF Auckland Bcn peaking to S2 at times. 0136 ZL1IU 5 4/5 5 _. 0200 ZL1IU working VK4IC 0300 ZL2TAL went portable to an altitude of 1000m (we believe) and not heard again. In retrospect maybe he should have gone down to sea level, as I didn't hear the New Plymouth Bcn at 150m ASL? 0350 ZL3NE 5 1 5 3. 0500 ZL3NE 53 44. 0502 ZL1IU 5 2/5 5 2/4. 0536 ZL1IU 55 55. During the above period both ZL1IU and ZL3NE heard numerous times. 925 ZL1IU working VK4IC. 1937 ZL1IU 5 1 4 1. 2020 ZL1VHF 3 1 masked by sun noise at sunrise

On 24/12/2000. 0901-0930! ZL1IU 5 1/4 5 1/4 never missed a word. 0930-1000 ZL1IU working VK4's copiable all the time. Nick also worked Chris VK4DFE for the first time. Chris's beam is fixed South and was able to work Nick off the side. Nick was good copy right up to the time he finally went to bed! Bill VK2ZCV contacted ZL1IU on 24th. His QTH is lower and further inland than mine running 100W to his portable 6 el yagi. His signals were approx. 3 S points weaker than mine ...Neil VK2EI

Doug VK4OE reports ... "Reading late last night about the news of the Trans-Tasman duct, I woke early and set up portable on Mt Coot-tha near Brisbane. I had gear for 144, 432, 1296, and 10368 MHz (with great hopes!) but only 144 MHz was used. At 17:35 UTC, on 24/12/2000 (05:30 local, uncommon for me!) I made immediate contact with Nick ZL1IU with good signals up to a meter reading of S-7 (that's really 'loud and clear'!) and there was a distinctive long slow QSB with five to seven minute cycles. No other ZL stations were audible at the time."

"The very interesting thing that Nick told me was that he had been hearing the VK4RTT beacon during the 'wee small hours of the morning' (does that fellow ever sleep?!) and that at the time of our QSO he could still hear it weakly. The VK4RTT beacon is about 150Km inland NW of Brisbane, admittedly on a pretty good hill. A contact to there would mean a significant path extension....over land as well!" ... Doug VK4OE

On 24/12/2000 Sporadic E was also reported. Chas VK3BRZ reports..." We got a good sporadic-E opening from VK3 to VK4 this afternoon (Sunday) 24/12. My first contact was VK4OE at 0237UTC and the last one was VK4TZL at 0341UTC. Other stations worked were VK4KK, VK4AML, VK6ZWZ/4 (did not get his QTH), VK4IC and VK4DMI. Several other VK3s indulged in the DX. Among them were VK3XPD, VK3KEG, VK3DUQ and VK3UM." ... Chas VK3BRZ

Calling South Africa on 144 MHz?

Jim Linton, VK3PC, reports ... "Mike Bosch, ZS2FM has told the South African Radio League that Western Australian amateurs have suggested that radio amateurs in the Republic of South Africa listen for their VK6RBU beacon on 144,560 MHz located in Perth. This beacon radiates a 100 W ERP FSK horizontally polarised signal to South Africa. It has already been heard over a distance of 6 000 km. They feel that the best time for Tropo propagation over the Indian Ocean would be at night between about 20:00 and 01:00 UTC during the peak months of December, January and February."

"VK6 amateurs have requested that we also transmit beacon signals to Australia. Therefore, the Port Elizabeth Amateur Radio Society is redirecting the beam of their ZS2VHF beacon on 144,415 MHz to Perth as from now till February 2001. More Trans-Indian Ocean tests will be conducted from Port Elizabeth by transmitting high power CW signals on 144,250 MHz to Perth at night between 20:00 and 22:00 UTC during January and February 2001." ... VK3PC. While I know more than one person has expressed some doubt as to what was actually heard in ZS from VK6RBU, the above has been published to raise awareness.

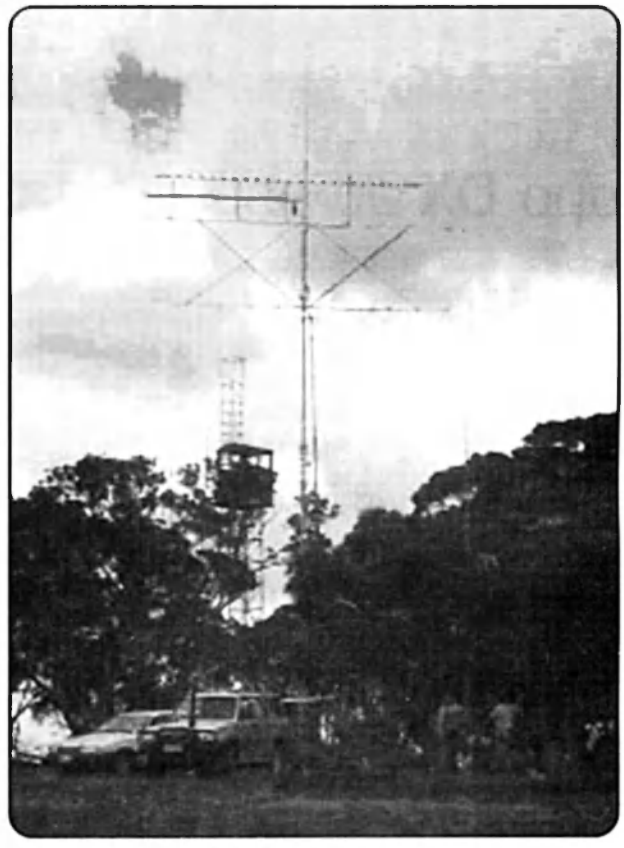
Spring Field Day 2000

Jim VK3AEF has sent in some photos (next page) of his portable station taken near Yanac, Victoria on the 4th & 5th of November 2000. The number of stations worked by VK3AEF/P, QF03, was 6m-11, 2m-61, 70cm-26 & 23cm-3.

Spring Field Day 2000

Bill VK3SWD, Jim VK3AEF, Rex-SWL, Bruce Local farmer & Lionel VK3BUN

Rotation Gear. Box Foreground Voltage Reg & Direction relays



VK3AEF/P QF03 Site. CFA Tower at rear

Airport Beacons as 2M Sporadic Es indicators

The following from Ron Cook, VK3AFW, should be of interest to all those tracking Summer Es on 144 MHz ... "Traditionally we have E's on 2m some time in November and again around Boxing Day with other openings occurring into February. Arie, VK3AMZ, used to monitor aircraft frequencies to detect MUF rising above 100 MHz and was calling on 2m as the band opened. The Flight Information Service (FIS) transmissions at major airports provide a continuous AM transmission in the 110 to 135 MHz range. They run maybe 100 watts to a vertical antenna and so make a great E's beacon. Because of the polarisation they are less useful for Tropo and aircraft enhancement tests. Apart from the continuous transmissions, they identify frequently thus allowing a positive ID."

Here is a list of frequencies at listed locations that are worth monitoring. The listing gives the airport and the FIS frequencies in MHz.

Adelaide	116.4 134.5
Albury	115.6
Alice Springs	115.9
Brisbane	113.2 125.5
Canberra	116.7 128.0
Darwin	112.4
Launceston	112.6
Melbourne	114.1 132.7
Perth	113.7 123.8
Sydney	115.4 127.6
Tamworth	116.0 123.8
Townsville	114.1 122.0
Wynyard	115.8

These frequencies are believed to be correct, however, any corrections or additions will be appreciated. There are many other frequencies in use at other airports, however, they are not run 24 hours a day." ... Ron VK3AFW

KH6 on 50 MHz again after 53 years!

Clarry Castle, VK5KL, Enfield, SA has written to say ... "Thought you might like to know that after 53 years I have again worked KH6 on 50 MHz. Wednesday 6th of December 2000, at 350Z the KH6 Beacon was audible. Tuning to 50.110 MHz there was KH6SX calling CQ and I made QSO at 0352Z 589/559. The band was not open to anywhere else this week other than VK8RAS being in 9/12/2000" ... Clarry VK5KL. The last time Clarry worked KH6 was during August 1947, as VK5KL in Darwin, to W7ACS/KH6 via the yet to be discovered "TEP" mode. The distance, 8533km, was for some time the world record on 50 MHz!

Steve VK5AIM, Elizabeth, SA reports JA's on 50 MHz on 12/12/2000. 12/12 0354Z JA8CAR 53, 0415Z JA8NAE 58-9, 0443Z JH1UUT 59, 0500Z JE7YNQ 59. Steve has reported various other 50 MHz openings via Sporadic Es to other states but little overseas DX.

MICROWAVE PRIMER PART EIGHT: Getting RF to the Antenna

A lot of what follows, while applied to 10 GHz, is relevant to all allocations from 1.2 – 24 GHz. What was going to be just a few paragraphs has turned into a full Part on its own!

Two basic methods exist, transmission lines, e.g. Coaxial cables and propagating guides, e.g. Waveguide. Both are relevant

at 10 GHz. Below 10 GHz coaxial lines become more usable. Above 10 GHz waveguide is almost mandatory except for the short lengths. Two limiting factors come in force when considering coaxial lines at 10 GHz and above. The first one is the loss factor. Coax loss increases with frequency, at approximately the square root of the ratio of change in frequency. Good quality double shielded RG214 coax typically has a loss of around 1.2 db per metre at 10 GHz! I won't mention cheap RG58 losses as it varies when you bend it!

To decrease losses you would normally employ larger diameter coax but this is where the second limitation kicks in, coax does have an upper cut-of frequency. Put simply the diameter of coax can become large enough in terms of wavelength such that the coax can transmit energy in the same manner as waveguide. The coax no longer will efficiently propagate RF energy via the centre conductor. As a consequence it doesn't look like 50 ohms and will start to get funny resonances and losses. RG214 is only usable to 13 GHz. Popular Andrews Heliax™ LDF4/50 to 8.8 GHz ... although it can be used, after a fashion, on 10 GHz. Smaller hard-line like the common 3.5mm dia UT141 is rated to 26 GHz. Its loss at 10 GHz is around 1.5 db per metre. The best coax found so far, by the author, for use at 10 GHz is Belden 9913 or Times Microwave LMR400. Both are "RG213" sized cables and exhibit approximately 0.7db loss per metre. In summary coax is only used over short distances and when there is no alternative!

Waveguide is a more satisfactory alternative for transmitting Microwave RF over short to medium distances. Waveguide is dimensioned to enable TE11 mode wave propagation in the direction of the progressive wave front. Waveguide can be either round our rectangular, see further for the limitations on "Round" waveguide. Waveguide of a particular dimension will usually work over a near octave range in frequency, for 10 GHz you can use WR112 (WG15), WR90 (WG16), WR75 (WG17) and even WR62 (WG18) waveguide at a pinch! WR90 is the most commonly used for 10 GHz. The WR number is a US classification for waveguide, the number represents the largest dimension in 1/100ths of an inch i.e. WR90 is 90/100 or 0.9" across. The smaller side dimension is nominally 45% of the larger side dimension i.e. for WR90 that is 0.4". The WG number is the equivalent UK classification.

Waveguide is typically made from copper, brass or aluminum section. Its chief limitation is its need for mechanical plumbing and moisture exclusion. Flexible "Oval shaped" waveguide is also commercially available for complete feeders as well as short flexible couplings. It is not cheap and the availability of anything but short (600mm) lengths of the right size is almost non existent.

Round and Rectangular waveguide is used as the basis of many 10 GHz Antennae or feeds. E.g., the round "Coffee" can feeds used on lower microwaves are simply made from round section that is "waveguide" at the wanted frequency. Horn type feeds alternatively use rectangular waveguide with a four sided "Pyramid" horn

A _ wave element placed in a waveguide with some basic matching will convert a coax line to waveguide and vice a versa. The actual dimension of the _ is about 4/5ths of that in free space as the velocity of propagation in waveguide is about 80%. Circular waveguide is an alternative to rectangular waveguide. Infact plain 20mm copper water pipe is a good size for use 10 GHz.

The chief disadvantage, previously hinted at, of circular vs rectangular waveguide is the ambiguity of polarisation. A rectangular section will preserve polarisation by nature of the TE11 cutoff of the smaller dimension. A circular waveguide has no point of polarisation fixing and polarisation angle can change whenever a bend or turn is introduced. While this may be of no concern for a circular polarised system it is for plain polarisation! Various methods can be employed to stabilise polarisation, e.g. by squashing the pipe to an oval shape at both ends and introducing some matching. This squash has to be in keeping with the expected polarity orientation. Inevitably the actual loss of the feedline will suffer if this isn't done correctly. Don't be discouraged for using copper pipe; just be aware of its correct application.

Having discussed both methods of Transmission media, it should be apparent that no simple answer exists to connect a shack-based transverter to an antenna mounted on a rotatable section of a tower. There are a number of answers, all which end up involving some amount of RF equipment being mounted at the antenna. I have settled on good quality Coax (RG214) with a PA & pre-amp mounted up the mast with +20 db excess gain in both directions to overcome cable losses. If you want to run that big 50W TWTA then you have little choice but to employ waveguide of some description.

For portable operation it is a lot simpler, typically an antenna transmission media is 1metre or less in length. According to the design of the feed, which inevitably is a waveguide-based design, the media may be partly or almost entirely made of waveguide fed with a small _ launcher and minimal UT141 coax.

Next month, Finally 10 GHz Antennae will be covered!! Other areas to be covered, in future Issues include Part 10 24 GHz and a Part 11 covering 2.4 GHz & 5.7 GHz wireless LAN cards. Part 12 will conclude the series with Microwave ATV.

IN CLOSING

VHF Communications Magazine Subscriptions, for 2001 are now due. VHF Communications is largely based on the German language publication UKW Berichte, with most articles being translated from the same magazine. Subjects cover VHF to Microwave applications. The content of the magazine is over 90% articles with little other additives! Four issues a year are published. The magazine has now completed a full year under Andy Barter G8ATD, the new publisher. In my opinion, Andy has lifted the quality and content of the magazine progressively over the year.

For the Y2001 the WIA SA division will be again handling distribution for VHF Communications. This year we will be offering Airmail only subscriptions at A$55-00. This is a reduced price over Y2000 negotiated with the publisher to help boost VK circulation in spite of the current exchange rate woes. Closing date for subscriptions is 15/02/2001. all cheques should be made payable to the WIA SA & NT Division Inc. GPO Box 1234, Adelaide, SA, 5001. For further information, please email me at tecknolt@arcom.com.au

Thats it for the first column of the 21st century, I'll leave you with this thought. ... "Blessed is the person who is too busy to worry during the daytime and too sleepy to worry at night"

Till next month

73's David VK5KK

ar

Amateur Radio Index 2000

Amateur Radio Index 2000

Amateur Radio Index 2000

Amateur Radio Index 2000

HF Predictions

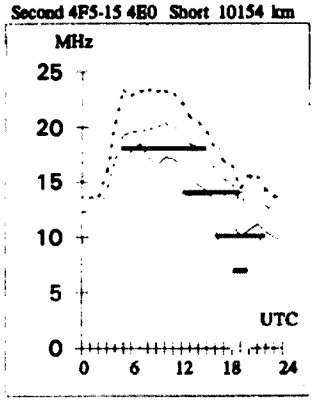
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

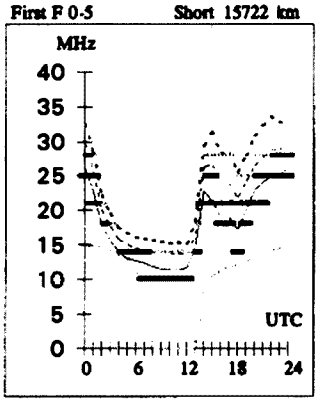
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

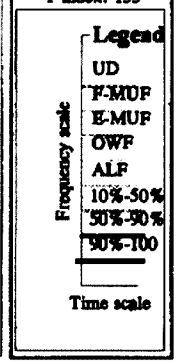
Adelaide-Capetown 226
Second 4F5-15 4E0 Short 10154 km



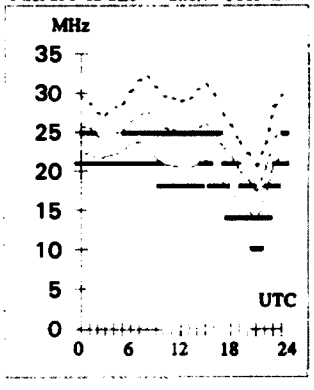
Brisbane-Boston 56
First F 0-5 Short 15722 km



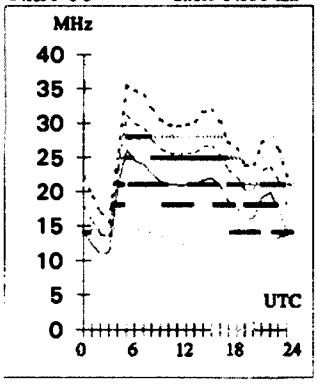
January 2001
T index: 133



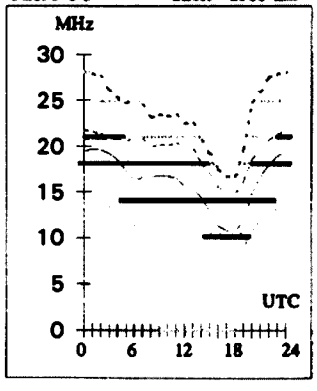
Adelaide-Manila 338
First 2F3-12 2E0 Short 5813 km



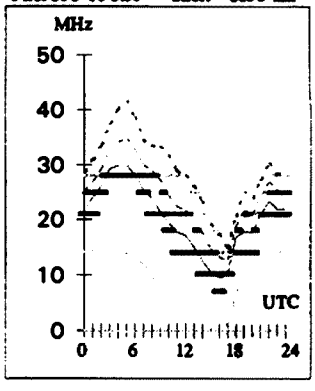
Brisbane-Cairo 288
First F 0-5 Short 14391 km



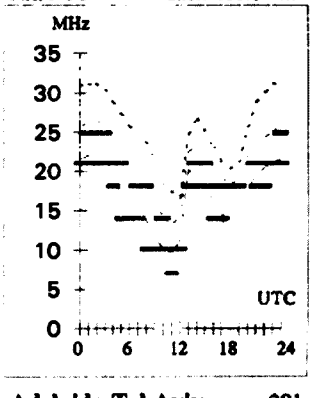
Canberra-Auckland 102
First F 0-5 Short 2300 km



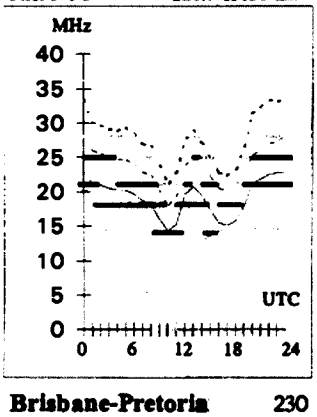
Darwin-Honolulu 65
First 3F3-11 3E0 Short 8636 km



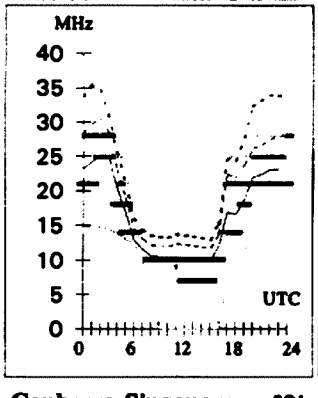
Adelaide-Miami 95
First F 0-5 Short 16175 km



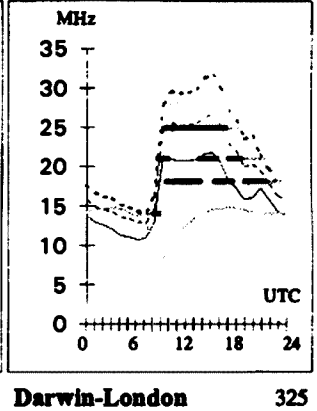
Brisbane-Lima 122
First F 0-5 Short 13056 km



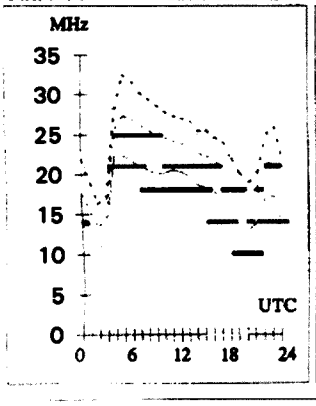
Canberra-Seattle 48
First F 0-5 Short 12709 km



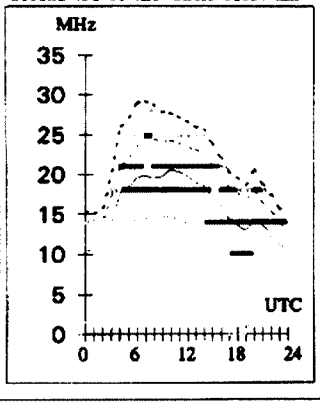
Darwin-London 145
First F 0-5 Long 2617 km



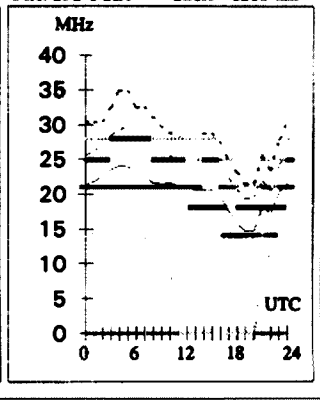
Adelaide-Tel Aviv 291
First F 0-5 Short 13126 km



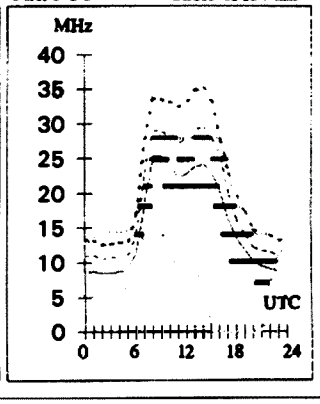
Brisbane-Pretoria 230
Second 4F3-10 4E0 Short 11657 km



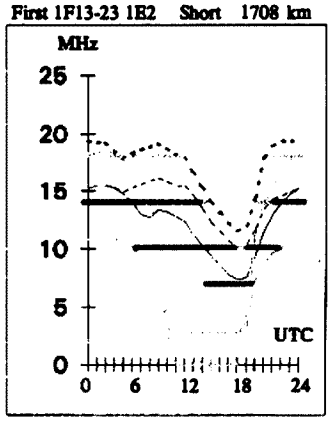
Canberra-Singapore 301
First 2F2-8 2E0 Short 6211 km



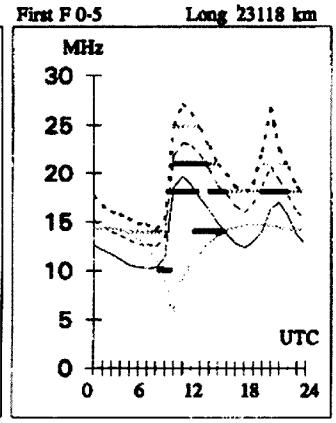
Darwin-London 325
First F 0-5 Short 13854 km



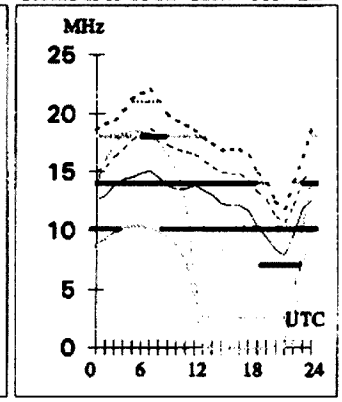
Hobart-Invercargil 111
First 1F13-23 1E2 Short 1708 km



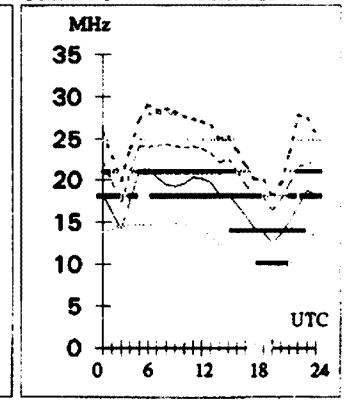
Melbourne-London 131
First F 0-5 Long 23118 km



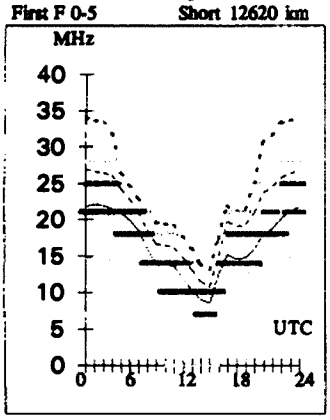
Perth-Jakarta 340
Second 2F15-26 2E Short 3017 km



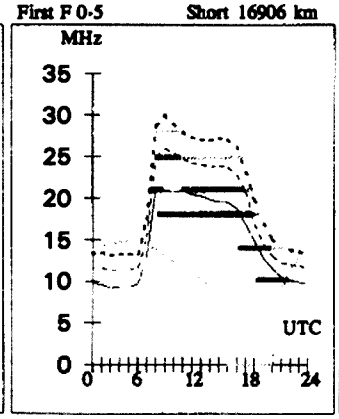
Sydney-Nairobi 255
First F 0-5 Short 12147 km



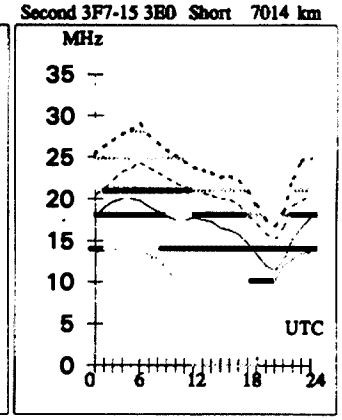
Hobart-Los Angeles 66
First F 0-5 Short 12620 km



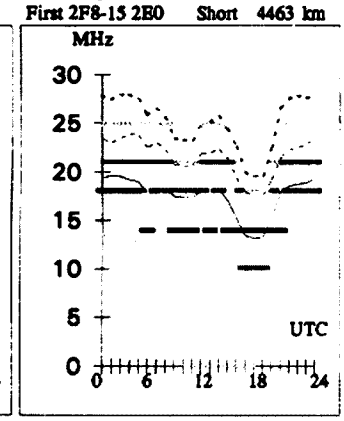
Melbourne-London 311
First F 0-5 Short 16906 km



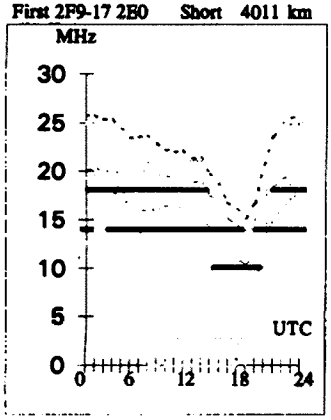
Perth-Kiribati 72
Second 3F7-15 3E0 Short 7014 km



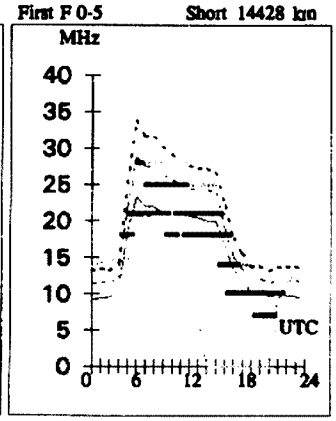
Sydney-Samoa 71
First 2F8-15 2E0 Short 4463 km



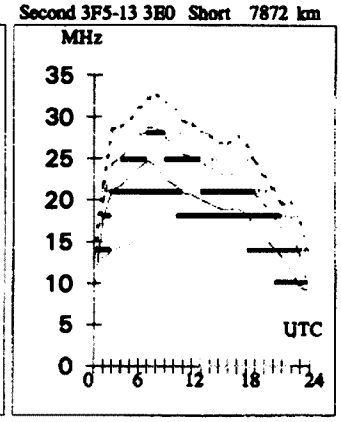
Hobart-Suva 56
First 2F9-17 2E0 Short 4011 km



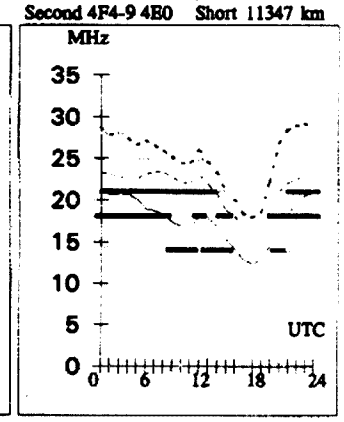
Melbourne-Moscow 316
First F 0-5 Short 14428 km



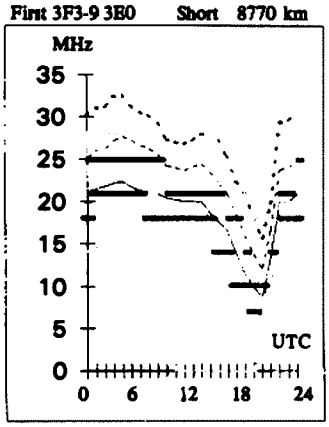
Perth-New Delhi 325
Second 3F5-13 3E0 Short 7872 km



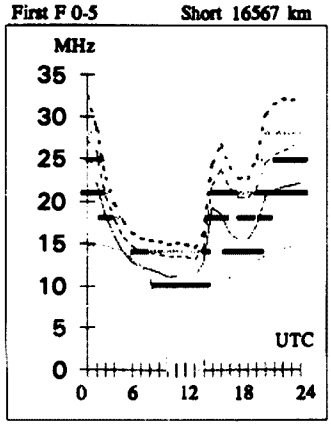
Sydney-Santiago 145
Second 4F4-9 4E0 Short 11347 km



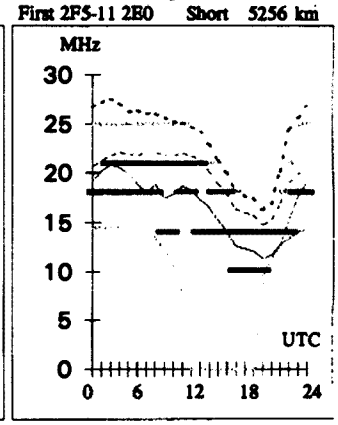
Hobart-Tokyo 354
First 3F3-9 3E0 Short 8770 km



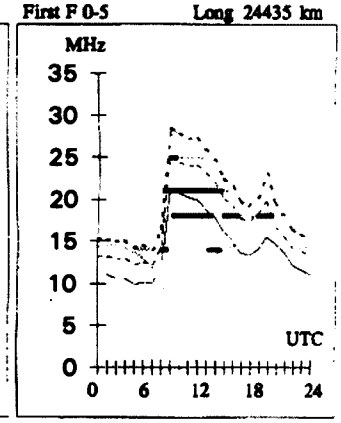
Melbourne-Ottawa 63
First F 0-5 Short 16567 km



Perth-Wellington 119
First 2F5-11 2E0 Short 5256 km



Sydney-Warsaw 133
First F 0-5 Long 24435 km



HAMADS

- Hamads may be submitted on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) If you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*
E-mail: *newsl@webtime.com.au (Fax: t.b.a.)*

Please send your Hamad by ONE method only

FOR SALE NSW

• 50 watt dummy loads made by Ericsson "N" connector $10 weigh 1kg. Packed postage VK $6-$9. Can deliver Wyong Field Day Goulburn Amateur Radio Society. Ring David, VK2BDT, 02 4821 5036

WANTED - NSW

• Wanted a screwdriver type mobile antenna and mobile linear must be more than 300 watt and all bands. Tommy, VK2IR, Phone 0413 00 55 11 or email tommy@ircommunications.net

• Mobile Linear 350 watt or more wanted. Tommy, VK2IR, 0413005511 OR 95024111, Email tommy@ircommunications.net

• PLL unit for Kenwood TS-180S part number X60 1120 00 also transistors type 2SC 460B. David, VK2IX, 02 4751 6124

• 80m + 2m sniffers, 3mz + 4brg Type units for convention events. Contact B J Slarke Ph 02 6655 1115, email bjslarke@midcoast.com.au VK2ZCQ

FOR SALE - VIC

• Pro 39 programmable scanner 68-960 MHz, with case $175. Mick, VK3MSA, Ph. 03 9808 9039, email mickd@alphalink.com.au

• UHF block M67728 class A.B 70 watt new unused $165. Stan, VK3SE, Ph. 03 5332 2340

• Tower wind up (25' to 45') tilt-over, complete with winches. H/duty rotator fixed to tower. Tet 3 element mini beam. All good condition. Moved house, must sell, make me an offer. Bob, VK3CF, 03 9361 3242

• One Kenwood TM431A 35 watt 70cm FM transceiver. One Kenwood TM241A 45 watt 2 metre ditto. Both at $300. Serial nrs 0021721 & 503130. 2 only 2 way Daiwa antenna C/O switches $10 ea. One 20 amp peak fully metered power supply regulated to 13.8 volts. Over volt protected. Will adequately power any 100 watt or more HF rig. Has built in 5" speaker $180. One only 6 metre transceiver 36 Channel serial no. PL45441 from Plessy $50. 1 only Yaesu freq meter (5 digit) model YC3550. Range 35MHz to 200MHz Price $25. All items in first class working order. VK3IP, QTHR.

• Estate Ron VK3PRJ. ICOM IC735 HF.tcvr matching power supply. Checked by ICOM, $795. Contact Bill, VK3PH, QTHR, 03 5330 1466

WANTED - VIC

• IAMBIC paddle. Meanwhile am up proverbial creek without a paddle. Graham, VK3IY, 03 5967 1210.

• Wanted please, a circuit diagram and any service information on a Marconi FM Signal Generator type TF006. All photocopy and mailing costs covered. VK3BNC, QTHR, terrill@giant.net.au

• Good home for amateur radio journal 1990-2000. David, VK3DNG, QTHR, 03 9859 4698. Email roddada@rvib2.rvib.org.au

WANTED - QLD

• Eddystone communications receiver model No. 680, also WWII type 3 mark II (B2), and type A mark III, suitcase transmitter receiver. Ray, VK4FH. The military radio collector Ph. 07 3299 3819 Fax 07 3299 3821 P.O. Box 5263, Daisy Hill Qld 4127

FOR SALE - SA

• Amateur and CB radio shack clean out. All must be sold. Send S.A.S.E for info. VK5MAP Paul, QTHR or 08 8651 2398

• Yaesu FT 212 RH 2 metre base transceiver mint cond with books, sn 15108119, $300, also two valves believed for Type 3 Mk 2 war time British transceiver, 5YLVA and Mullard EL32, offers. Bob Clifton, VK5QJ, 08 8379 1845

• Yaesu FT-290R (Mk 1) 2m all-mode transceiver with Mutek low noise front end, carry case, NiCd batteries, rubber duckie antenna, power supply/charger, in "as new" condition. S/N 1L081279, $325. Ivan, VK5QV QTHR, 08 8725 5514, Email ieh@dove.net.au

WANTED - SA

• Operators handbook or photocopy for Nokia 1600 mobile phone. "Someone must have one". VK5MAP, Paul, 08 651 2398 or QTHR

• Heathkit QRP transceivers type HW-7 and HW-9, Malcolm Haskard, VK5BA, QTHR Phone 08 8280 7192, email malcolm.haskard@unisa.edu.au

MISCELLANEOUS

• If you got your licence before 1975, you are invited to join the Radio Amateurs Old Timers Club. A $2.50 joining fee plus $8.00 for one year or $15.00 for two years gets you two interesting Journals a year plus good fellowship. Arthur Evans VK3VQ or Allan Doble VK3AMD can supply application forms. Both are QTHR in any Call Book

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

• **AMIDON FERROMAGNETIC CORES:**

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports

Agencies at: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra

• WEATHER FAX programs for IBM XT/ATs *** "RADFAXZ" $35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M. Delahunty, 42 Villers St, New Farm QLD 4005. Ph 07 358 2785.

NEW ADDRESS for HAMADS
Newsletters Unlimited
PO Box 431, Monbulk Vic 3793
email: *newsl@webtime.com.au*
(Fax: t.b.a.)

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

Contests

I would like to respond to the remarks by VK6TQ about congestion in the bands during contests.

In last years CQWW contest the leading station made over ten thousand QSOs, over 4000 of these were on ten meters. Is Kim seriously suggesting that these thousands of amateurs should give up their fun so he can operate on a clear frequency whenever he wants. Lets get rid of some of the inaccuracy in his letter. Contests do not close down the bands on every weekend as implied by his use of the word "constantly". Yes, there are contests on nearly every weekend but only a few attract so much activity that they take over the bands. For SSB the big contests are CQWW (Oct), CQWPX(March), ARRL(March-only for band openings to USA) For CW they are CQWW(Nov), CQWPX(May), ARRL(Feb-only for USA) All mode IARU(July) and 28MHz specific ARRL10(Dec - both modes) For the ten meter phone operator there are 5 weekends in each year and for the CW operator there are 5 weekends each year where it could legitimately be claimed that it was difficult to find a clear frequency. Other contests vary in their impact but most are regional like our own VK/ZL so that they do not populate whole band segments. Anyone having trouble operating on the bands during these should look to their own operating skills rather than asking everyone else to make way for them.

I wonder who anointed Kim's operations as the only "legitimate" use of the bands! There is only one form of operation that takes precedence and demands a clear frequency from everyone and that is emergency traffic. Everyone else is equal. The ragchew is no more important or legitimate than the contest QSO. The DX net holds no precedence over the technical test of a new mode.

We are all licensed equally to transmit and receive on the amateur bands. If I choose to operate on a few weekends a year and make contest QSOs why should my operation make way for the operations of VK6TQ? Why is he more important than I? Does he pay more in license fees? Has he been granted special privileges for a QRM free operation? Of course not.

Contests do not have to justify their use of the bands beyond the fact that thousands of hams choose to do it, and the numbers are growing each year. If there were a need to justify band usage I have no doubt that contesting would easily outscore ragchewing as a good use of the bands. Populating the bands, technical excellence, propagation studies, computer interfacing and control systems, antenna developments are all part and parcel of contests.

Contest free zones already exist as all of the WARC bands are kept contest free. The ARRL 10 meter tried the concept on 28MHz but it failed because firstly it was just an empty band, nobody used it; and secondly it meant that LU novices were unable to take part in the contest. Whatever band segment chosen would always result in someone loosing out.

I suggest that Kim looks at the contest calendar and keeps off for the five weekends a year that he will be frustrated. Of course, he could join in. He might just find that it is fun and in one weekend he has worked more DX and finds out more about ten meter propagation than in any one year to date.

73

Martin Luther VK5GN
Email luther@mail.mdt.net.au

The comment in the "Contests" column that the RST should be dropped has provoked me to write this. *What is a Contest?* It is a test of skill and the end results are judged on ability to read/hear the call and report sent to you correctly.

A letter or figure wrong in your log can cause havoc to your final score. In worldwide contests such as the IARU, you have to read the call, RST and zone correctly. In our own VK/ZL we have to log the call, RST and serial number correctly. That is part of the skill. The other parts of the skill include the ability to hear and read very weak stations, or select one of say five stations calling you, correctly. You need to know which band you should be on at a given time and to know what direction your antenna should be pointing, short path or long path. Personally I would like to see contest reports expanded to include more ciphers such as perhaps the operators age, number of years licensed, etc.

The Europian Contest requires a length of ciphers referencing previous QSOs. A simple misreading of these causes points to be lost. For those that use computer logging, such as myself, when a station sends 579 instead of 599, it means attention on the keyboard. If I just recorded 599 and not 579, I am deemed to lose points with a good contest examiner that has complete cross log checking facilities. So, keep the RST, but send a honest report and get those hot shots, big scoring contesters, to think and not just sit back and record calls and serial numbers.

Now to those who complain about contests cluttering up the bands.

Firstly, there is not a contest every weekend that affects us in Australia. In fact probably only 6 weekends of the year effect both CW and the Phone Sections. There is plenty of spectrum for everyone. No one amateur owns a frequency, or band. Perhaps we should remind the whingers that Amateur Radio is a fraternity, where understanding and tolerance is a major part of the mandate. If contests upset you for say 25 days of the year, surely those who are not participating would be prepared to offer this time to those interested in contests. It leaves 340 days for the non-contester

to have the bands all to themselves. If you cannot tolerate this, I would respectfully suggest you try CB or the internet chat lines.

Next time you hear a worldwide contest, test your own skills. See how many countries you can contact in say two hours, or even try for a DXCC. If it's the ARRL contest, see how long it takes you to log every U.S. State. (In fact Contest organisers could encourage more activity if they offered awards for these achievements).

Whatever you feel about contests, *be tolerant*. It costs nothing and shows that you are a worthy and understanding member of our great fraternity.

David A. Pilley VK2AYD
(50 years plus as a Radio Amateur).

USE IT or LOSE IT

"Use it or lose it" is a phrase that gets bandied around from time to time. Treated as a cliche, the reaction usually is something like 'yes, probably true. Someone had better get on and use it'.

The recent writings on CW have been of great interest to me as a CW operator; but the fact is there is NOTHING to be gained by wanting things from the past kept automatically - EVER.

The Amateur is supposed to be progressive, but are we progressive now as we used to be? Can we be innovative in current technological developments, or has industry now done all the research and left us nowhere to go?

If the latter is now a fact of life, can we wonder that Radio Conferences would think of removing our bands? What can Amateurs do to extend knowledge and earn the right to stay on the bands?

In the meantime, use what we have or lose it!

Ian VK3VP

Why is Morse necessary for HF Licensing?

It seems to me that the pro Morse test lobby are missing the point. Surely the question is whether it is still necessary for Amateurs to have to prove a proficiency in Morse code before being licenced for the HF bands.

What is the purpose in having a Morse test as a requirement for HF licensing?

Most of the arguments for the retention of the Morse test do not address this question. We are all familiar with the arguments, so I won't repeat them here, but they are arguments in favour of using CW in preference to other modes. These arguments are, for the most part, quite valid in promoting the benefits of using CW, but this does not translate into a logical reason for forcing Amateurs who wish to use HF, but have no interest in CW, to learn Morse code.

Morse code was a necessary skill when Amateurs shared the HF bands with commercial CW stations. Amateurs were required to be able to understand CW from commercial stations so that they could change frequency or shut down if they were likely to cause interference to the commercial station. This skill is no longer an essential requirement.

The Amateur Radio exams should be designed to allow as many interested persons as possible to obtain a licence but at the same time be sufficiently demanding to ensure that candidates have a good understanding of the regulations and of basic radio theory. These exams should be designed to minimise poor operating practices which may result in interference to other Amateurs or, more importantly from the licencing authorities point of view, to commercial users. I suggest that the present theory and regulations exams achieve this aim. Being able to use Morse code is not relevant when assessing a candidates ability to use a transceiver in a responsible manner on the HF band, or any other band for that matter.

At present a limited licence allows an Amateur to use any band above 30MHz but not below. Why? It does not make sense. Are limited licence holders who work DX on 6 metres incapable of working DX on 20 metres? Is there something mysteriously complex about an HF radio that only a Morse code trained operator can handle? Obviously not.

There are suggestions that the Morse test be replaced by some other test, proficiency in Packet Radio for example. Surely this would be another unnecessary and arbitrary hurdle for those prospective Amateurs who may have no interest in Packet Radio or computers.

I have no doubt that CW is a very rewarding mode for those that use it regularly and that it will continue to be used by the CW fans whether the Morse code test is dropped or not, but it is time that we made it possible for newcomers to sit an exam which is based solely on their technical ability to operate a station. This really is the only purpose of an exam, to ensure that Amateurs have a basic knowledge sufficient to prevent interference to other spectrum users. Any additional testing is irrelevant and undesirable as it can only damage Amateur Radio in the long term.

Despite comments to the contrary by some pro Morse hams, Amateur Radio is in decline around the world. It is vital that our bands are used by as many Amateurs as possible and that we encourage newcomers into the hobby. The alternative is all too clear.

Geoff Skinner VK4XUK

Diesel Engine Interference

I wonder if any other amateurs who go HF mobile buy diesel-engine vehicles because they are quiet electrically. As well as an interest in HF mobile, I also investigate interference for various groups, which necessitates using HF and VHF radio receiving equipment while mobile. I cannot use noise blankers as this would blank the interference out.

I bought a diesel engine vehicle and much to my horror discovered that it had ignition interference. How can a diesel engine have ignition interference? It can't but with the latest electronic fuel injection on some diesel engines the electrical pulse applied to the injector has such a steep fronted wave form that it does in fact cause interference, right from broadcast band through to VHF. So bad in my case that a filter was fitted under warranty to reduce the interference on the broadcast band. This was largely successful on the broadcast band but S9 interference on HF still.

The manufacturers are not interested in dealing with this problem, so I'm largely on my own. It will be overcome but it will be quite a bit of work. Anyone got any ideas?

I'm just writing this to alert other prospective owners of diesel engined vehicles to check if any interference is generated by the vehicle.

73

Rodney Champness VK3UG,

YAESU'S DONE IT AGAIN

VX-5R 6m/2m/70cm Deluxe Handheld

VX-5R pictured showing large frequency digits

HURRY! Offer extended to 28/2/01. Buy now and save

YAESU

2 YEAR WARRANTY

Tiny, yet incredibly rugged, the VX-5R provides 6m, 2m and 70cm Amateur band operation with 5W output as standard (4.5W on 70cm), made possible by a unique PA design, super high-capacity 7.2V 1100mA/H Lithium-ion battery, and a diecast metal case. Plus, ultra-wide VHF and UHF as well as medium-wave* and shortwave reception facilities are provided.

Another really useful feature is the large backlit dot-matrix LCD screen that can be configured to suit your operating needs.
You can choose large frequency digits, dual line displays (VFO "A" and "B" frequencies, VFO "A" frequency and battery voltage and even VFO "A" frequency as well as other data such as recent Tx/Rx times or transceiver internal temperature), or even 8-digit alphanumeric memory labels. All this in a diecast aluminium enclosure just 58 x 87 x 28mm WHD (w/o knob or antenna)!

Other features include:

- Tx: 50-54, 144-148, 430-450MHz
- Rx: 0.5-1.8MHz, 1.8-16MHz, 48-729MHz, 809-999MHz (cellular blocked)
- Full feature keypad, CTCSS encode/decode, Digital Code Sqelch
- Comprehensive menu system
- Over 200 regular memories, plus 10 pairs of "Band limit" memories
- Fast battery charging from the supplied AC adaptor
- 5 battery saving systems, plus Tx/Rx usage monitor.
- Spectra-Scope™ for monitoring adjacent channel activity
- Comes with FNB-58LI 1100mA/H Lithium-ion battery, flexible antenna and AC adaptor/charger

D 3670

*10kHz steps only.

$599 SAVE $60

DICK SMITH ELECTRONICS

Offers expire 28/2/2001.

For further information, orders, or the location of your nearest store: Phone 1300 366 644 (local call charge) Or Fax: (02) 9395 1155

2096 FIBC 4 col.

THE BEST.
NO TWO-WAYS 'ABOUT IT.

Introducing the latest UHF CB two- way radio from ICOM. The IC-40jr "Joey" is super-compact, very lightweight, extra-rugged, water-resistant and lots of fun!

Imagine any activity where you would like to stay in touch with friends and family:

• Camping • Climbing • Horseback Riding • Scouting • Hiking • Mountain Biking • Orienteering.

And don't worry about the weather because the Joey is built water-resistant. That means you can use ICOM's Joey in wet environments such as:

• Boating • Skiing (water or snow) • Canoeing • Boat launching • Fishing • Sailing.

Outstanding features include Smart Ring and 'Out of Range' indicator. The compact design with fold down antenna fits neatly in your hand or pocket. There's also a 2 year warranty and an easy to read LCD screen and more...

After all, why buy a radio intended for active use if the radio can't survive the activity?

Interested? Call ICOM (Australia) Pty. Ltd. (03) 9387 0666 or visit www.icom.net.au

ICOM

Clearly Ahead

ACTUAL SIZE

VIC, Time Plus (03) 9380 4172, Aeroshop (03) 9431 2131 **NSW**, Mastercom (02) 9682 5044, Amateur Transceiver (02) 9896 2545 **ACT**, Watts Communications (02) 6280 6416 **SA**, ICS (08) 8447 3688 **TAS**, Marcom Watson 1800 630 611 **NT**, I.T.S. (08) 8980 8980 **QLD**, Access Electronics (07) 4922 1058, Delsound (07) 3839 6155, Olbis (07) 3875 1155, (07) 4779 2234, Michaels Electronics (07) 4632 9990 **WA**, Allcom (08) 9479 4997

February 2001
Volume 69 No 2

Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

Regular Columns

Urunga Convention

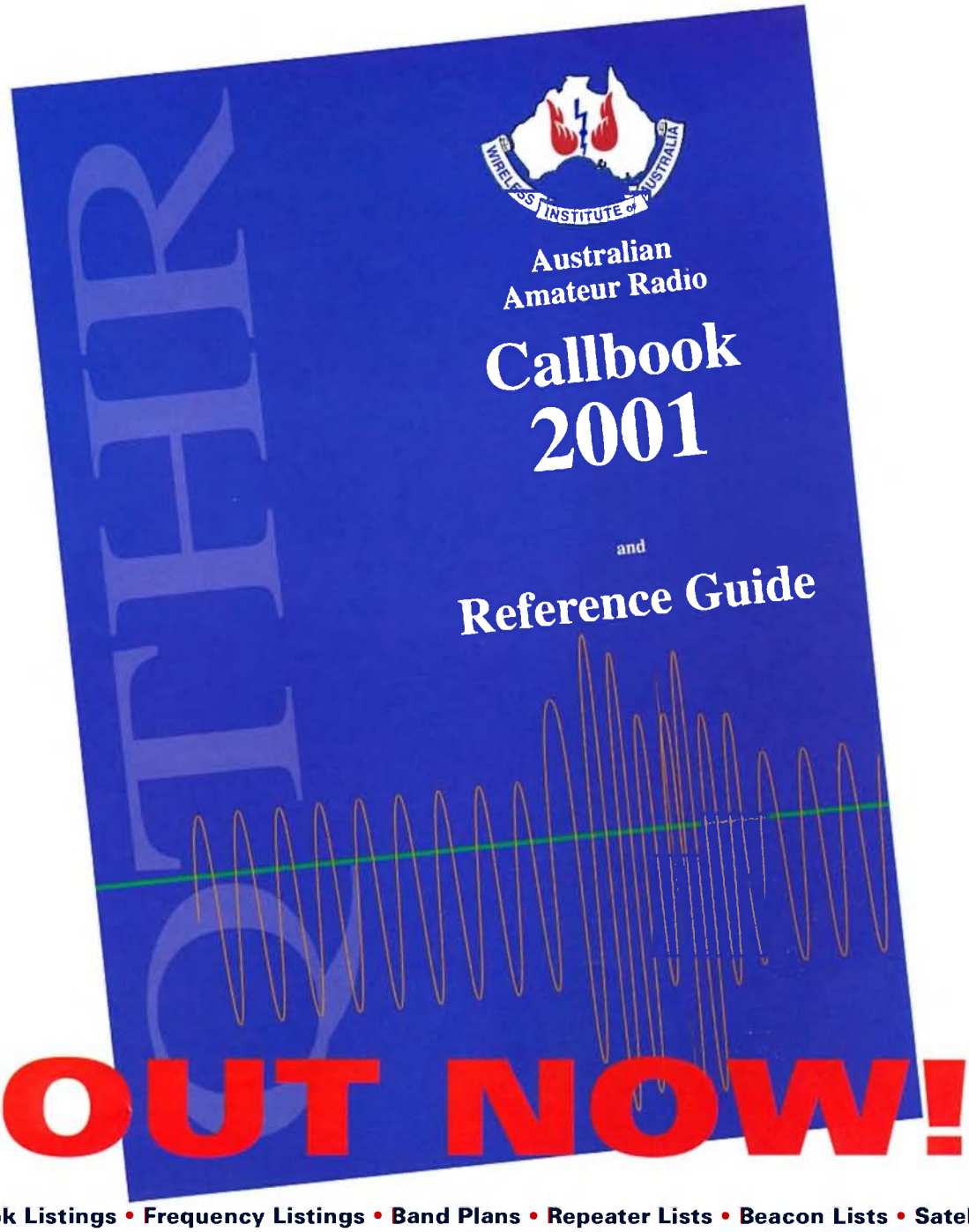
1949—2001

Australia's new Electromagnetic Radiation Requirements
What they are and how to comply

World War 2
Clandestine Communications
Part 2—
The Coast Watching Organisation

- A Low Frequency Beacon Transmitter
- A Simple Q Meter
- The Repair of the Hi-Gain 18AVT Antenna
- Energy in Radio Waves

Technical Abstracts • Super Regen Receiver • Resonant Trap Baluns • The Whistling Whip



Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies ***and more!***

The "WIA Call Book 2001" is now available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 2
February 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members

Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: t.b.a
e-mail: *newsl@webtime.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191
Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 0419 532 164

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Our cover this month

The second Urunga Radio Convention 1950.

See Club News, page 17.

General

Technical

Columns

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues
Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Editorial Comment

Colwyn Low VK5UE

This has been a stressful month

The stock of material available to be published has just about been exhausted. If this issue seems a bit scrappy it is because we have been scraping the barrel. Now before you start about the editor being lazy etc. please remember it is your magazine. I am neither qualified nor willing to write technical articles across the whole field of Amateur Radio activities for use in the magazine. This is a part time commitment not a lifetime sentence.

So having got that of my chest what are we to do?

Now if one or two people are willing to select and the general readership wants it we could reprint general and technical articles from other national journals but not all of this material is directly useful in Australia because of differing licencing arrangements and availability of parts. I have heard second hand that most of January's AR was trivial or could have been gleaned from the appropriate books. Now not everyone has been an Amateur for 20 plus years with a technical background and a large library. So AR provides simple ideas for simple equipment for beginners and of these items some can find use in older Amateur Stations activities.

I have been asking for some time now for some higher level technical articles. Surely there are some amateurs who practice the skills and can string a few words together, draw neat circuit diagrams and take the odd ! photograph.

Do not keep saying why does AR not publish stuff I am interested in. Look around for someone who does work in the area you would like to know something about and see if you can get them to share their knowledge and skill with the rest of us.

The WIA is Australia's National Amateur Radio body; Amateur Radio Magazine is its face to large numbers of people. It requires input from Australian Amateurs to shop front what we do in Australia and provides a link between WIA members.

I was talking to VK5UJ the Federal WebMaster the other day. He and I get slated for the same things not being up to date and not publishing relevant material. Well we are both in the same boat "Nothing in Nothing Out' and GIGO also applies.

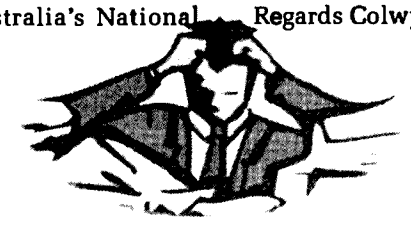
Now please realise that AR is the place we share information with each other and where we can refer to information about current Amateur activities etc.

The regular columnists have to be thanked for their loyalty to the magazine and members for they make up about half of each issue. You may have sensed that there is a higher amount of material from VK5 these days. That arises from my being able to get a few people face to face against a wall. I need each State Division to do the same. I am running one new column this month "Beyond Our Shores" which provides an overview of current material in O/S Amateur Journals. Some of these are held by Federal Office, which should be able to provide photocopies of material referred to. You might have to ask David were he got access to some material if it is not held by Federal Office.

In closing I have now got my 1.2GHz transverter in a box and working. I have put 20 W of RF into it instead of 1 W at 146 MHz. I have replaced the fried potentiometer (I was lucky) and it is back on air. With the Quagi beam (ARRL Hand. book) its 10mW has several km capability. I have still to find a suitable test site for more complete tests.

May you be moved to share some of your bright ideas or activities with the rest of us.

Regards Colwyn VK5UE



WIA Comment

Peter Naish
WIA Federal President.

World Amateur Radio Day

World Amateur Radio Day (WARD) this year has been proclaimed as April 18th. This is the day set aside each year throughout the World as the occasion on which radio amateurs are invited to showcase amateur radio to the public in general. The theme for 2001 has been designated by the IARU to be:
"Providing Disaster Communications: Amateur Radio in the 21st. Century"

Now, it is left to individual societies and clubs as to how WARD can be celebrated. With the theme related to work in the field of communications in times of disasters, it would be natural that WICEN would spring to mind as an obvious example of how in Australia the amateur radio service provides assistance. The promotion of WICEN through press releases and perhaps an actual working exhibit in a public place would be ways of achieving awareness of amateur radio's role in disaster communications.

In any case, we should do whatever we can to promote the benefits of amateur radio to members of the public, many of whom have a false or biased view of what we do derived from misleading information in the newspapers and media generally.

The recent earthquakes in El Salvador and India are occasions where amateur radio was able to provide much needed and instant communications assistance at times where normal public communications were devastated and not able to cope. It is the resource provided by the amateurs of those countries assisted by others overseas who were able to mobilise their stations so quickly that typifies the way that Amateur Radio in the 21st. Century is providing Disaster Communications.

We must be ever vigilant.

Federal WIA Convention Appointment To Federal Positions

The WIA Federal Convention and Annual General Meeting of the WIA will be held in Melbourne on 28/29 April 2001

At this meeting, a number of positions will be filled. Nominations from interested persons must be received by the Federal Secretary at the registered office of WIA Federal in Melbourne no later than close of business on 16 March 2000.

The positions are:

- President
- Directors (3 positions to be filled)
- Company Secretary (Federal Secretary)
- Editor "Amateur Radio" journal
- Publications Committee (5 positions)
- WIA/ACA Liaison Committee (3 positions)
- IARU Region III Liaison Officer
- ITU International Regulatory and Radiocommunications Study Officer
- Federal Media Officer
- Federal Web Page Coordinator
- Chairman Federal Technical Advisory Committee
- Federal Education Coordinator
- Historian
- AMSAT Coordinator
- Intruder Watch Coordinator
- Federal Contest Coordinator
- Federal Awards Manager
- Federal WICEN coordinator
- International Travel Host
- ARDF Coordinator
- Federal QSL Manager
- VK9/VK0 QSL Bureau
- QSL Collection Curator
- Videotape coordinator

Nominations received direct will be considered but preference is likely to be given to Divisional nominees

Peter J. Naish VK2BPN
Federal Secretary.

Australia's new Electromagnetic Radiation Requirements

What they are and how to comply

Peter Parker VK3YE
12/8 Walnut Street, Carnegie, Victoria, 3163
E-mail: parkerp@alphalink.com.au
Novice Notes Online: http://www.alphalink.com.au/~parkerp/nonline.htm

Residents opposing mobile phone towers in their suburb. Community groups across the nation trying to halt the erection of high-tension power pylons. Writers charge telecommunications companies with downplaying the health effects of their products. Consumer organisation tests reveal that mobile phone users are subjecting themselves to RF energy, and are recommending use of hands-free kits to reduce exposure to the head. The phrase 'frying my brain with a mobile phone' enters the public vernacular.

The common thread uniting these issues is increasing concern about the health effects of electromagnetic radiation or EMR. The spread of mobile telephony has caused EMR to emerge from scientific obscurity to major public issue over the last decade. Public distrust of science and the lack of hard medical evidence of health effects only intensify the debate. It is in this context that the Australian Communications Authority (ACA) has set standards to limit human exposure to EMR in an attempt to allay public fears.

So what is EMR? Electromagnetic radiation is a form of cyclic or wave energy that has an electrical and magnetic component. It can be in the form of Electromagnetic fields (power line radiation), radio waves, light waves, infra-red radiation, ultraviolet light, X-rays and Gamma rays. Electromagnetic waves can be classified as ionising or non-ionising radiation. Non-ionising radiation has photon energies too weak to break atomic bonds. However, non-ionising radiation causes other biological effects such as heating. Electromagnetic fields, visible light and radio frequency are all examples of non-ionising radiation.

Electromagnetic energy is emitted from radio transmitters, power lines, some electrical equipment and even the sun. Without electromagnetic radiation there would be no life on earth as there would be no sunlight. Research since the 1940s has demonstrated that electromagnetic energy also has biological effects, such as heating of human tissue. The maximum exposure thresholds have been set with heating in mind. When exposure is increased to above these limits, heating of tissue will occur.

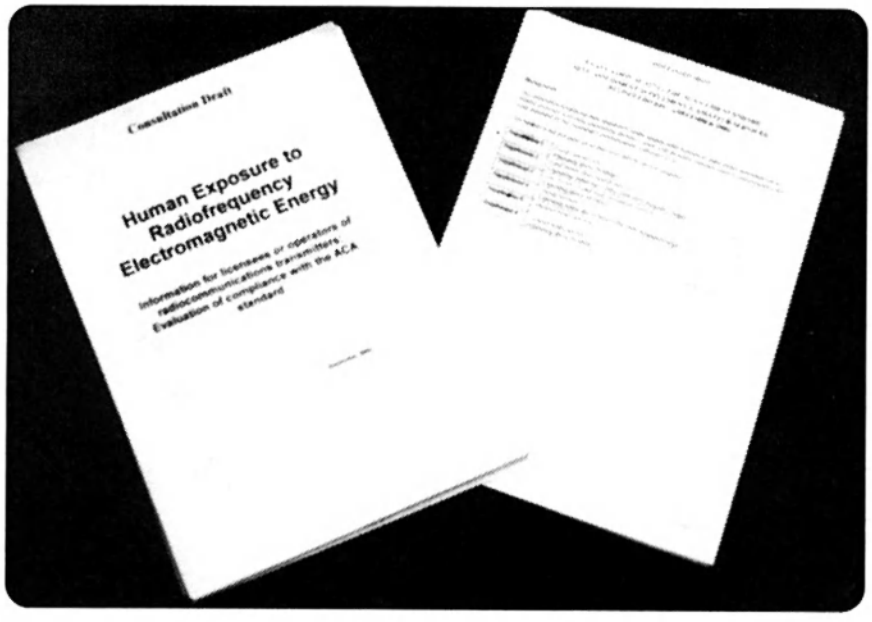


Photo One – The ACA's draft materials on EMR compliance for spectrum users

Government response

The ACA introduced standards designed to limit public exposure to EMR in February 1999. The standards aim to *address the possible adverse health effects of RF EMR without unnecessarily compromising the benefits that radiocommunications technologies bring to modern living* (Reference One).

The standards are already mandatory for mobile telephone equipment and are progressively being extended to nearly all radio users. Radio amateurs will be subject to EMR rules by the end of 2001. As in the US, which has had EMR regulations for some years, compliance will require amateurs to perform an EMR assessment of their station. As explained later this should be fairly simple for most amateurs running moderate power levels.

In September 2000 the ACA invited spectrum users (including amateurs) to partake in a trial of materials for performing EMR self-assessment. The draft information provided to participants is shown in Photo One. The main document is called *Human Exposure to Radiofrequency Electromagnetic Energy and is subtitled Information for licensees or operators of radiocommunications transmitters: Evaluation of compliance with the ACA standard* (Reference One). Six supplements, providing information for different spectrum users, were

produced. Supplement Five deals specifically with amateur stations and describes the method amateurs should use to assess EMR compliance (Reference Two).

The trial was still running while this article was being written, and was scheduled to finish on January 15. Initial feedback from amateurs resulted in a revised draft Supplement Five being placed on the ACA's website. The tables elsewhere in this article are those that are included in Supplement Five, as revised to 4 December, 2000.

EMR measurement

Near-body EMR exposure is measured by a parameter called Specific Absorption Rate (SAR). The unit for this is watt per kilogram (W/kg). The SAR exposure limit for the general public is 0.08 W/kg average across the human body, with higher levels permissible for hands and feet.

Where the transmitter is operated away from the human body it is permissible to use derived limits, which are easier to measure. An example of a derived unit is power density, the unit for which is watt per square metre (W/m^2). Because the transmission medium for radio signals is free-space, which has a known constant impedance (377 ohm), it is possible to calculate power density if either the electric field strength (volt/metre) or the magnetic field strength (amp/metre) is known.

The ACA has adopted the SAR limits from the lapsed national standard AS/NZS 2772.1 *(Int): 1998 - Radiofrequency fields Part 1: Maximum exposure levels – 3kHz to 300 GHz*. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is developing a new national standard. The ACA will consider adopting this new standard when it becomes available.

Conducting an EMR assessment

The term 'EMR assessment' conjures up images of expensive test equipment, extensive field tests and complex calculations in the minds of many. However, many amateurs will find that their stations already comply, and will not need to perform detailed calculations to demonstrate this.

The proposed guidelines define two categories of installation. Category One covers a restricted range of installations as defined in Appendix One of Reference One. Category One installations are those with limited operating conditions and installation restrictions that ensure compliance with the ACA's human exposure standard and for which there is no requirement for an explicit evaluation process.

Category Two covers all other transmitting stations and requires some form of formal assessment process. All amateur installations are included in Category Two. Category Two permits either self-assessment using one of a range of methods or third-party evaluation by a qualified assessor. The self-assessment methods range in complexity, depending primarily on the precision desired. Methods range from reference to pre-calculated tables of separation distances, calculation of separation distances based on the specific details of an installation, through to measurement by a qualified person. In all cases, the prediction methods are constructed so as to "err on the safe side", that is, they predict separation distances that are greater than are actually needed to achieve compliance with the standard.

Initial EMR evaluation

The initial assessment takes the form of look-up tables for a given frequency, output power level and antenna gain. These tables give the minimum distance that antennas need to be from areas accessible to the public ('separation distance') to keep public exposure below EMR limits (Tables 2a and 2b in Supplement Five). Supplement Five also provides tables for a variety of antennas and power levels commonly used by amateurs. The separation distance is measured from the nearest point of the antenna to the area of interest.

The tables require those performing assessments to use average RF power levels in their calculations. Where the average and the peak power differ (for example SSB and CW modes) Table One of Supplement Five provides the relevant peak to average power conversion ratio.

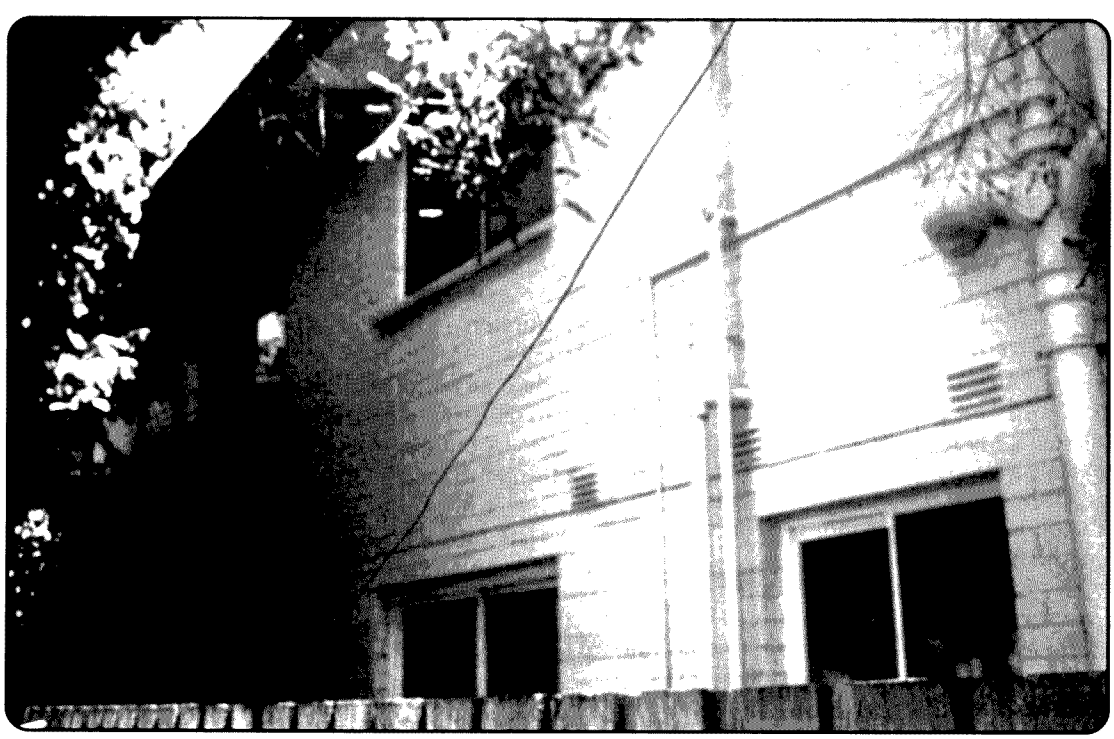


Photo Two – Antennas near adjoining properties may need to be moved to comply with the minimum separation distances specified in the ACA's EMR material.

The separation tables are based on continuous transmissions for any six minute period (ie the worst case). If transmissions are kept brief, with reasonable breaks between them, stations will be able to run higher power levels and maintain separation applicable for lower power levels and still comply with exposure standards. Transmit periods in any six minute period are not included in the tables, because they vary so much between individual operators and different types of amateur activity.

Provided that separation distances are met on all frequencies with all antennas, the evaluation is complete, and the station can be considered EMR compliant. A record of the date of assessment and the method used must be kept, together with a signed declaration of compliance. The ACA suggests that amateurs record the results of evaluations in their log.

Detailed EMR evaluation

Not all amateur stations will meet the minimum separation requirements mentioned above. Those most likely to fail include:

- Stations in flats, units or terrace houses
- Stations using indoor antennas
- Stations using low wire antennas near property boundaries
- Stations using directional antennas on short masts, where the beam's main lobe is firing towards neighbouring properties and areas accessible to the public

Amateurs subject to antenna space or council planning restrictions will have the most difficulty meeting the minimum separation requirements. To determine if the station is EMR compliant, a more detailed assessment is required. The detailed level of assessment might be undertaken either by using the equations set out in Reference 1 or by "customisation" of the appropriate table(s) in Supplement 5 so that the table(s) used take(s) account of the actual operating conditions of the specific installation.

Only qualified persons may perform assessment that involve the use of on-site measurements. Suitable persons include those with relevant formal training or experience in RF measurement. An amateur certificate of proficiency by itself is not considered a sufficient qualification to perform EMR assessment by measurement. However, the ACA will accept self-assessments by licensed amateurs provided that these are done with the charts, graphs, equations or software that are provided in the compliance booklets.

EMR is predicted by calculating the power density present at a specified distance from a specified antenna fed with a specified power level.

The formula is as follows:

$$S = \frac{PG}{4\pi R^2}$$

S is the power density measured in watt/metre^2

P is the power input to the antenna measured in watt

G is the gain of the antenna in the direction of interest relative to an isotropic radiator expressed as a linear power gain (eg 3 dBi = a linear power gain of 2).

π is 3.1416

R is the distance from the centre of the radiation from the antenna to the nearest publicly accessible point to the antenna

If it is desired to obtain a power density measured in units of mW/centimetre^2 (which is common), power (P) should be expressed in units of milliwatts, and the distance (R) should be in centimetres.

The above calculations are simplified and assume many things about the antenna system. In the 'real world', the results obtained may need to be modified by compensating factors. These include:

- Compensating for the increased power density of low antennas (rooftop or ground mounted) by assuming a 2.56 increase in power density.
- Compensating for in-building attenuation – where an antenna is mounted on the roof, exposures inside a building will be reduced 10 to 20 dB due to attenuation caused by building materials in the walls and roof.
- Compensating for a non-uniform or focused (non-isotropic) antenna radiation pattern - a high-gain yagi or collinear vertical antenna on a tall mast will have much reduced radiation at ground level.
- Compensating for near-field gain reduction – the standard equations, pre-calculated tables and graphs are based on the assumption that the 'far-field' equation given above can be applied without regard to the separation distance. However this assumption fails in some situations (principally at low power and low frequency) and the far field equation tends to over-predict radiation very close to an antenna. The consequence of this is that the tables and graphs indicate minimum separation distances that are greater than those actually needed to ensure compliance with the standard.

Further information on incorporating these compensating factors into calculations appears in Reference One.

The minimum separation distance calculated should be compared with the actual distance between the antenna and the point of closest public access. If this distance is greater than the minimum separation distance, the station is EMR compliant. The licensee must then make a *Declaration of Conformity* to certify this fact.

Amateurs using frequencies above 1300 MHz should use the evaluation methods applicable for Fixed Link Services (Supplement One – Reference Three) or General Radio Services (Supplement Six - Reference Four). It is current ACA licensing policy that amateurs applying for a high-power permit must demonstrate EMR compliance by measurement undertaken by an accredited assessor.

Both the simpler and more detailed assessments require that the licensee sign a *Declararation of Conformity* to declare that his/her equipment complies with the EMR standard. The *Declaration of Conformity* must also be signed when subsequent changes have been made to the station. The licensee should record information on the evaluation method, the person who did the evaluation, results achieved, and whether the results indicate compliance.

In either case (simplified or detailed assessment), enforcement may include audits of these records, random inspections and investigation of complaints.

What sort of station installations comply?

The following are examples of minimum separation distances for 50 watt (average) to common amateur antennas under the ACA's EMR requirements.

- 3.5 MHz dipole: 1.06 metres
- 14, 21 or 28 MHz dipole: 1.77 metres
- 7 MHz ground plane: 1.34 metres
- 14/21/28 MHz three element triband yagi: 3.54 metres (see note)
- 50/144/440 MHz discone: 1.8 metres
- 146 MHz ground plane: 1.58 metres
- 144 MHz seventeen element yagi with 16.8dBi gain: 9.75 metres (see note)
- 446 MHz 5/8 wave whip: 2.24 metres

The minimum separation distances double if 200 watt is used, and halve if 12.5 watt is used. Stations not meeting these separation distances do not automatically fail, but must perform more detailed calculations to establish compliance.

Note: The separation distances quoted above for directional beam antennas apply only in the direction of the main lobe. A gain figure of 0 dBi can be applied outside the main lobe which can be taken being as +/- 45 deg off the boom axis for the purpose of compliance.

(Source: ACA Supplement Five as revised to December 2000)

Reducing exposure to EMR

If, after performing the compliance assessment, you don't meet the standards, there are several things you can do to ensure compliance. Some are set out below.

Increase separation by raising the antenna

A higher antenna support increases antenna distance from the ground, and thus increases separation from areas normally accessible to humans. This is particularly beneficial for directional antennas as the area of maximum radiation from the beam's main lobe is raised to well above ground level. The inverse square law applies - halve the distance between the antenna and people and exposure to radiation quadruples. Unfortunately this fact is sometimes lost on council planning regulators whose antenna height restrictions are subjecting people to unnecessarily high EMR exposure. Let's hope that amateurs can use EMR safety as a lever to obtain fewer restrictions on towers and antennas.

Reduce transmitter power output

Obviously a more powerful transmitter will increase exposure to radiation. The EMR standards make it even more important that amateurs use the minimum amount of power necessary to maintain communication.

Use a lower duty-cycle transmission mode

Modes such as FM voice, slow-scan television and many digital modes (eg RTTY and PSK-31) have a 100 per cent duty cycle. This means that the radiated power remains at the maximum level during the entire transmission. Other modes have lower duty cycles. For example, ordinary unprocessed SSB voice transmissions have a duty cycle of around 20 per cent. CW and processed SSB are 40 and 50 per cent respectively. With these modes, multiplying the transmitted peak power output by the duty cycle produces a (lower) average power output, which makes compliance easier.

The ACA's first Supplement Five draft referred only to peak power output and not average output, which is lower for some modes. Subsequent drafts have clarified this issue by including a table of peak to average power conversion factors for commonly used modes.

Shorten transmissions

Amateur activities such as crossband duplex operation, amateur television, sending Morse practice and relaying broadcasts involve long continuous transmissions. However many others, such as contesting, HF and VHF DXing,

Table One (from the ACA's draft Supplement Five – as revised to 4 December 2000) Minimum separations by frequency, power and antenna gain.

Table 1a HF Bands

Estimated distances from transmitting antennas necessary to meet [ACA-EMR] power density limits for general public exposure.

Frequency (MF/HF) (MHz/Band)	Antenna Gain (dBi)	Power 10 watt	Power 25 watt	Power 50 watt	Power 120 watt
2(160m)	0	0.28	0.45	0.63	0.99
2(160m)	3	0.41	0.65	0.92	1.42
4(80m)	0	0.41	0.65	0.92	1.42
4(80m)	3	0.57	0.90	1.27	1.97
7(40m)	0	0.54	0.85	1.20	1.86
7(40m)	3	0.76	1.20	1.70	2.63
7(40m)	6	1.04	1.65	2.33	3.62
10(30m)	0	0.63	1.00	1.41	2.19
10(30m)	3	0.89	1.40	1.98	3.07
10(30m)	6	1.27	2.00	2.83	4.38
14(20m)	0	0.63	1.00	1.41	2.19
14(20m)	3	0.89	1.40	1.98	3.07
14(20m)	6	1.27	2.00	2.83	4.38
14(20m)	9	1.77	2.80	3.96	6.13
18(17m)	0	0.63	1.00	1.41	2.19
18(17m)	3	0.89	1.40	1.98	3.07
18(17m)	6	1.27	2.00	2.83	4.38
18(17m)	9	1.77	2.80	3.96	6.13
21(15m)	0	0.63	1.00	1.41	2.19
21(15m)	3	0.89	1.40	1.98	3.07
21(15m)	6	1.27	2.00	2.83	4.38
21(15m)	9	1.77	2.80	3.96	6.13
25(12m)	0	0.63	1.00	1.41	2.19
25(12m)	3	0.89	1.40	1.98	3.07
25(12m)	6	1.27	2.00	2.83	4.38
25(12m)	9	1.77	2.80	3.96	6.13
30(10m)	0	0.63	1.00	1.41	2.19
30(10m)	3	0.89	1.40	1.98	3.07
30(10m)	6	1.27	2.00	2.83	4.38
30(10m)	9	1.77	2.80	3.96	6.13

Table 1b VHF/UHF Bands

Estimated distances from transmitting antennas necessary to meet [ACA-EMR] power density limits for general public exposure.

Frequency (VHF/UHF) (MHz/Band)	Antenna Gain (dBi)	Power 10 watt	Power 25 watt	Power 50 watt	Power 120 watt
50 (6m)	0	0.63	1.00	1.40	2.19
50 (6m)	3	0.89	1.40	2.00	3.07
50 (6m)	6	1.27	2.00	2.80	4.38
50 (6m)	9	1.77	2.80	4.00	6.13
50 (6m)	12	2.50	3.95	5.60	8.65
50 (6m)	15	3.54	5.60	7.90	12.27
144(2m)	0	0.63	1.00	1.4	2.19
144(2m)	3	0.89	1.40	2.0	3.07
144(2m)	6	1.27	2.00	2.8	4.38
144(2m)	9	1.77	2.80	4.0	6.13
144(2m)	12	2.50	3.95	5.6	8.65
144(2m)	15	3.54	5.60	7.9	12.27
144(2m)	20	6.29	9.95	14.1	21.80
450(70cm)	0	0.63	1.00	1.4	2.19
450(70cm)	3	0.89	1.40	2.0	3.07
450(70cm)	6	1.27	2.00	2.8	4.38
450(70cm)	9	1.77	2.80	4.0	6.13
450(70cm)	12	2.50	3.95	5.6	8.65
450(70cm)	15	3.54	5.60	7.9	12.27
450(70cm)	20	6.29	9.95	14.1	21.80
1240(23cm)	0	0.63	1.00	1.4	2.19
1240(23cm)	3	0.89	1.40	2.0	3.07
1240(23cm)	6	1.27	2.00	2.8	4.38
1240(23cm)	9	1.77	2.80	4.0	6.13
1240(23cm)	12	2.50	3.95	5.6	8.65
1240(23cm)	15	3.54	5.60	7.9	12.27
1240(23cm)	20	6.29	9.95	14.1	21.80

NOTE: these separation distances apply only in the direction of the main beam/lobe of the antenna. The figures for 0 dBi gain can be applied outside the main lobe which can be taken as being +/- 45 degrees off boresight/antenna boom axis for the purpose of compliance.

or WICEN traffic handing entail a lot of listening punctuated by very brief transmissions.

According to the Category Two assessment rules, power can be averaged if short transmissions are broken up by periods of receiving. A six minute averaging period is used. This is a 'sliding' average. As an example, consider an operating sequence comprising of three minutes receive, one minute transmit, three minutes receive, three minutes transmit, two minutes receive, two minutes transmit and four minutes receive. The maximum transmitting time in any six minute period is four minutes. Even though the station may be running 100 watt, the time averaging rule produces a maximum average power of 67 watt over any six minute period.

Allowing for power averaging makes compliance easier for those who only make short transmissions. An HF or VHF SSB DX operator who is only transmitting three minutes out of every six may comply with the exposure levels, whereas he might not if he was to operate continuously.

What's happening now?

The Australian Communications Authority is currently collating comments received from spectrum users in response to the voluntary trial of draft materials that ended last month.

Comments received will be used to improve the ACA's material, which will then be distributed in final form to spectrum users later this year.

The ACA expects that EMR compliance will become compulsory for Australian amateurs from late 2001.

Updates on the progress of the ACA's EMR regulations are advised on the ACA's webpage at URL: http://www.aca.gov.au Also see URL: http://www.aca.gov.au/standards/emr.htm for copies of the reference material referred to in this article.

Conclusion

The basics of the ACA's new EMR regulations have been described. Whether you like it or not, these are here to stay. As responsible spectrum users, amateurs should obtain the ACA's material on the topic and perform any modifications required to make their stations comply.

Acknowledgements

I am indebted to the following for assistance rendered during the preparation of this article. Chris Arthur VK3JEG, Chief Technical Officer for the Communications Engineering group at RMIT University for technical review of the first draft of this article. Gilbert Hughes VK1GH and Keith Malcolm VK1ZKM provided a final proofread and liaised with the Australian Communications Authority on behalf of the author. Also Keith McCarthy VK3JNB provided a valuable 'second opinion' from a reader's perspective.

References and further reading

1. Australian Communications Authority: *Human Exposure to Radiofrequency Electromagnetic Energy, subtitled Information for licensees or operators of radiocommunications transmitters: Evaluation of compliance with the ACA standard* (draft).
2. Australian Communications Authority: *Evaluation against the ACA's EMR Standard Self-assessment Supplement Five: Amateur Services* (draft).
3. Australian Communications Authority: *Evaluation against the ACA's EMR Standard Self-assessment Supplement One: Fixed Link Services* (draft).
4. Australian Communications Authority: *Evaluation against the ACA's EMR Standard Self-assessment Supplement Six: General Radio Services* (draft).

This article appears in lieu of Novice Notes for this month. Novice Notes will resume in the April issue.

ar

World War 2 Clandestine Communications Part 2

The Coast Watching Organisation

by Malcolm R Haskard VK5BA

While the coast watchers provided a significant contribution to WW2 and the defeat of Axis powers, the origins of the organisation occurred well before the commencement of the war.

It was known that in any war it is the side that controls the highways and byways, whether they be land sea or air, that wins, so in 1919 following a suggestion by the District Naval Officer, Western Australia, a Staff Paper was produced by the Navy's Melbourne Office for the Chief of Naval Staff.

The proposal was that people in coastal areas of northern Australia, New Guinea, Papua and the Solomon Islands be organized on a voluntary basis to report, particularly in war time, any unusual or suspicious circumstances, such as strange ships, planes or floating mines. The people to be used in the proposal included Post Masters, Police, Patrol Officers, District Officers, other Government employees, missionaries, planters and pilots of civil airlines. The paper was enthusiastically endorsed and a committee representing the three services was set up to implement the proposal. Since it was a Navy proposal it was left to the Naval Intelligence Division, Melbourne to implement and build up the Organisation.

An early problem was the communication means of reporting for those coast watchers in lonely and distant outposts where there was no electricity. The problem was eventually solved on mainland Australia by using pedal wireless (Traeger's invention in the late 1920s) and then gradually as various Government and private organizations introduced their own wireless communication networks the selected coast watcher personnel were allowed to use these networks. The Navy insisted on using codes for security reasons, initially the Playfair code was employed. Also produced and distributed by the Navy was the booklet "The Coast Watching Guide".

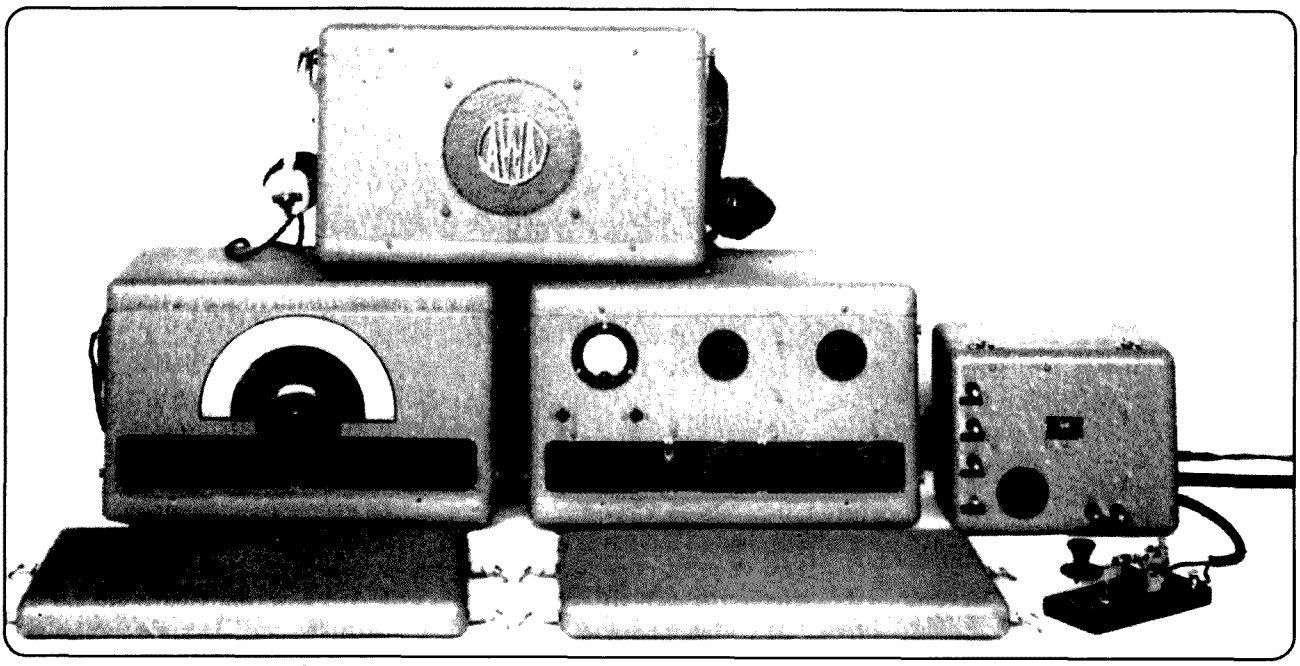
At the outbreak of WW2 the Organisation was some 800 strong and ready for operation, but needed someone to command it. Eric Feldt, then a Lieutenant Commander RAN on the Emergency List was mobilized and appointed Staff Officer (Intelligence), Port Moresby, his responsibilities included the extension of coast watching facilities placing communication equipment at strategic points to cover the north and north eastern approaches to Australia.

> "...in any war it is the side that controls the highways and byways, whether they be land sea or air, that wins..."

It had been the responsibility of AWA, a semi Government organisation, to handle all radio traffic out of Papua and New Guinea. They had developed a new version, the "3B", of their very mechanically rugged Teleradio (AWA trade name) sets, one which stood up well to the tropics, heat and wet as well as amateur handling. It allowed both Morse code and speech to be sent. Consequently the "3B" became the standard equipment for coast watchers and consisted of three metal boxes with clip on front covers to protect the controls, one box being the crystal controlled transmitter, the second a general purpose communication receiver and the third housed the speaker and associated equipment such as cables, key, microphone and aerial wire. The system operated from two 6 volt lead acid batteries and so a petrol driven charging set was also supplied with the Teleradio. The general purpose receiver was an advantage for it allowed the coast watchers to monitor other frequencies and learn developments in the war.

By August 1940 all Teleradios were in place and operators taught how to use the Playfair coding system. Each Teleradio transmitter was fitted with a crystal cut to what was know as the "x" frequency allowing coast watchers to talk to their particular control station, such stations being set up at Darwin, Port Morsby, Rabaul, and Thursday Island. At these stations the "x" frequency was monitored 24 hours every day so that no matter when a coast watcher called their message was received.

After Pearl Harbour and the Japanese entry into the war their rapid advances brought changes to the coast watching system. It had originally been set up so that participants could report activity from the Allied side of the war, but suddenly it found that many of its operators were now behind enemy lines. This meant that supplies had to be sent in, either by ship, submarine or parachute drop. One problem with the type "3B" Teleradios was their lack of portability. Not only was there the three metal sets, but also at least two lead acid batteries (one set being charged while the other in use), the generator and cans of petrol. The generator was the heaviest item at 32 kg (70lb). Consequently up to ten native carriers were often required to carry the vital communication equipment to a new base. A request had been made for new and more portable Teleradio equipment, but the upgraded replacement, type "3BZ", still lacked portability. As the type number suggests



The AWA "3B" Teleradio set, showing (L to R) receiver (3C6770), transmitter (J6798), optional aerial tuning unit (J6847) and key. Speaker box (D6799) is on top with head phones and microphone. (Acknowledgments to Colin MacKinnon,VK2DYM)

there was little difference, an upgraded transmitter and a smaller speaker box. Fortunately the RAAF had succeeded in acquiring from Radio Corporation a more portable, dry battery operated set called the RC 16B. Developed originally for the Victorian Forrestry Commission as the RC16, the RAAF increased the receiver frequency range from 5.5 - 7.0 MHz to 3.00 - 7.00MHz and provided a low and high frequency band transmitter. It was now to be used by the Coast Watching Organisation and called the ATR 4A. It came in two canvas bags, the transceiver in one and the battery and spares in the other. By todays standards it was still large and bulky and weighed about 19 kg (42 lb), but a single person could carry it. It was favoured and used by the teams sent in by submarine to numerous Pacific Islands to undertake coast watching activities. Codes used were also upgraded, initially to a modified Playfair and then to the Bull code.

The arrival of General Douglas MacArthur in Australia from the Philippines saw a further change. For the first 2 1/2 years of the war the Coast Watching Organisation had been administered by the Royal Australian Navy through the Naval Intelligence Division and then placed under the direct command of General Head Quarters. These now came under General MacArthur who assumed Supreme Control. The Allied Intelligence Bureau was established in which the Coast Watching Organisation became a part, but still under the control of Commander Eric Feldt.

The coast watchers operated with great courage throughout the Pacific region, including New Guinea, Papua, Bougainville, New Britain, New Ireland, Solomon Islands and the Admiralty Islands. With the cessation of the war the coast watching activities came to an end.

Clandestine communication equipment

1. The 'AWA' type "3B" Teleradio

The "3B" Teleradio as shown in Photo 1 came packaged as 16 items.

1. Transmitter type J6798 and later the 8J6798
2. Valves, vibrator and crystals for the transmitter
3. Cable pack for transmitter
4. Accessories, such as microphone, key, spare fuses and battery link cable
5. Superheterodyne receiver type C6770 or 3C6770
6. Valves, vibrator and crystal for the receiver
7. Cable pack for receiver
8. Accessories, such as headphones and spare fuses
9. Loudspeaker unit type D6799
10. Loud speaker cable
11. 2, 6 volt 120AH accumulators
12. A 12 volt engine charger
13. 200 feet, 7/20 aerial wire
14. 6, bull-nose insulators
15. 1, lead-in insulator
16. Instruction book No. 6800R

Items 1, 5 and 9 were supplied in strong pressed steel grey wrinkled painted cases, approximately 16 3/4" x 11 3/4" x 10 1/2" (420mm x 267mm x 300mm) having rounded edges and corners and a clip on front cover to protect transmitter and receiver controls. Top and bottom lids were also removable for servicing. Side clips could be added so that the cases could be mounted in standard PMG racks. Each transmitter and receiver had their own separate power supply incorporated on their respective chassis.

The early transmitter type (J6798) valve types were identical to those used in the previous Teleradio model, the "3A", consisting of a type 42 valve crystal oscillator driving an 807 power amplifier, giving 10 watt output power. For CW operation the cathode of the 807 was keyed, while for telephony the 807 was AM plate modulated using a double triode type 6A6 class B power amplifier with a type 42 valve preamplifier. In later "3B" models (type 8J6798) both the 42 and 6A6 valves were replaced by the

6V6 valve. While the handbook does not state the combined frequency range of the two bands available, it would be typically from 3 to 10 MHz. Controls were kept to a minimum and included, oscillator wavechange switch, oscillator and power amplifier plate tuning capacitors, power amplifier wavechange and aerial switch, and meter with selection switch. The transmitter matched into nominal 600 ohm impedance antennas, usually a single wire fed horizontal half wave dipole. For other antenna configurations a small aerial coupling unit (type J6847) was available. Power input was 12 volt DC feeding a vibrator power supply.

The type C6770, five valve receiver consisted of an 6U7G RF amplifier, 6J8G mixer oscillator, 6J8G IF and BFO, 6G8G detector, AVC and audio amplifier and a 6V6G audio power amplifier. The IF frequency was 535kHz. Three versions were made the C and 1C both being general purpose receivers covering the frequency range 200kHz to 30MHz in 5 switched bands. The model 3C had the top frequency range (9-30MHz) removed and replaced by a crystal oscillator locking the receiver to a single reception frequency. The C and 3C models were battery operated, either 6 or 12 volt DC input, while the type 1C operated from the AC mains using a 5Y3G rectifier. Input power from all three supplies was typically 25 watt. In addition to the main tuning condenser with its two speed 54:1 Muirhead vernier drive and brass etched scale, there were six other receiver controls all located at the bottom of the front panel (Photo 1). Going from left to right they are, audio volume, tone control, transmit/receive switch, AVC/BFO switch, wave change switch, and RF gain.

The manuals say nothing about set performance, however while a University student in the mid 1950s I had access to a type 1C receiver which performed admirably on the lower frequencies, but left much to be desired on band 5, the upper HF band of 9-30MHz. Perhaps this is not surprising and did not matter for the frequencies used by the coast watchers would have been under 10MHz (Band 4 went to just over 11MHz).

2. The AWA type 3BZ Teleradio

As the type number implies this Teleradio is a development of the type "3B". The construction methods for the set were the same and in fact the receiver type was identical, however, later versions of the C6770 had a pilot light (upper LH front), an AWA name plate (upper RH front) added and new style pointer knobs for switches. The transmitter had been upgraded (now type J50062) and an optional speaker housing considerably reduced in size provided (type 1D13503, 8' x 8' x 4 1/2"). This Teleradio is shown in Photo 2.

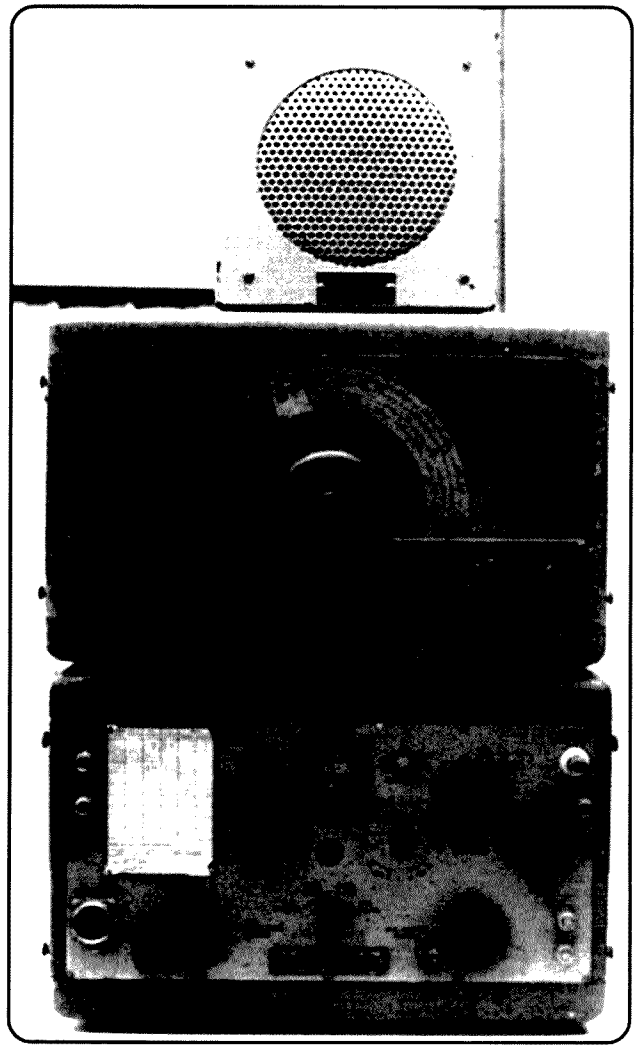


Photo 2: The updated AWA "3BZ" Teleradio set - (Acknowledgement to Bill Smith, Editor Radio Waves, Historical Radio Society of Australia)

The J50062 transmitter employed a 6V6G crystal oscillator, the frequency determined by one of up to six switched crystals in the 2.5 to 5.0 MHz range. The oscillator drove an 807 valve which acted either as a power amplifier or frequency doubler/amplifier. Thus the transmitter covered the frequency range 2.5 to 10.0 MHz, the frequency determined by the crystal selector x1, x2 switch. On telephony the 807 was plate modulated (AM) by a push pull 6V6G stage driven by a further 6V6G amplifier. Again for telegraphy the 807 cathode is keyed. Power out was typically 12 watt below 5 MHz and 8 watt above.

The transmitter had a built in antenna tuning unit so the seven front panel controls are, crystal selector, crystal oscillator tuning, power amplifier tuning, aerial coupling, aerial tuning, control switch and meter selector.

3. The Radio Corporation ATR 4A

The dry battery ATR 4A transceiver shown in Photo 3 was much more compact and portable. It fitted into a single box 15 1/2" x 8 5/8" x 6 1/8" (395 x 220 x 155 mm) that had a lift up lid that housed the speaker and protected the transceiver front panel controls. These were minimal, a 6:1 reduction receiver tuning dial with locking screw, BFO switch, meter switch, a set voltage control, volume (RF and IF gain control) and send/receive switch. The superheterodyne receiver covered the frequency range 3 to 7 MHz and had a 1D5GP RF amplifier, 1C7G mixer oscillator, 1D5GP 455 kHz IF amplifier, 1D8G detector, first audio stage and BFO and a 1L5G audio output stage. The tuning dial calibration was crude, having an outer black zero to ten scale (which decreased in the clockwise direction), while inside this black scale were five red dot whole frequency marker points, indicating 3.0 to 7.0 MHz, the clockwise direction being ergonomically correct, an increase in frequency.

The transmitter had a 1H4G crystal controlled oscillator driving a 1J6G parallel connected RF power amplifier. The transmitter was amplitude

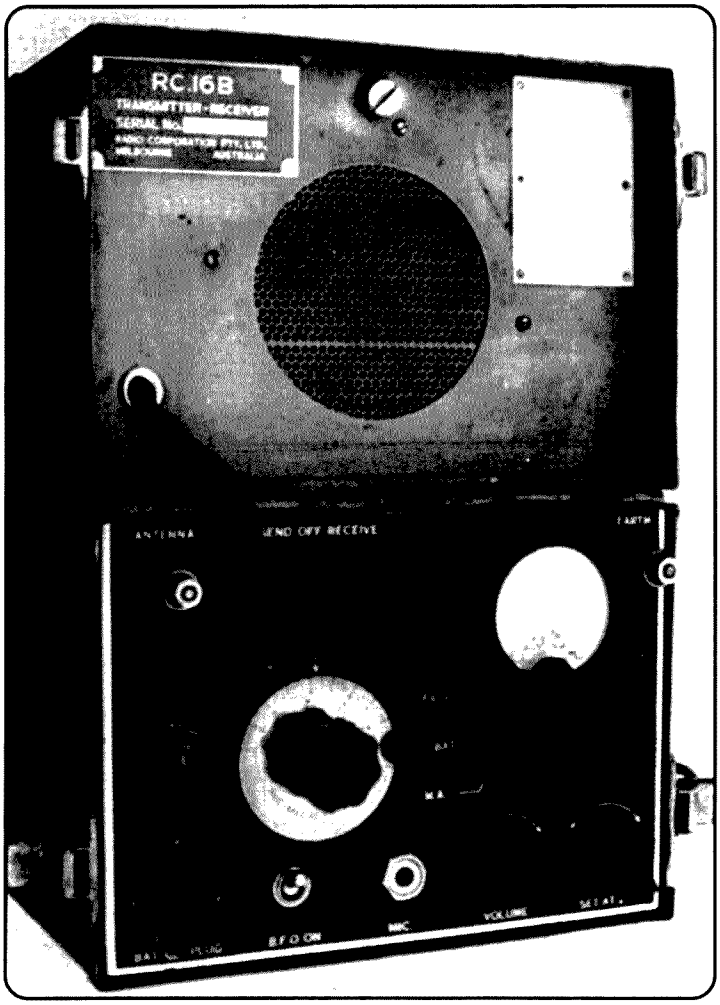


Photo 3a

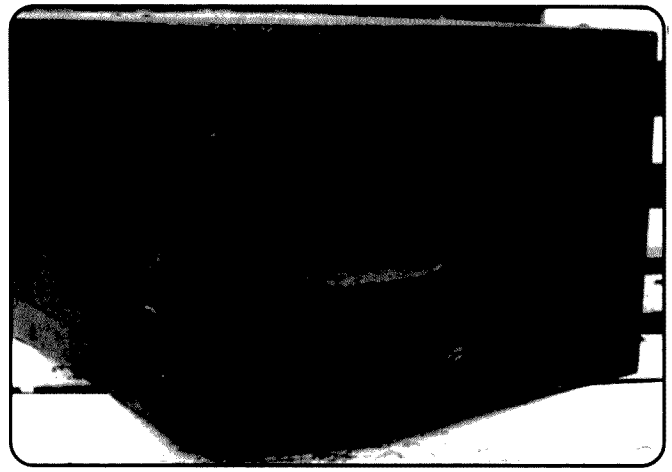


Photo 3b

Photo 3 (a & b)The portable ATR 4A transceiver, also known as the RC 16B. Microphone type is a No. 3. Photo 3b shows the two rear controls, key jack and the vertical cover which rotates allowing access to two trimmer capacitors. (Acknowledgments to Rodney Champness VK3UG)

modulated by a class B 1J6G push pull amplifier driven by an 1L5G preamplifier. The RC16 had some difficulty in that the transmitter RF stages had to be peaked for the crystal in use, so that it was not easy to change to a new and very different transmit frequency. This had prompted the RAAF to add the low (3-4.8 MHz) and high (4.8-7.0 MHz) band transmitter switch facility, recessed into the rear of the set. Also in the same recess was an antenna tune control, while the key jack position was lower and central on the rear of the unit. Later the type ATR 4B was produced, this set still retaining the Radio Corporation RC 16B designation, for the main improvement was simply tropic proofing. The transceiver fitted into two canvas haversacks for carrying, the set itself in one while the composite battery (type WD33, containing the 3v filament or "A" supply, 180v "B" supply tapped at 135v for the receiver, and the -4.5 v "C" bias battery), wire, spares and accessories into the other. The speaker box in the transceiver lid could also accommodate the 50 foot aerial wire, insulator and cord, earth spike with lead attached and No.3 microphone.

The set appears to have performed well, but suffered the effects of all dry battery sets that the batteries eventually discharge and fail. Further, a number of coast watchers damaged their sets while traveling perhaps the result of trading weight and portability for robustness. In spite of this the ATR 4A performed well, allowed traveling without carriers with coastwatchers preferring them to the Signals type WS208.

References

a) General

1. Felt, E, (1946), *The Coast Watchers*, Oxford University Press, Melbourne
2. Freund, A. P. H, (1989), *Missionary Turns Spy*, Lutheran Publishing House, Adelaide
3. Horton, D. C, (1970), *Fire Over The Islands*, AH & AW Reed Ltd, Sydney
4. Murray, M, (1967), *Hunted; a Coastwatcher's Story*, Rigby Limited, Adelaide
5. Wright, M, (1965), *If I Die*, Lansdowne Press, Melbourne

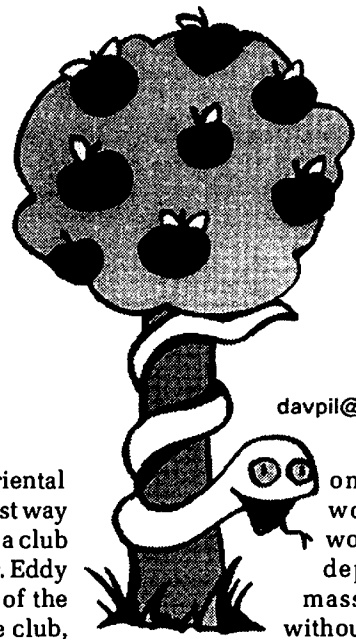
b) Technical

1. *Teleradio 3B Installation, Operation and Maintenance, Instruction Book No. 6800R*, Amalgamated Wireless (A'asia.) Ltd, Sydney
2. *Teleradio 3BZ Installation, Operation and Maintenance, Instruction Book No. 50061B*, Amalgamated Wireless (A'asia.) Ltd, Sydney
3. *AWA Teleradio 3BZ Installation, Operation and Maintenance, Instruction Book Signal Training Volume III, Australian Pamphlet No.16*, H&H Printing, Carlton
4. MacKinnon, C, (1996), *The 3BZ Coast watchers Wireless Set, Radio Waves*, No. 55, January, Historical Radio Society of Australia
5. Champness, R, (1979), *Portable Army Wireless Sets of World War II*, Amateur Radio, Vol 47, No 1, p28
6. *Instruction Manual for Transmitter Receiver, RAAF Type ATR 4*, Radio Corporation Pty. Ltd., Melbourne

ar

Adam Lution

A fairy story that came (or is coming) TRUE



David A. Pilley
VK2AYD,
Cain Close
Kings Creek 2446
davpil@midcoast.com.au

Once upon a time the was an Eva Lution and an Adam Lution. They live happily in the jungle with an ugly snake and an apple for temptation.

Adam liked to experiment, but in those days things were very primitive. He would have patented the application of the fig leaf but being alone, there was no government authority to impose its value.

Adam and Eva had two boys, Cain and Able (his real name was Aba Lution but Able sounded better). (Cain was something of an odd ball though they did name a street in King's Cross after him)What happened in their young days is somewhat vague, but their children had children and so the Lution family grew and went off and travelled into the brave new world. Centuries flew by. The wheel was invented. A better for fire other than BBQing your neighbours was found. Poly Tician appeared with two monsters called Greed and Fear and they started to rule.

One day little Lution was in the garden when Li Tening struck. (He was from the Orient). The hairs on little Lution's head suddenly stood straight up and her felt a tingle go though his body. "Whatever this is, I want it" thought the lad. And so Eli Tricity was born. In the beginning Eli was betrothed to Terry Firma, but helped by their old friend Ma Coni they created Ray Deo. Now here was a monster about to spread his knowledge throughout the world.

Many people became followers of the ray Deo sect and intellect started to form around the world.. It needed to be controlled and big brother (he was an elder brother of Poly Tician), saw a way to make an easy dollar. So Regie Lation was employed and with the help of Stan Dards they caused a set of trials that made you study hard to learn things you may never use again, (like learning calculus at school) before you could get a permit to join Ray Deo. One of these followers was Wy Less (another oriental fellow), who wisely thought the best way to keep all informed was to create a club and provide a monthly newspaper. Eddy Torial took charge of this. Some of the Ray Deo sect followers joined the club, others decided to sit back, and join the Win Jing sect.

Eva Lution was long time passed, but her teachings were never forgotten. "Go forward - learn - teach" was her cry. "But we can't said the club, we haven't got the funds to produce our technical magazine".

About this time young Pro Ject (straight from university with little knowledge of the big world) got elected and given the task of solving the problem. His solution was simple: get Al Thority to reduce his standards so that more can join the sect. And so they did. Big Brother was delighted as he was now making more money for all his staff to have exotic four wheel drives.

What happened next? Hundreds of new voices were subscribing to Ray Deo, but very few joined the club. It cost money. They found the Win Ging sect much easier to follow and it was free. Many of the founding members of the sect left to leave it to the masses to run the club.

Unfortunately these masses had little knowledge and had even less long range vision. Their greed was to pollute yet more of the spectrum. So the decision was made again to reduce the standards, believing that numbers were the solution. Al Thority was so excited with the possibilities of greater income that he immediately agreed. (Greed was back , in a different disguise).

At this point May Hem, a lady of great experience took command. "Go for it" was her cry. And go for it they did. The masses increased. the clubs declined, no one could, or would, do the work. The leaders departed. The masses floundered without direction.

However unbeknown to the masses, there was still hope as a new family was being born. They used strange means of communications in the lower frequencies of the bands. They are self supporting because they have a special knowledge. Each year they increase their standards. They grew from Tes La's coil to Mi Crochip. They have created their own club. this new group, a break way sect from Ray deo, are the XPers (The Experimenters). Their club was not vailed by AL Gory, however its entry is through the knowledge of ohm, Fleming, Henry and others. They don't have a secret handshake, but carry a miniature pump handle which they operate using a thumb and index finger. they have an interest in helping Dave Lament and Rea Search: two of the most outstanding officers of the new club. Under the guidance from Con Duct (believed to be middle European) they foster, observe and encourage a high standard of operating

If there is a moral to this story then it's

1. Quality will always succeed over quantity.
2. The more difficult you make a goal, the more determined those who really want to score will rise to the challenge.

So lets up the anti-

Make the licence more difficult. We really need two classes of licence: a beginners and the ultimate.

Remember, if you don't like it - CB is always available and welcomes you any time.

ar

A Low Frequency Beacon Transmitter

Richard Rogers, VK7RO

I have been listening to low frequencies for some years since Robert, VK7ZAL, obtained a scientific licence (AX2TAR) and constructed an experimental low frequency transmitter and asked for reports.

However, I was unable to hear the New Zealand amateurs until I used the low noise reception techniques described in Break-In by ZL2BBJ (1). The essential requirement is to use a small antenna isolated from the noisy 240V power.

Recent information published by the WIA (2) suggested that a low frequency band may be available soon. So it seemed to be time to try a few ideas for transmitter construction.

At low frequencies, only vertical polarization is useful, and the average back-yard vertical antenna will have a gain of about minus 30dB, so signals at a distance will be very weak.

To overcome this, Steve, VK2ZTO (3), has suggested the use of frequency shift keying and computer sound card software to display the received signal visually. This allows the reception of signals well below audibility, the disadvantage being that the signalling is very slow. His program, VFSKCW, use Morse code with the "dashes" of equal length to the dots, but at a higher frequency.

I have used this idea to encode an ident in VFSK Morse as well as in normal Morse for a low frequency beacon transmitter. The beacon cycle consists of my call sent three times in normal Morse at 10wpm and once in VFSK Morse with 5 second "dots" and "dashes". This cycle take two or three minutes.

Some amateurs in the UK are using switch mode mosfet transmitters (4) and this seemed a good idea to try, especially as I had not used power mosfets before and excellent efficiency should be possible.

My transmitter circuit is shown in figure 1.

Power mosfets make very efficient switches and are commonly used in switch mode power supplies. They work best when driven by a very low impedance source to minimise feedback and switching times. Rockby Electronics were offering surplus BUZ350, N-type mosfets (200V, 22A, 0.12ohms) at a good price, so I bought 20.

I chose to use the TelCom TC4427, a high power CMOS, dual, non-inverting driver capable of 1.5 amp peak output, ideal for driving the 1300pF input capacitance of the mosfets. I bought mine from Farnell (part number 295-036).

To generate the LF drive I use a PIC16F84 micro-controller. This is a complete micro-computer comprising processor, memory and input/output ports all in an 18 pin chip. It has the great advantage that it is re-programmable, allowing program development by a somewhat "trial and error" method. Ideal for me!

The program has to divide the PIC's crystal clock down to generate the LF signal while at the same time generating the ident signal. By using a high crystal frequency it is possible to generate the drive signals with a time delay between mosfet on times.

The PIC I used was only rated to operate with a 4MHz crystal, but it ran reliably at 19MHz (the highest fundamental crystal I had), so I am happy using it with a 10.245MHz crystal to generate a 183KHz output. PICs are also available guaranteed to run at 10MHz and the PIC16F84A will run at 20MHz.

I use capacitive coupling between the PIC and the driver to (hopefully) avoid destroying the mosfets if I make an error in my programming and leave an output high. The diodes keep the 4427 drive signal between +4.3 and -.7 volt.

The BUZ350s are subject to damage by static electricity. To avoid this, I soldered the 56k resistors between the gate and source of the mosfets as soon as I took them from their conductive packaging. With these resistors permanently in place, there is little chance of damage during further handling.

The leads between the driver and the mosfets should be short, especially the earth connection.

To reduce the high peak voltages when the mosfets are switched off, 4.7nF polypropylene capacitors are connected from each drain to earth. (Farnell 659-745)

A number of different output transformer cores were tried, but I finally stacked two 35mm ferrite toroids from Jaycar (LO-1238). The primary is 5 turns of 26 X .3mm PVC insulated twin flex connected as a bifilar winding to reduce ringing. The secondary is 17 turns of 24 X 0.2mm.

The output low pass filter was made large enough to to handle higher powers in future. I used 1.6mm wire and 1600V polypropylene capacitors (Farnell 659-770). The filter coils are wound on 49mm formers. The 33uH coils have 31 turns and the 63.5uH coil has 54 turns. They are mounted mutually at right angles.

Keyclicks are minimised by ramping the drive duty cycle up and down in software. This proved to be better than using a keying transistor and capacitors.

The power supply used a 12V + 12V transformer which was on hand and the bridge rectifier gave a loaded output of 30 volt. 15 volt is available from the transformer centre tap for the driver chip and is dropped to 5 volt for the PIC with a 78L05.

The transmitter is very efficient. With 120 watt output the current drain with the 30 volt supply is 4.2 amp. Most loss seems to occur in the bridge rectifier. It needed a much bigger heatsink than the output mosfets!

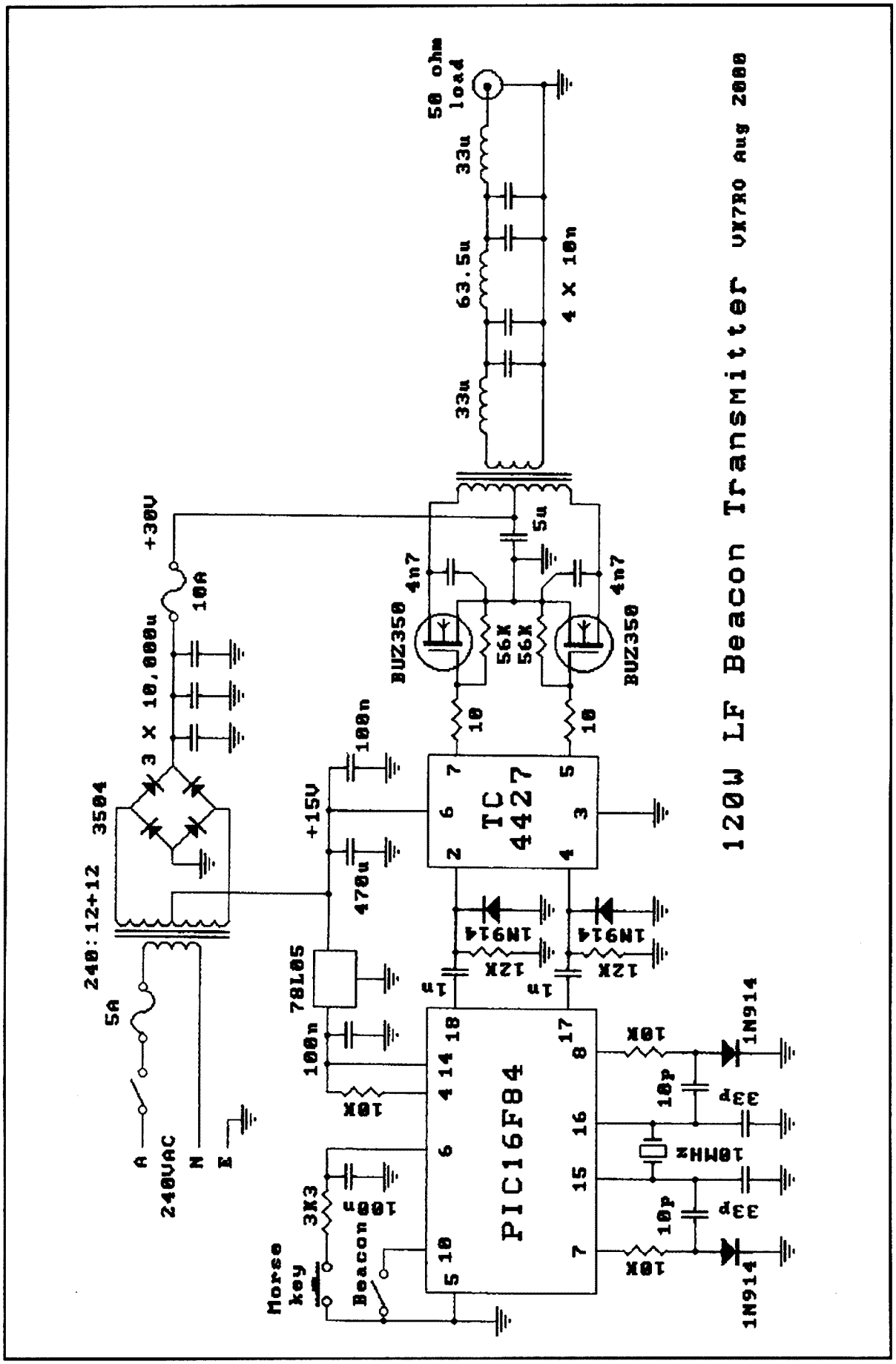

120W LF Beacon Transmitter VX7RO Aug 2000
50 ohm load
33u
63.5u
33u
4 X 10n
5u
+30V
10A
3 X 10,000u
240:12+12 3504
5A
240VAC
A
N
E
BUZ350
4n7
56K
56K
10
100n
+15V
470u
TC 4427
1N914
12K
78L05
1u
PIC16F84
10K
10p
33p
10MHz
3K3
Morse key
Beacon

Figure 1

The frequency shift is accomplished by using two of the PIC outputs to switch additional capacitors on its oscillator crystal. The frequency shift at 183KHz is 2Hz up for dashes and 2Hz down for dots!

Figure 2 shows the display from the program Spectrogram (5) reading the FSK signal with the transmitter running into a dummy load. There was no antenna on the receiver and the signal was only just audible. The fuzzy signal on the left is the normal Morse ident, where it is possible to see the sidebands due to the keying. The main part of the display shows my callsign in FSK Morse. Note that it starts and finishes with a space frequency between the dot and dash frequencies and there are space frequency marks between each Morse coded character. The computers colour display has more information than can be seen in black and white and signals well below the noise are readable.

I initially found Spectrogram tricky to set up. Figure 3 shows the set-up used to generate figure 2.

Copies of the program are probably best distributed as an e-mail attachment. Please contact me at vk7ro@netspace.net.au.

References:

1. Break-In May 1997 p22
2. WIA IARU paper at http://www.cck.net.au/iaru/papers/wia_lf_band_propossal.pdf
3. VK2ZTO at http://www.qsl.net/vk2zto/
4. G0MRF at http://www.g0mrf.freeserve.co.uk/ and G3YXM at http://www.picks.f9.co.uk/
5. Spectrogram at http://www.mnsinc.com/rshorne/gramdl.html

ar

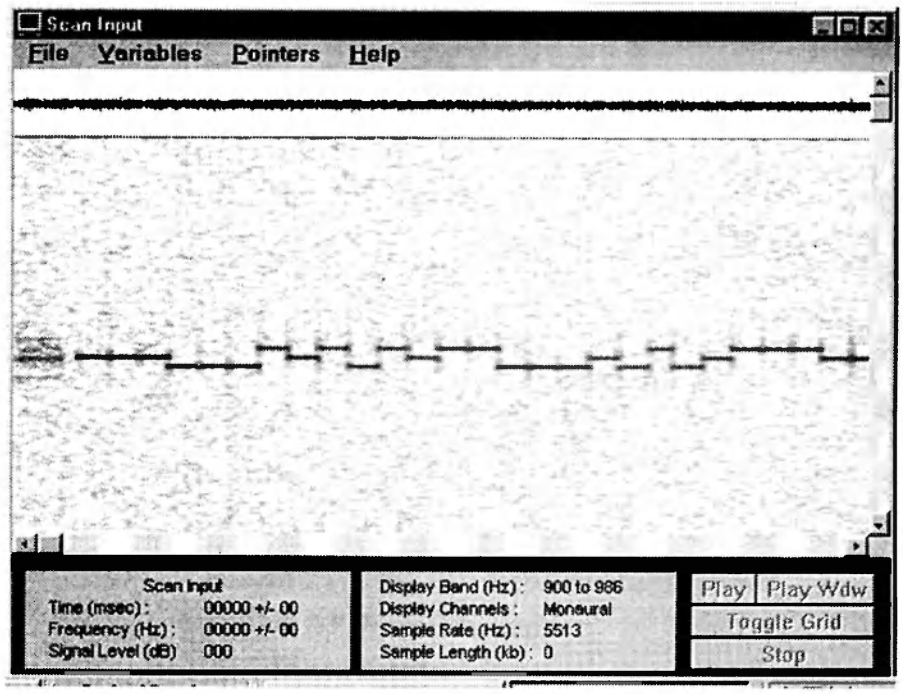


Figure 2

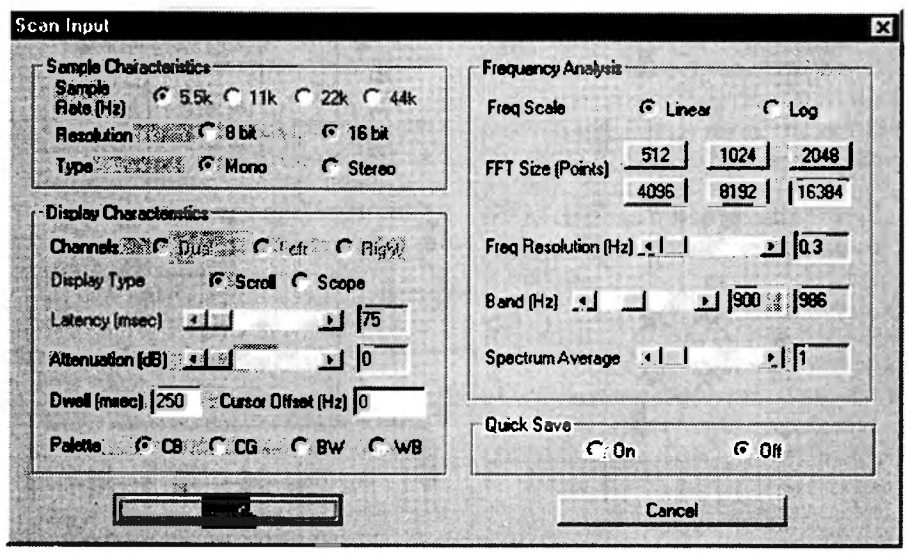


Figure 3

Correction

Amateur Radio September 2000

A Single Sideband Modulator for the LF Transmitter.

Page 14, Figure 4 - Speech Amplifier - Capacitor C7 is shown as 0.1 uF. Loaded into the following 4.7k.ohm potentiometer, cutting of low speech frequencies is a little severe. To rectify this, the value of C7 has been increased to 0.47uF.

73 Lloyd Butler VK5BR

The Urunga Radio Covention 2001

14 - 15 April

The Urunga Radio Convention will be on again at Urunga over the Easter weekend of the 14th and 15th April.

There will be plenty of events and plenty of competitions to win. Some equipment will be available for use and there will be special events for the up and coming Hams, raffles and pick the mystery objects, quizes non-technical and technical, a lot of fun for all.

Portable Ham Radio at Urunga convention 1951. VK2AMV's HF Radio Station in Newry Forest Fire Tower. *Above*—Tower with 2AMV's FJ Holden. *Right*— Gear inside the tower

Programme for 2001 Convention.

Easter Saturday

10a.m to 11a.m 3.5MHz Hunt on 3.5MHz (+ or — QRM)

11.30a.m to 12.00 noon Pedestrian. 2metre Hunt Multi Transmitters 146 MHz

Lunch

2 p.m. to 3 p.m. 2 metre Mobile Hunt multi transmitters 146 MHz

3.30.p.m to 4 p.m. Talk In. Mobile 2 metre 146.500 MHz

6 p.m. Dinner at a local venue(optional) followed by a social evening at the Senoir Citizens Rooms.

* Special Events for Juniors will be run on 80metre & 2metre Some gear will be available for loan.

Easter Sunday

9 a.m. to 9.30 a.m. Urunga Scramble any power, any frequency, any location, highest no. of contacts in 30 mins.

10 a.m. to 10.30 a.m. 40 metre fun type event Transistors radios only,foot power only.

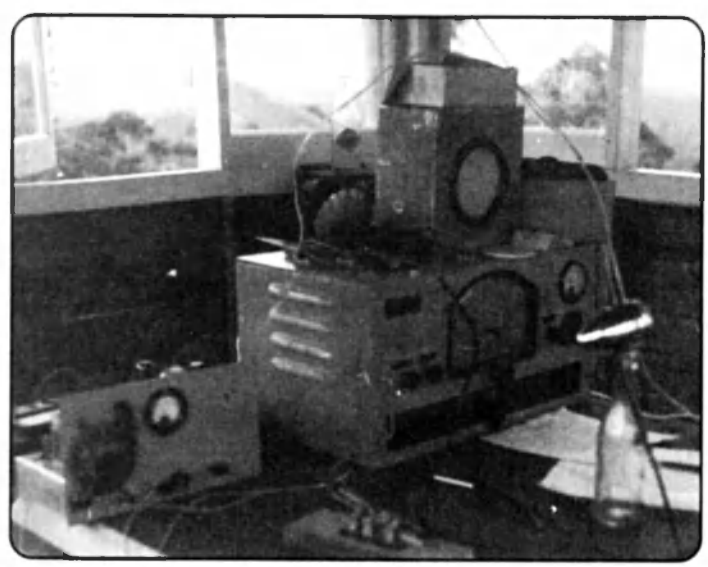
11 a.m. to 12 noon 2metre.Hunt mobile multi transmitters 146 MHz.

Lunch

1.30 p.m. to 2 p.m. 2 metre Hunt pedestrian 146 MHz multi transmitters.

2.30 p.m. to 3 p.m. Talk In pedestrian, 2metre (if time, may be changed) (no points, fun event)

4.00 p.m. Presentation of Prizes,Raffles, quizes,etc.



Adelaide Hills Amateur Radio Society

After the very successful "Buy and Sell" in November the only other activity for the AHARS members was the pleasant occasion of the Annual Christmas Dinner. This year the dinner was held early to avoid clashing with other Christmas dinners but it still caused a conflict for some people. Nevertheless nearly 60 members and partners enjoyed a good meal and much conversation, as evidenced by the fact that noone was in a hurry to go home!!

The first meeting for the new year, a combined meeting with the Elizabeth ARC gave AHARS members an opportunity to see and (some of them) to climb to the top of the water tower this club uses as its headquarters. The view was magnificent though the ladders were not the easiest to climb - YL members had been advised to wear slacks.

A sausage sizzle and an opportunity for the clubs and families to meet each other and a short talk about the technical aspects of lighting the opening and closing ceremonies of the Sydney Olympics brought the meeting to a pleasant and interesting conclusion.

During term time the AHARS meets at the Blackwood High School in Seymour Road Blackwood on the third Thursday of each month, starting at 7.30pm. Any amateurs visiting VK5 are welcome to come along. If any more information is required please contact the President Geoff VK5TY or the Secretary VK5TAW QTHR the callbook.

VK5BAR Pactor BBS

In the article on pages 21 to 25 or Amateur Radio for January 2001, describing the High Frequency Pactor BBS by the Adelaide Hills Amateur Radio Society, it was indicated an alternative site was being sought for the station.

The South Australia VHF/UHF Group and the Elizabeth Amateur Radio Club have undertaken to houise and operate the BBS. Transmissions from VK5BAR will cease on February 10th, and return mid-March 2001, under the callsign VK5LZ.

The new location will be the old water tower at Elizabeth South. All other parameters will remain as published in the article.

Thanks to all those supporters of the BBS during its developement, and to the EARC and the VHF/UHF group for undertaking this continuing task.

Special thanks and congratulations to Rob Gurr VK5RG for his dedication to this project.

Geoff Taylor
President AHARS

A Simple Q Meter

Lindsay Lawless VK3ANJ
Box 760, Lakes Entrance Vic. 3909
Email: linlawless@telstra.easymail.com.au

Assemble the components of Fig. 1 on a breadboard or whatever you fancy and the result is a RF measuring tool that will substitute for more expensive instruments.

The heart of the device is a calibrated variable capacitor (Cs), preferably a linear capacity type, driven by a vernier dial similar to DSE part No. P7170. A 100 pF. variable is shown at Fig. 1 but a larger value can be used or the range of Cs can be extended by connecting a fixed or variable C between So3 and So4. The sockets So1 to So4 are banana sockets similar to DSE part P 1720

The measuring principle is similar to a Q meter; about 10 watt or less of RF from the station Tx is supplied to P1, and Cs is adjusted to resonate with an inductance connected between Sol and So2. Resonance is indicated by a maximum current rectified by diode G2 (OA95) and read on the external (or internal) 50 µA meter (DSE Q2021).

To calibrate Cs and produce a graph like Fig.2, a known value inductance (Ls) is connected between So1 and So2 and the value of Cs, at about 4 settings of the vernier dial, is calculated by transposing the expression for resonance XCs = XLs

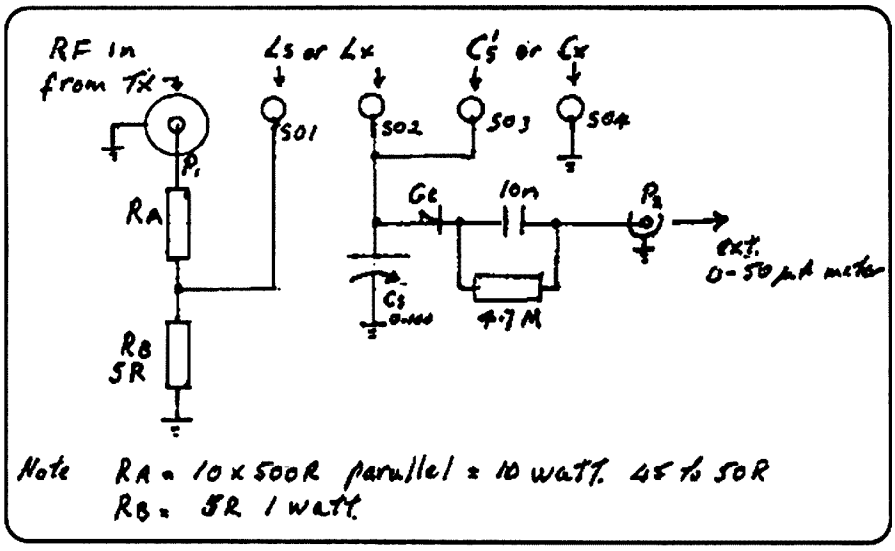


Figure 1

Editor's note

The formula for resonance can be rewritten as $C = \frac{1}{4\pi^2 f^2 L}$

There is only one variable on the right hand side (frequency) as, in this case, L is a constant. This means that the four plots need to be made at different frequencies: preferably different bands.

Ls is the known inductance which can be an "air wound" model constructed according to Drew Diamond's instructions at page 6 of the June 2000 edition of *Amateur Radio*. It is a good idea to make the "form factor" of Ls 3 or 4 i.e. length = 3 or 4 times the radius; there is an advantage to that; the formula for L and N are simplified

Readers who use a dip meter for RF measurements will find the Q meter is much more versatile and has the advantage of a stable frequency source. It will do all that a dip meter can do plus much more, it is limited only by the users skill at manipulating the basic resonance equations and a calculator.

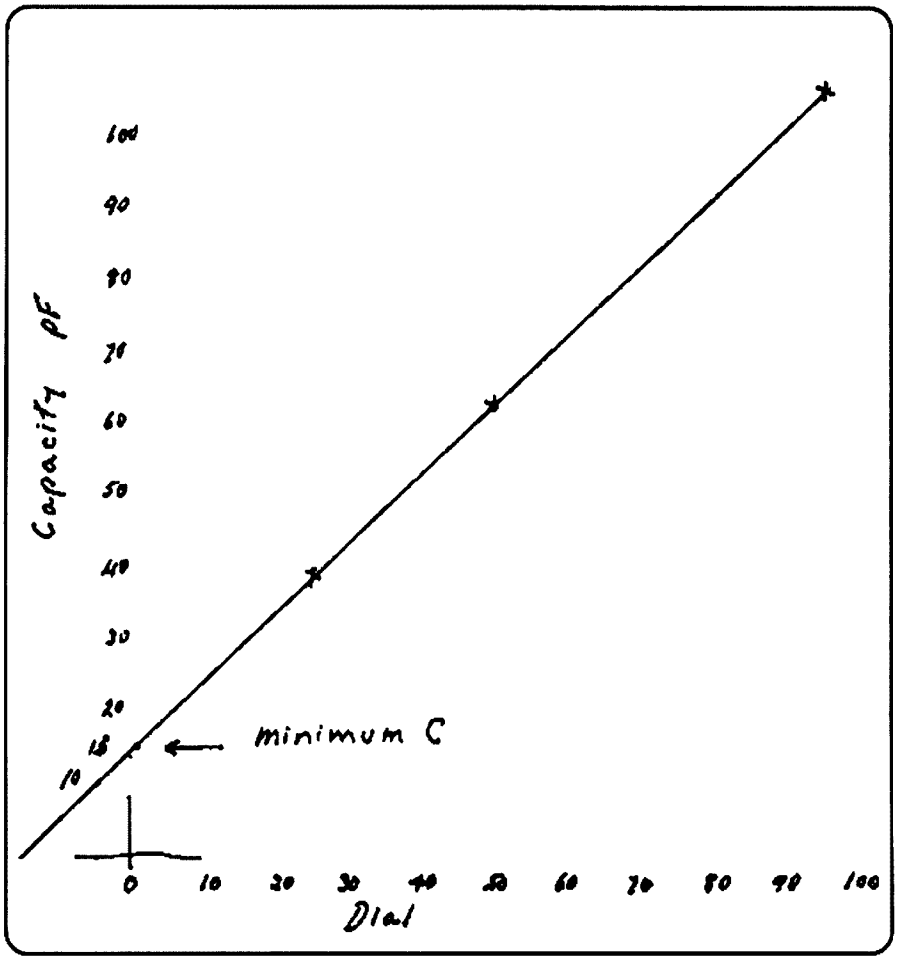


Figure 2

ar

The Repair of the Hi-Gain 18AVT Antenna

Barry White VK2AAB

A common fault with 18AVT antennas seems to be the top coil going open circuit. This was the fault with mine. I sought advise via the packet network and got replies from South Australia and Canada. Both replies suggested that the end caps could be driven off the outer casing as it is only glued into the end caps.

Well they must have used better glue on mine because I could not budge them.

The casing of the coil was made of fiberglass not some form of hard plastic or ceramic as I had previously thought. So nothing to be lost I sawed the end caps off the tube. The construction is an inner tube with the loading coil wound on it and slipped inside the outer fiberglass tube. The coil is connected to screws in the aluminium casting inside the end caps. The screws were steel and had rusted out.

As you will have lost some length from the outer tube by cutting off the end caps you will need to cut the same amount off the inner coil former. You will probably need to remove a few turns from the coil but they can be tucked up in a coil inside the former.

As we are are trying to do a better job than Hi-Gain I drilled two more holes into each of the castings and tapped them for 1/8th screws. Don't go down more that 3/8 inch or you will come out through the end cap. If you don't have a 1/8th plug tap then go and buy one it will be well worth the effort. The biggest failure with this coil would seem to be poor connection between the wire and the aluminium casting. I am not sure but I think the steel screw corroded the wire. To overcome that problem I used brass screws and two of them to decrease the connection resistance and improve the chances of maintaining a good connection over a long period.

I had originally intended to solder the wire to the screw heads but I discovered that the wire is aluminium ! Using brass washers under each screw head I wound the wire around both screws. It would be better to make some aluminium washers and so further reduce electrolytic corrosion. Go gently with the wire as it is very brittle.

After connecting one end of the coil to the screws araldite the outer former into the end cap. Before it sets check that you have a connection from the cap to the other end of the coil. After it sets repeat with the other end of the coil.

As the overall length has changed a little and the coil might have lost a couple of turns you may have to adjust the top whip a little. However you should now have your multiband vertical antenna back in operation.

After I reassembled the coil I found that the tube below the coil was loose. It would not come off and I could not see how it was attached to the coil. Using a multimeter wriggling the tube caused a break in the connection to the bottom end cap.

It was a very brief interruption but would play havoc with the swr.

To fix this problem I drilled three small holes into the tube close below the coil and drove some stainless steel self tappers into the tube and into the internal part which is attached to the coil. This stopped the movement and has made the fitting rigid.

Edgar Olds VK2BY

Edgar Olds VK2BY passed away in Broken Hill on 30 December, 2000, aged 87. He had held his amateur licence since 1936. His early radio activities were curtailed by WWII. Like many amateurs of the time, he resumed his operations after the war, using a mixture of home brew and modified way surplus equipment.

During the late 1950s the pressures of a young family reduced his hours on air considerably, but not his enthusiasm. He became more active once the family was grown up in the early 1970s. His activities at that time included HF rag chewing, VHF and amateur satellite operations and kindled my own interest in amateur radio. Once I was licensed we had daily contact on 40 metres to keep in touch, a practice we maintained until he was hospitalised in November 2000.

As time progressed his interests continued to expand and, when aged over 70, Edgar entered the world of computers and was soon active on packet radio in addition to his other pursuits. His use of computers was extended around the time he turned 80 and became active on the Internet, using email to maintain contact with family and friends. A keen home builder, he liked to build equipment for use in the station, learning about valves, transistors and integrated circuits along the way. It was only his declining eyesight and health that saw him stop building.

Edgar was my father.

Kevin Olds VK1OK

Energy In Radio Waves

Lindsay Lawless VK3ANJ

The speculation by amateurs about the effect of the energy in an electromagnetic wave avoids a quantitative reference to the energy intensity, which after all will cause the damage, if any, to animal tissue.

The intensity of a radio wave is defined as the energy per unit area incident on a surface perpendicular to the direction of propagation; it is measured in joules per second per square metre. An energy flow of one joule per second is one watt so the intensity is expressed in watt per square metre. That is the energy which if collected by a receiving aerial and amplified, produces an intelligible receiver output. It will also accelerate plasma particles, and if enough can be collected it will boil the billy and burn the sausages.

The Sun electromagnetic energy incident on the atmosphere surface is 1.4 kW per square metre (the Solar Constant) but that is attenuated by reflection and absorption and is reduced to about 550 watt per square metre at the Earth surface.

To boil one litre of water requires 420 Kilo joules, therefore all the energy collected in 13 minutes by a one square metre surface in clear sunlight will be required to boil a one litre billy, assuming there are no radiation or absorption losses.

How does a radio transmitter rate as an energy source? The energy from an isotropic source supplied with 100 watt RF will produce an intensity at one metre of 8 watt per square metre. Doubling the power input or the "gain" will double the intensity at the same distance. Doubling the distance will reduce the intensity to 2 watt per square metre..

The intensity from an isotropic source is $Wi = P / 4 Pi (r*r)$

The ratio $W/Wi = G$ a number which can be less than unity; W is the actual intensity at a point distant r from the source, so the intensity from a source other than isotropic is G*Wi, P is the power input.

ar

Education Notes

Brenda M Edmonds, VK3KT, WIA Federal Education Co-ordinator.
PO Box 445, BLACKBURN VIC 3130

Please, help the next generation

Many clubs and individuals devote considerable time, energy and resources to encouraging and assisting new amateurs to become licensed operators. This is an admirable occupation, and those who do the encouraging and assisting should receive our full support. If amateur radio is to survive as a hobby, we must all be prepared to play a part in enlisting new operators. Similarly, if the WIA is to survive, we must encourage new and old licensed operators to become members of the WIA.

However, there is a lot more learning required before a new recruit becomes a fully operational amateur.

Many of those attending classes or reading by themselves to pass the suite of examinations required, have little background in radio and electronic applications. We tend to assume that "everyone knows what volt and ohm are", but few present day students have come up through the "apprenticeship" system which was common a generation or two ago. At that stage, most of the candidates had their interest sparked by meeting and visiting the amateur in the neighbourhood, who demonstrated equipment and explained principles as the questions arose. In many cases, this amateur also coached the candidate for the examinations. Current candidates can sit through a course of lectures and pass the examinations without ever seeing a transceiver. I know of cases of candidates attending a whole course of lectures without having any idea of what a capacitor looked like.

Yes, you're right. This is a plea for those not directly concerned with classes or training to become more involved. Invite some of the students to your shack to experience a QSO in progress. Take some of the students on a Field Day. Or take a neighbour's teenager along and try to spark an interest that way. Or go and help a newly licensed amateur to set up and operate the new equipment.

There is a lot more to becoming an amateur than passing the examinations and buying a transceiver. There is a lot of amateur "culture" which needs to be learnt so that the new operator fits in with accepted practices. We have all heard operating practices criticised by other amateurs, but few of us go out of our way to lead the new licensee along the right paths.

A new amateur is faced with a bewildering range of possible specialities. Will it be UHF, LF, CW, packet, DX, RTTY or another? Unless the new amateur is exposed to these fields the choice is limited. Similarly, a new amateur may find his or her interests leaning towards involvement in further study, playing a part in the management of the club or WIA Division, public service through WICEN, foxhunting, or DXCC. But before the decisions are made, it is necessary for a new amateur to experience some of the vast range of possible preferences. And existing amateurs are in the best position to provide those experiences.

There are some whom it is difficult to assist, by virtue of remote location or other constraints. But I am sure that any new licensee would welcome a helping hand or advice from an experienced amateur, and would then, in turn, be prepared to pass on the assistance to another in the time-honoured fashion. Let us maintain the traditions of helping the next generation and lending a hand when it is needed.

ar

Silent Keys

Howard O. Lorenzen W7BI

Howard died on 23 February 2000 aged 87. He graduated from Iowa State College as an electrical engineer and worked for Colonial Radio Company in the 1920s as chief designer. While there he designed the 5 valve TRF "King" an excellent receiver for its day. I have still got the "King" and its instruction book which Howard gave me and after 76 years it still works perfectly. This set is shown in the photograph.

Howard then moved to the Zenith Radio Corp. in 1939 he designed the superb 'Zenith' Transoceanic Short Wave Portable Radio.

Prior to WW2 Howard moved to the US Naval Research laboratory (NRL) in Washington. He worked developing Naval Radar systems and countermeasures against German Radio Guided Bombs. In the post war period he continued this work in electronics counter measures against radio and radar controlled weapons both near the ground and in space. In 1950 he headed NRL's Counter Measures Branch and supported US military in Korea and Vietnam. His group developed GRAB the Galactic Radiation and Background payload on the first operational reconnaissance satellite. In 1960 the Russians shot down a US U2 Spy plane, 52 days later Howard's team had designed a satellite system to make the U2 unnecessary.

Howard Lorenzen was Superintendent of NRL Space Systems from 1971 to 1973. His work was recognised with the NRL Capt. Dexter Conrad Award for Scientific Achievement and a Navy Meritorious and Distinguished Civilian Service Award.

Howard entered Amateur ranks in 1927 and he obtained both WAS and DXCC status with the ARRL. After his retirement in 1973 he continued his Amateur radio interests, he became leader of the Issaquah Amateur Radio Club and supported their Emergency Mobilisation operations.

I got to know Howard through Amateur Radio and over the years. We first met while I was a Novie operator. We had many contacts over the succeeding years until his death.

Howard was a great Amateur and a great distinguished Electronic Engineer. He loved Ham Radio and will be missed by all who knew him.

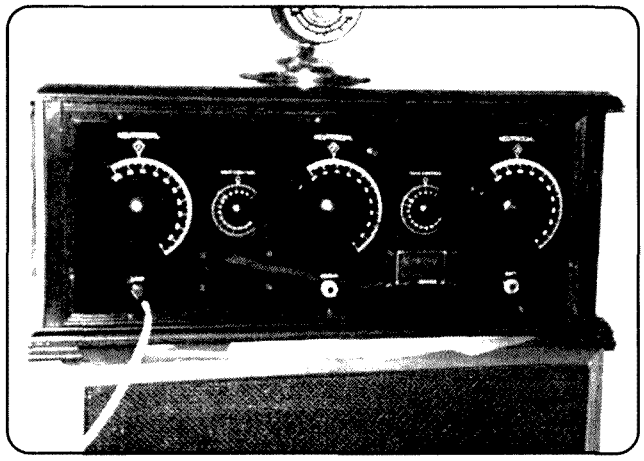


Photo 1: The "King" 5 valve TRF Receiver 1924

Photo 2: Etta Mae and Howard Lorenzen

The second picture is from his last Christmas card and he is see with his wife Etta Mae.

Jim Davis VK7OW.

Arthur Lock VK3AUL (1911 - 2000)

Arthur came to Australia from Britain as a teenager with his widowed mother. Before long he was managing a 50,000 acre cattle station 150 miles west of Blackall, Queensland.

During WWII he saw service in the ME, became a Rat of Tobruk and served in the Pacific area, New Guinea and Borneo.

After the war he worked in the Bright Victoria Post Office and lived in nearby Smoko where he became a very active radio amateur with the callsign VK3AUL.

In 1964 Arthur married a local girl, Ivy, and later formed the first scout troop in Bright.

In 1966 Arthur was promoted to Postmaster Bandiana, near Wodonga Victoria.

Arthur was awarded the BEM in 1972 for Valuable Community Work in scouting and communications.

After many years of retirement in Wodonga, Arthur began to suffer ill health during 1999 and died two days short of his 90th birthday.

Arthur Lock VK3AUL — over but not out

Merv Collins VK3AFO

ar

Digital Modes

from *QSL* January 2001
used by permission

Digital Waves

Is there life after SSB (and CW)?

The ARRL recently conducted a survey of the current digital modes being used on HF and it really is interesting to see the way that Amateur Rdio is now trevelling and where the Computer is now playing a major roll. The following is just a brief synopsis. The full story is available in January 2001 "QST".

RTTY

Is the grand daddy of HF digital. Once a cumbersome teleprinter machine that clacked and clacked, today it has been converted to simple computer operations. It is still very popular, but now driven by computer. It is not error free.

AMTOR

(Amateur Teleprinting Over Radio) Enjoyed widespread popularity from about 1983 through 1991. It's distinctive chirp was well known on the HF bands. It has an advantage that it is error free as it requires an acknowlement from the receiving station. You need a fast switching transceiver for this.

PACKET

Has been in existance since the early 70's and really came into it's own in the mid 80's. It too is error free, but does require a reasonably quiet band to function efficiently. It really shines on VHF, especially with networks. One application is APRS (Automatic Position Reporting System) which you can find on the top end of 30m.

PACTOR

Strolled into the limelight in 1991. A combination of AMTOR and PACKET. A robust error-free system. PACTOR II came to air in the mid 90's and today it is used more by the professional people.

CLOVER

Was unveiled in 1993 by HAL Communications. It also came with a stiff price and it is necessary to use a HAL processor.

G-TOR

Was the brainchild of Kantronics. Yet another high performance mode but it meant using Kantronics equipment. It is somewhat uncommon on the ham bands today.

PSK31

Viewed as the high-octane cousin of RTTY. It is not error-free, but offers excellent weak-signal performance. Invented by Peter Martinez, G3PLX, who also brought AMTOR to the Amateur world. In 1999, Peter designed a version of PSK31 that needed nothing more than a basic computer with a sound card. The software is free to the ham community. In 2000, new software packages such as Digipan and WinPSK became available. It is now the number one HF digital mode and only uses a signal bandwidth 31 Hz.

HELLSCHREIBER

This has been around since the 1920's and was used extensively in WW II by Germany. It sounds like a hen scratching in the earth! Today simple software is available to run this from your computer.

MT-63

Pawel Jalocha, SP9VRC, invented this. It is a keyboard-to-keyboard "live" mode operationally similar to RTTY and PSK31. It uses 64 different tones which reduces the amount of redundancy even with heavy interference. Unfortunately it requires a bandwidth of 1 kHz which is not so good on a crowded band.

THE FUTURE

New modes that are already being developed include PICCOLO 2000, THROB, MOSAIC II and others. THROB is a 9 tone MFSK digital mode. So, if you are into HF Digital hammering, there are certainly exciting times ahead! We may even see some appearing on VHF. Which one have you tried?

These need checking for full addresses

Sound Card Software can be obtained from the following web sites.

Blaster Teletype (RTTY) www.geocities.com/SiliconValley/Heights/4477/

Digipan (PSK31) www.members.home.com/hteller/digipan/

DSO-CW (CW-RTTY) www.zicom.se/dsp/index.html

Hellscreiber www.IZ8BLY iz8bly.sysonline.it/

also, www.members.xoom.com/ZL1BPU/software.html

MMTY www.geocities.com/mmtty_rtty

Mix32W (RTTY and PSK31) www.tav.kiev.ua./~nick/my_ham_soft.htm

MFSK16 and other modes www.iz8bly.sysonline.it

de VK2AYD and VK5UE

ar

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Super Regen Receiver

An interesting article on super regen receivers appeared in QEX Sept/Oct 2000. The author was Charles Kitchin N1TEV. The article covers the theory of super regen receivers and offered a number of circuits. The reception of NBFM with a super regen receiver was discussed as well as the provision of a mute circuit.

A receiver covering 88 to 180 MHz is shown in Fig 1. The tuning capacitor is a two or three gang unit salvaged from an FM receiver. To receive NBFM the quench waveform pot R6 should be adjusted for best reception of the NBFM signal. The quench frequency pot R5b should be adjusted so as to allow smooth regeneration throughout the tuning range.

The circuit can be adapted for other tuning capacitors. A little bit of searching at hamfests and similar should turn up something suitable.

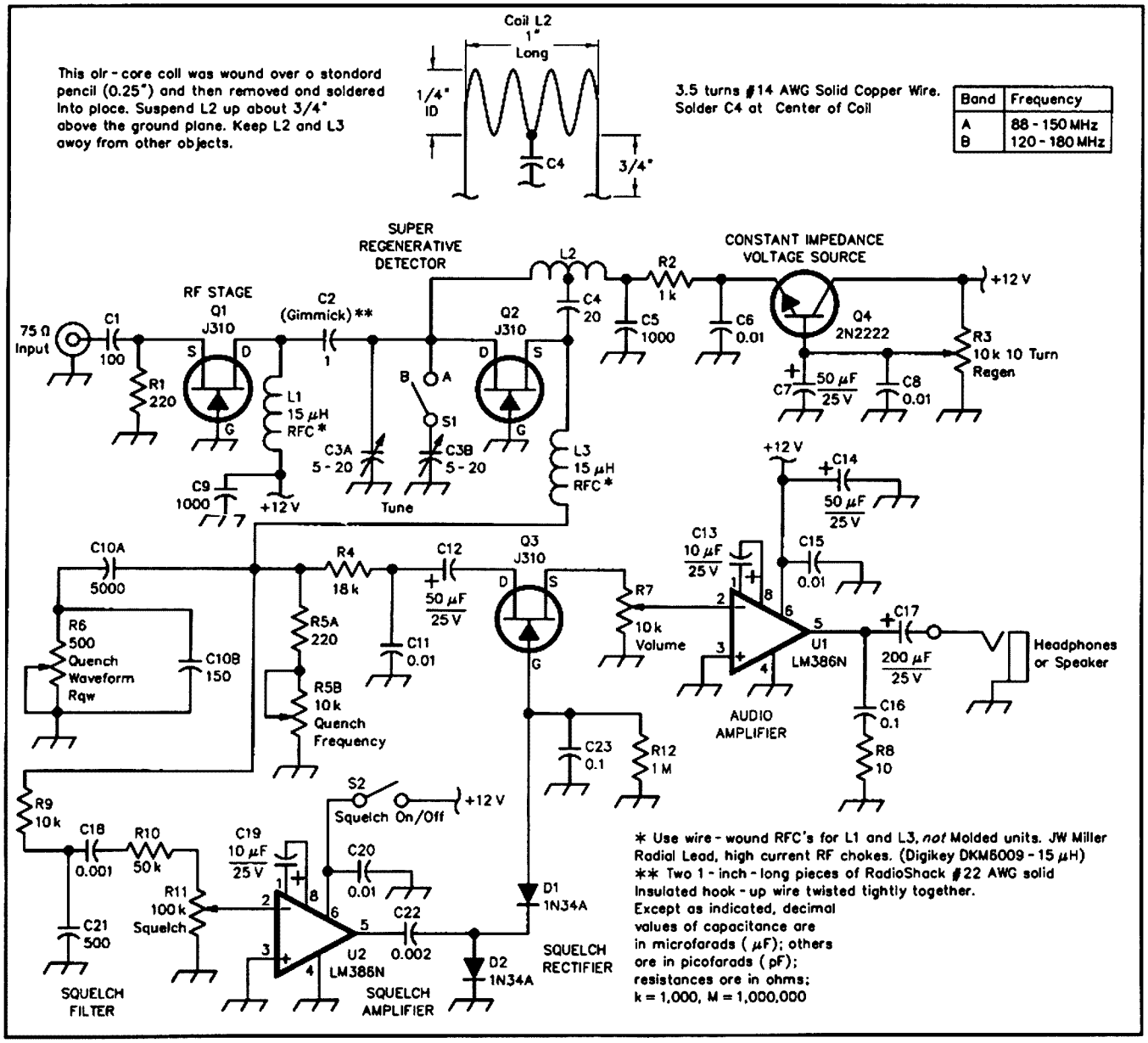


Fig 1. Two Band 88-180 MHz Super Regen Receiver.

Resonant Trap Baluns

In the Tech Notes column of Peter Bertini K1ZJH in QEX Sept/Oct 2000 a simple method of constructing tuned coaxial baluns was presented by Rick Littlefield K1BQT.

The tuned trap balun is made by winding a coil out of the coax feedline near the feed point and then resonating it with capacitors. The tuned circuit so formed has a high impedance which blocks any current trying to flow down the coax outer. This is is a pretty effective balun. The balun circuit is shown in Fig 2. which shows how the tuned circuit blocks common mode currents on the coax outer.

Construction of the balun is shown in Fig 3. The coax is wound on a PVC form with the resonating capacitor string inside for weather protection. The PVC pipe is given as 2 inch ID thin wall Schedule 40 PVC "pressure pipe". This should have a local equivalent and a browse through a plumbing supply should provide something suitable.

The capacitors are all silver mica and should be at least 500 volt rating. This should be adequate for a normal 100 watt transceiver. a 400 watt linear would require higher voltage capacitors and 1000 volt rating capacitors would be appropriate. Trap resonance can be checked using a Grid Dip Meter.

The Data for the Balun is given in Table 1.

Table 1. Component Data for HF Trap Baluns

Band	*Turns*	*Capacitors*	*Hole Spacing*	*RG58 Length.*
80	26	5 x 470 pF	5 1/8 inch	19 ft.
40	13	5 x 330 pF	2 9/16 inch	9 ft 6 inch
30	10	4 x 200 pF	1 15/16 inch	7 ft 6 inch
30	10	6 x 300 pF	1 15/16 inch	7 ft 6 inch
20	9	4 x 100 pF	1 3/4 inch	7 ft
20	9	6 x 150 pF	1 3/4 inch	7 ft
17	7	5 x 120 pF	1 3/8 inch	5 ft 6 inch
15	6	5 x 100 pF	1 3/16 inch	5 ft
12	5	5 x 100 pF	1 inch	4 ft 6 inch
10	4	5 x 100 pF	13/16 inch	3 ft 6 inch

All Capacitors are 500 volt Silver Mica.

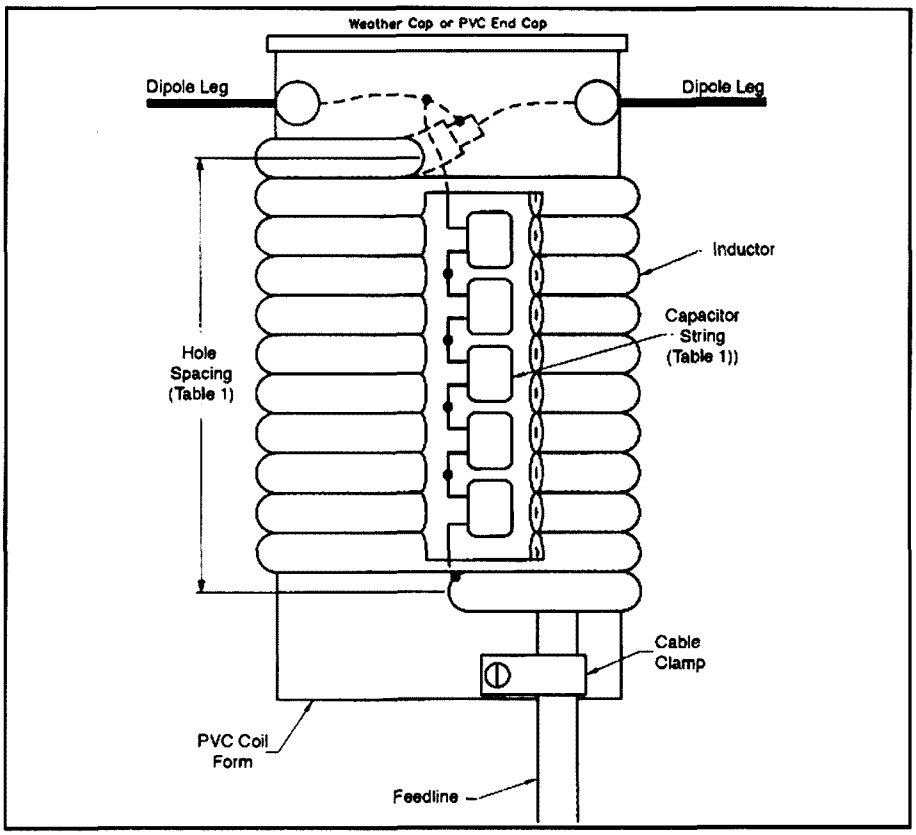


Fig 3. Construction of trap balun. PVC Cap provides weather protection. Capacitor string is installed inside the form.

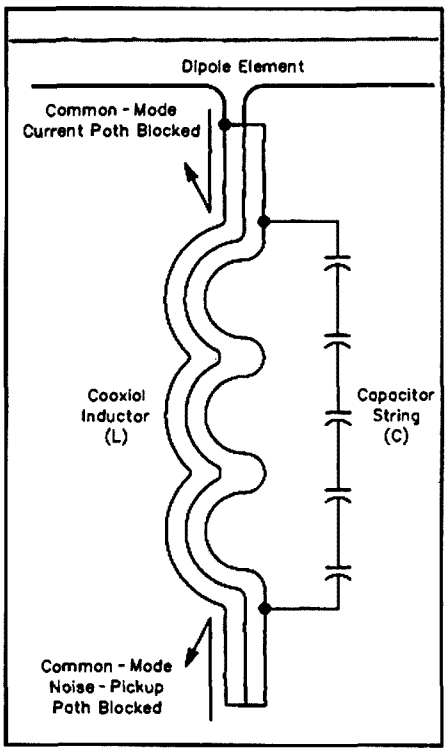


Fig 2. Trap Balun. Tuned circuit provides high impedance blocking path.

continued next page

The Whistling Whip

This is an item submitted by Rodney Champness VK3UG concerning a problem he experienced with Aeolian Vibrations and his cure. Aeolian vibrations occur due to air movement over a structure which causes vibration to occur. In Rodney's case this was a whistling mobile whip.

Here is Rodney's experience.

A number of amateurs who want good VHF mobile performance and are game enough to do it, drill holes in the centre of the roof of their vehicle and mount an antenna.

On some vehicles at speeds around the 100 km/h mark (more or less) a whine/whistle is heard in the vehicle due to the steel whip antenna vibrating in the fast moving air. It can be VERY annoying.

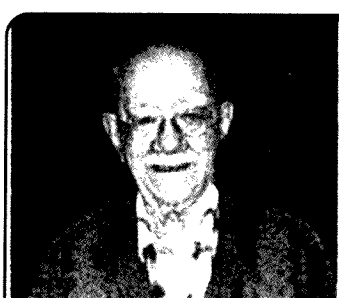
In many cases it can be largely overcome by a small modification to the antenna. In the case of my quarter wave two metre whip, I have put a "vibration damper" near the end of the whip. This consists of approximately 9 mm diameter plastic sleeving. This is slipped over the antenna and taken down 25 to 30 mm (in my case) from the top to prevent detuning of the antenna. The gap between the sleeve and the whip is loosely filled with soft foam plastic, but filled sufficiently tightly that it doesn't move. Push it in with a screwdriver or something similar. If it is packed too tightly the vibration damping effect will be negligible.

Happy whistle free mobiling from Rodney Champness VK3UG.

ar

Silent Key

Les Osborne, VK3AAO



P.O. 16, BENALLA 3672
VICTORIA, AUSTRALIA

VK 3AAO

QSO With	DATE	GMT	FREQ	RST	MODE	QSL

Remarks

73's LES OSBORNE
110 Arundel Street

It is with deep regret that I have to advise that Les Osborne VK3AAO has become a silent key. Les came to amateur radio on retirement. He joined the WIA on 24/01/61 (Associate Cert 1313). He studied for the exams passed the Morse first up and had two goes to pass the theory. His first QSO was on 14/2/65 with VK5GP on 40 metres AM at 1610 GMT. His last on 5/01/01 on 14.130 MHz at 11.32 GMT with Ralph VE3PBR. He died on 6/01/01.He would have been 93 on 25.03/01.

Les built his own gear like many other amateurs in the 60s and went mobile. With his wife Esma he toured the Conventions and Field Days. He got to meet face to face many of the people he had first met on air. Many Hams came and stayed with Les and Es from both inter state and overseas.

I first came across Les on the shortwave band as I tuned around. This led to a visit and I was on the way to get my licence with Les as mentor and friend. He helped many others get into Amateur Radio. I have much appreciated the continuing friendship I had with Les.

Ham Radio helped Les through the loss of his wife Es on 8/01/98 and gave him a continuing support group. It was one of these friends who alerted me to Les's absence from the Saturday morning sked on 6/01/01.

Les will be missed by Hams in Australia and overseas. He spent thousands of hours on the air and kept meticulous logs. The last entry on 5/01/01 was number 107,992.

Pallbearers at the funeral were Bob Bird VK3GEB, Ron Burns VK3COP, Warren Heywood VK3WH and Ray Wales VK3RW.

Ray Wales VK3RW

Beyond Our Shores

New Column

David A. Pilley VK2AYD

This is a pilot run. The objective is to bring to you each month, some of the happenings (and trivia) from other Amateur Radio Society Journals overseas. David, VK2AYD, has offered to write this, but he only has access to "QST" and "Radcom". If you feel such a column would be of interest and you have access to Journals from other Societies he would be more than pleased to hear from you each month. Easily reached on davpil@midcoast.com.au

House Hunting U.S. style.

When people go house hunting they often stop in their car outside a prospect house and make a quick judgment based on the view from the outside, not knowing what is on the inside. In the USA they have allocated 1600 kHz to the Real Estate industry and you now have "Talking Houses" which transmit with a maximum power of 100 mW and are said to have a range of about 450 metres. The transmission describes the better points of the property. So you can now sit in your car and listen to the sales pitch.

So tune around 1600 kHz at night - you may pick up a bargain....!

FCC gets tough

The January QST reported two cases of Radio Amateurs being fined for unlicenced operation and causing interference on repeaters. In one case in California, the Amateur is to serve 3 months in jail and in Texas a $US8,000 fine was given for malicious interference. The fines followed a FCC investigation that involved the use of direction-finding equipment to trace the signals that came from vehicles.

In the U.K. they have the AROS (Amateur Radio Observation Service) which acts on behalf of the RSCB and works closely with the RA (Radiocommuncations Agency). It is responsible for observing operating practices and activities on the amateur bands. AROS helps the RA to make its case against licence abusers. So remember - Big Brother is watching - somewhere.

Space Station Alpha

An interesting editorial in January RadCom concerning applications being invited from amateur radio club stations at schools to make scheduled contacts with the astronauts on board "Space Station Alpha". Are there any schools in Australia taking part in these contacts? You may not be aware that Cmdr. William Shepherd, KD5GSL, made the first amateur radio contacts from the ISS on 17 November.

USA New Morse Exam

Effective from July 1, 2001 there will be two standard methods used in the USA. One is by answering seven out of ten fill-in-blank format questions; or by achieving a character count of at least 25 characters copied correctly on a one-minute-solid-copy review. All Morse exams will be transmitted using the Farnsworth method of sending characters. That means the characters will be sent at between 13 and 15 WPM, with considerable spacing between characters to balance out the message to the prescribed speed of 5 WPM.

ITU, IARU New Publication

The International Telecommunication Union and the International Amateur Radio Union have agreed jointly to produce an ITU publication made up of excerpts relating to amateur radio from other ITU publications. It will also be available on CD-ROM. This will include relevant excerpts from the International Radio Regulations as amended by WRC-2000 in Istanbul last year.

ar

DON'T MISS THE ACTION!

High Performance VHF/UHF Base Station Antennas

Diamond base station antennas offer outstanding quality and exceptional value. These stacked collinear types provide high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester outer radome and gasket seals provide excellent all-weather operation, and compact ground-plane radials are supplied. Stainless-steel mounting hardware ensures a long, trouble-free life. Supplied with instruction sheets for easy set-up. Made in Japan.

2m/70cm X-50A

Frequency: 144-148MHz, 430-450MHz
Gain: 4.5dB on 2m, 7.2dB on 70cm
Max power: 200W
Length: 1.7m, max wind 60m/s
Type: 6/8λ.(2m) 3 x 5/8λ.(70cm)
Connector: SO-239 socket

DIAMOND ANTENNA

D 4855

SAVE $25 **$119**

6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

D 4825

2m Heavy Duty Base Station Antenna

For use where long-range omni-directional 2m band (144-148MHz) coverage is required. This 3.4m long 1/2 wave over 1/2 wave colinear vertical antenna provides approx. 5dB gain, and is housed in a very tough single-section fibreglass radome for all-weather protection. The strong aluminium base section is fitted with an N-type socket in its base for coax cable connection.

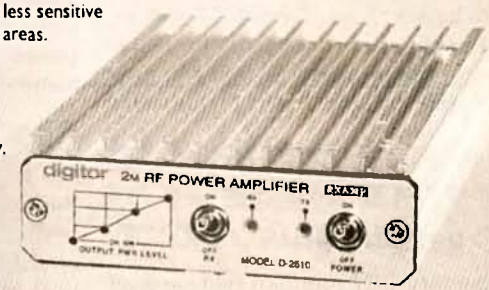
D 4822 BENELEC **$129.90**

Digitor 2m 30W RF Power Amplifier

If you use your 2m band FM handheld at home or in the car, but find that 2-3W RF output isn't enough for reliable communications, then this compact 30W RF amplifier may be the answer. It works with inputs from 0.5 to 5W and produces up to 30W output with just 3W input. A switchable 12-15dB gain low-noise GaAS FET receiver pre-amplifier can be selected for improved receiver performance on less sensitive handhelds when being used in RF quiet areas. The amplifier offers a large heatsink for extended duty-cycle transmissions, fused DC power lead, and SO-239 input/output connectors. Frequency range 144-148MHz, FM only. Size: 100 x 36 x 175(WHD).

D 2510

$99.90



FT-8100R 2m/70cm Mobile

The Yaesu FT-8100R is a state-of-the-art 2m/70cm band mobile transceiver that combines high power and a highly versatile memory system with an excellent wideband receiver and solid construction. Its US MIL-STD-810 shock and vibration rating is your assurance of years of reliable operation. Includes hand mic, mounting bracket and fused DC power cord.

Features

- 198 memory channels
- 1200/9600 baud packet socket
- Inbuilt antenna duplexer
- Inbuilt crossband repeater facility
- Dual receive capability (VHF/UHF, VHF/VHF, UHF/UHF)
- Optional remoteable front panel

Frequency range: Tx 144-148MHz, 430-450MHz Rx 110-550MHz, 750-1330MHz (less cellular)
Output power: 2m: 50, 20, 5W 70cm: 35, 20, 5W

D 3314

$1086

2 YEAR WARRANTY

BONUS X-50A 2m/70cm base station antenna valued at $119.

PHONE FAX AND MAIL ORDERS direct link

PHONE: Within Australia: 1300 366 644 (Local call charge)

FAX: (02) 9395 1155 within Australia and (+612) 9395 1155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELECTRONICS, Direct Link, Reply Paid 160, PO Box 321, North Ryde NSW 1670 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected stores only. Other stores can place orders on a deposit-paid basis. Offers expire 28/2/2001. All prices shown are inclusive of GST.

2146 DPS 4 col

DON'T MISS THE ACTION!

3-15V 25 Amp DC Power Supply

Our highest performance power supply, with current up to 25 Amps ICAS at 15 Volt, 20 Amps continuous at 13.8 Volts, and lower currents at lower voltages. It also has front panel metering, plus high-current banana-style and low-current output connections for extra flexibility. An internal heatsink and thermally-switched fan provides cooling without protrusions in the metal case (which measures 320 x 150 x 145mm). Don't confuse this power supply with look-alikes, it's been specially modified to DSE specifications for more reliable long-term operation, and uses a rugged 50 Amp bridge rectifier and a trifilar-wound transformer. We've also provided extensive overload protection through dissipation-limiting circuitry for the pass transistors, a 30 Amp instantaneous current limit, quality AC mains circuit breaker, a transformer thermal fuse and fused auxiliary secondary winding.

D 3800

SAVE $50 **$249**

Yaesu FT-90R 2m/70cm micro mobile

Another engineering breakthrough from Yaesu – a tiny-dual band mobile rig with high power output, a remoteable front panel, and a rugged receiver front-end. The FT-90R provides 50W RF output on the 2m band as well as 35W output on the 70cm band, a solid die-cast casing with microprocessor controlled cooling fan for reliable operation, and a large back-lit LCD screen, all in a package measuring just 100mm x 30mm x 138mm.

Also includes:

- Wide dynamic range receiver for greatly reduced pager breakthrough.
- Huge receiver coverage – 100-230, 300-530, 810-999.975MHz (Cellular blocked).
- 180 memories and a variety of scanning functions.
- Built-in CTCSS encode/decode, battery voltage metering.
- Designed for 1200 and 9600 baud packet operation.
- Tiny remoteable front panel (requires optional YSK-90 separation kit)
- Includes MH-42 hand mic, DC power lead, and easy to follow instructions.

D 3312 **2 YEAR WARRANTY**

AMAZING VALUE!

YAESU **$699**

YSK-90 Front Panel Separation Kit **$144**

D 3317

Yaesu FT-840 HF Mobile **ONLY 10 PCS AVAILABLE AT THIS GREAT CLEARANCE PRICE!**

An ideal first rig for home or vehicle use, the economical Yaesu FT-840 covers all HF bands from 160-10m with 100W PEP output, and provides continuous receiver coverage from 100kHz to 30MHz.

The FT-840 provides:

- SSB/CW/AM operation(FM optional)
- 100 memory channels, two independent VFOs per band
- Large back-lit LCD screen, uncluttered front panel
- Effective noise blanker
- Variable mic gain and RF power controls
- SSB speech processor for greater audio punch

2 YEAR WARRANTY

- IF Shift & CW Reverse to fight interference
- Dual Direct Digital Synthesisers for cleaner TX/RX operation
- Compact case size of just 238 x 93 x 243mm(W.H.D.)

D 3275 **YAESU**

FM module suit FT-840 **$109**

D 2932

SAVE $200 **$1383**

Some units may be shop soiled or missing packaging, but full warranty applies.

PHONE FAX AND MAIL ORDERS direct link

PHONE: Within Australia: 1300 366 644 (Local call charge)

FAX: (02) 9395 1155 within Australia and (+612) 9395 1155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELECTRONICS, Direct Link, Reply Paid 160, PO Box 321, North Ryde NSW 1670 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected stores only. Other stores can place orders on a deposit-paid basis. Offers expire 28/2/2001. All prices shown are inclusive of GST.

2146 DPS sp.col

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.30pm local time. The broadcast text is available on packet, on internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

VK2 Division News South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue & Thur 0930-1500)
Phone 03 9885 9261
Web: *http://www.tbsa.com.au/~wiavic/*
Fax 03 9885 9298
e-mail: *wiavic@alphalink.com.au*

President	Jim Linton	VK3PC
CEO	Barry Wilton	VK3XV
Secretary	Peter Mill	VK3APO

VK3BWI broadcasts on the 1st and 3rd Sunday of the month at 8.00pm. Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Colin Gladstone	VK4ACG
Secretary	David Jones	VK4OF
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $56.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*

President	Jim McLachlan	VK5NB
Secretary	David Minchin	VK5KK
Treasurer	John Butler	VK5NX

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.iinet.net.au/~vk6wia/*
e-mail: *vk6wia@iinet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hadland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $69.00 Pensioner or student $59.00. Without *Amateur Radio* $38.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $88.00 Pensioner or student $75.00. Without *Amateur Radio* $55.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

Division News

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

One of the regular events happening every year is the Annual General Meeting (AGM). Leading up to it is a busy time for the committee members as the annual report must be prepared for presentation to the members. This report contains descriptions of all the significant events that the Division as a whole was involved in. It also gives members an overview of what was achieved and how. The AGM provides an opportunity for a change in the management of the Division as some committee members do not re-nominate, thereby giving other members a chance to get on the committee. The Division's constitution allows nine positions i.e. President, two Vice-Presidents, Treasurer, Secretary, Federal Councilor, Alternate Councilor, and two ordinary members. Some committee members have a secondary responsibility. For example: Chairman of the ACT Technical Advisory Committee, WICEN Coordinator, Membership Secretary, and Education Officer. However, it does not stop there. There are other portfolios that are taken care of by ordinary members. One of these is Public Relations Officer; others are Deceased Estate Officer, QSL Managers in/out, Broadcast Officer, and Intruder Watch Officer. Many of our members support the committee and provide services to all of us in different ways. During last year's Novice course, some of us demonstrated skills in teaching electronics, Morse code, and regulations. We are still looking for volunteers to fill positions such as ALARA and JOTA liaison, contests and awards officer, and Clubhouse activity coordinator. More about that at the AGM. So, if you have an idea and need resources, let us know. If you want to become a committee member, you must fill in a nomination form. These are available from the Secretary by calling him on 6231 1790 or pkloppen@dynamite.com.au If less than nine nominations have been received by the time of the AGM, nominations will be called for then. The AGM will be held at the Griffin Centre, Civic, Canberra City, on Monday, February 26, 2001, Starting at 8 pm sharp!

VK2 Notes

By Pat Leeper VK2JPA

Annual General Meeting

Firstly, a correction to the date published in the January AR – we inadvertently chose Easter Saturday so the date has been changed to avoid the Easter weekend and the nomination date adjusted to match the change.

The VK2 Annual General Meeting will now take place on Saturday 21 April 2001, at Amateur Radio House 109 Wigram St Parramatta, commencing at 11.00 am.

Nominations for Council and "Motions on Notice" must be received at the office not later than 12 noon on Saturday 10 March 2001. The necessary nomination forms will be available in February from the office.

This is your chance to have a say in the running of this Division. New blood is needed on the Council to pursue aims to the betterment of Amateur radio - to protect our frequencies, and draw younger people to the hobby. The old guard is fading fast, it's time for the new generation to take a hand.

Remember to make your ballot count, by reading the instructions carefully and marking your choices for nine councillors.

The Divisional office reopened on 8th January and has a plentiful supply of 2001 callbooks. These can be ordered by phone or mail by credit card or cheque. Contact the office for further details on 02 9689 2417.

Not much else to report this month following the holiday break. Your VK2 Notes writer spent three weeks in Tasmania and Queensland and has come back with a Tasmanian cold after chilly Christmas weather. I hope you all had a beneficial holiday break and are ready for the coming year.

That's it for this month – see you next time.

VK3 Notes

Website www.wiavic.org.au Email wiavic@wiavic.org.au

By Jim Linton VK3PC

Annual matters

The WIA Victoria Council is soon to finalise the 2000 year reports to members, accept the audited financial accounts, and set the meeting date for the annual general meeting.

Members will be advised of the date of the AGM and receive the usual annual reports.

RD Contest

Firstly, congratulations to VK4 for being declared the winner of the Remembrance Day Contest 2000 - see full details on page 42.

WIAQ can be proud of the achievement, and under the current rules of the contest will probably be able to build on that success to see VK4 win again next year.

Sadly, the efforts VK3 were insufficient. However, enormous individual and group enthusiasm displayed during the RD Contest 2000 is appreciated, and collectively the disappointment is felt. To those VK3 clubs and individuals who were winners in the various categories, congratulations, well done.

WIA 90 Award

A reminder about the 90th birthday of WIA Victoria. Members are encouraged to join in the celebration and qualify for a special award through personal achievements.

The details of the award appear on the WIA Victoria website, and are available on request. The mandatory requirements include submitting an entry in the RD Contest 2000, and making contact with nine other WIA Victoria members (not during a contest).

There is also a list of extra optional achievements for qualification.

Entries for the WIA Victoria 90 Award close on 30 June 2001. It is available at no charge.

WIA Exam Service

As mentioned about 12 months ago, the WIA is planning to change the operation of the WIA Exam Service, to make it more efficient, reliable, and accountable.

After an extensive consultation process, the WIA is about to re-shape the WIA Exam Service to better meet the needs of the amateur radio fraternity, and the implicit requirements of the Australian Communications Authority. Many on the list of examiners have not been active for some time. This is extremely frustrating to those trying to find a place to sit an exam.

The WIA is anticipating writing to all listed examiners inviting them to re-apply to continue as an examiner if they wish under next rules and conditions. These will be fully explained to each examiner. Briefly, the following is proposed:

- Only WIA members may be examiners, except for remote locations where a WIA member is not available, and in limited other circumstances.
- Examiners will be appointed for a fixed term.
- Exam centres will be nominated. Exam centre coordinators will be appointed.
- A role for WIA Divisions in examiner appointments.

VK4 Notes

QNEWS

By Alistair Elrick VK4MV

Down The Sewer - VK4 Style.

BTC (BearCom) of Brisbane have solved a communications problem in the State capital of Brisbane, by taking a few well chosen steps backwards, to move forwards. To enhance safety for the operators of machinery currently boring under the city in the construction of a multi-million dollar sewer tunnel, they've turned to the leaky feeder cable antenna. This gives continuous radiation of signal along the tunnel and reception is much improved over isolated conventional antennas. The system is continually extended as the tunnel progresses and is coupled to the topside system so all workers are in constant radio communication with one another.

Brisbane Hit By Snowstorm!

Hundreds of television viewers are finding summer snow on their screens since the introduction of digital transmission, the Federation of Australian Commercial Television Stations has reported. Around 1500 people per day or an increase of about 50 per cent compared to the days before Mondays official start to the VK digital system in mainland capital cities.

Unfortunately Brisbane was worst affected, where the new digital channel for SBS is 36, a channel commonly used by viewers for their video cassette recorders. The interference from digital transmission appears as snowing or a sort of sparkly effect. Outside of Brisbane, the problem was much less frequent, and even in the Queensland capital, the interference was usually easily fixed by reprogramming the VCR to use a channel other than 36.

U3A

No, not a new callsign from the Soviet area, this stands for University of the 3rd Age. Are you are interested in Amateur Radio, Citizens Band, Short Wave Listening, Scanning or the Internet? Then you can learn Amateur Radio with the U3A Amateur Radio Group, which meets in the Redcliffe district every Tuesday between 9.00am - 12noon.

Contact Kevin VK4AKI the Coordinator / Facilitator by Packet as VK4AKI @VK4ITM or on EMAIL kevjon @ bit.net.au or even phone Kevin 3880 1112

A person is in the Third Age in retirement or on completion of the responsibilities of parenthood. The Third Age is the part in one's adult life when one has the time to devote to interests other than earning a living and raising a family. U3A has sixty-two campuses on the East Coast of Australia, seven in Queensland, forty-eight in Victoria, six in New South Wales and also one can be found in South Australia. So look for one in your area and investigate some new scope in continuing to learn, as you grow wiser.

Repeater on 70cm up and running

The Tablelands Radio and Electronics Club (TREC) has their new repeater up and running in Atherton. It is on 439.500MHz, with a negative 5 MHz split.

Bill VK4WL, John VK4TL and Dale VK4DMC erected an antenna mast at the clubrooms in downtown Atherton and put the new repeater on air, in test mode. It is performing well and can be worked from many points on the Tablelands. After a short time operating at the clubrooms the repeater will be relocated to a permanent location on Bones Knob, above Tolga, where it should give excellent coverage to the Tablelands and parts of the coast in the Cairns vicinity.

Radio Scouting

Have YOU forwarded all the paperwork back to your leaders and forwarded stories of your JOTA activities to the National Scout Coordinator, VK4SGW? Hopefully the answer is yes.

Just to see what others have done here's a brief outline of JOTA activity from Brisbane's Bayside Club as presented in their December Newsletter.

JOTA was held at Karingal, over on Macleay Island and also at Kindilan which is 87 hectares of bushland near Redland Bay and is the site where Guides spent JOTA under the watchful eyes of VK4's BAY and DCM who manned VK4GGK. Macleay Island also had a Guides activity staffed by VK4's TJE and XR looking after VK4GGM. One contact was with GB2GP the UK home of Scouting, a contact arranged by VK3CE/4 Chris Edmondson of RadioMag fame.

Karingal saw many Scouts trying for their communication Badges. On hand were VK4's JPD, KF, TY, SOA, and WST. A great club activity by these 9 members of Bayside Club, well done!

What's in a name.

Brian VK4BBS was after the origin of the word 'Shack' with regard to we Amateur Radio Operators. Only one response, that from Blue VK4BBL who told us huts were added to the decks of ships in the early days, the days before shipbuilders knew of 'wireless' and these huts were known as 'shacks'. This information came direct to Blue from an old Scottish mariner. In the latest Summerland News Email edition, John VK2JWA picked up the item and writes "Blue is correct in that such huts were added to the decks of ships. BUT these were called 'Marconi Cabins', supplied as part of the wireless installation. 'Shack' is not a marine term, not even slang."

What is the earliest written reference to 'shack'?

VK2JWA says he has many manuals dating from the 19th Century until now, but none mention the term 'shack'. Not until the 1933 ARRL Handbook, Ch 13, 'Assembling the Amateur Station'- where it says "Some fortunate amateurs are able to provide a special "shack" away from the house." The quotes would indicate a slang or not normal word. Can someone with a pre 1933 edition ARRL Handbook push this date back any earlier? This 1933 reference is 15 years after 'Marconi Cabins' probably disappeared. The usage is most likely from continental America.

73's from Alistair

VK6 Notes

Notice of the Annual General Meeting for 2001

It is hereby notified that the Annual General Meeting of the Wireless Institute of Australia (Western Australian Division Incorporated) will be held from 10am on Saturday 7th April 2001.

The venue for this year's AGM event will be the Dinning Room at CWA House 1174 Hay Street West Perth and the agenda will be:

1. Consideration of the Council's annualreport
2. Consideration of the financial report
3. Consideration of other reports
4. Election of office-bearers (President, Vice President and seven other Councillors)
5. Election of two Auditors
6. Appointment of a Patron
7. General business which has been duly notified.

Notices of Motion for the AGM must be received by the Secretary not less than 42 days prior to the meeting (ie by 23rd February 2001), and must be signed by at least three members.

The Secretary's postal address is WIA WA Div. PO Box 10 West Perth WA 6872.

Nominations of candidates for election to Council must be received by the Secretary, in writing, not less than 42 days prior to the meeting (ie by 23rd February 2001), with an intimation that the candidate is willing to act.

A candidate may submit a statement, not exceeding 200 words, outlining his or her experience and case for election. Each nomination shall be signed by two members proposing the candidate. Candidates must possess a current amateur licence.

Any financial member who is entitled to vote may appoint a proxy, who must also be a financial member who is entitled to vote, to speak and vote on his or her behalf. Written notice of such proxy must be received by the Secretary prior to the meeting, and be in the following form:

I (full name), a member of the Institute, hereby appoint (full name), also a member of the Institute, to act for me as my proxy, and in my name do all things which I myself being present could do at the meeting of the Institute held on the 7th April 2001.

Signed:

Witness: Date:

Lunch will be provided in the form of sandwiches, cakes, biscuits, coffee and juice.

Council hope that there will not be a problem filling the quorum by 10am, and trust there are sufficient amateurs left who still care enough to come along to the AGM. It is envisaged that lunch will be at about 12 midday and then there could be up to 2 hours of discussion on amateur radio and where it is going in the 21st Century. Will VK6UU might bring his Tesla Coil along for a demonstration.

VK7 Notes

QRM – Tasmanian Notes

The festive season is well and truly passed and our three branches are looking at our programmes for this year. Our branch annual meetings are in February with the Divisional annual meeting in Launceston in March. At our January meetings members were urged to put their names in the hat for selection as executive members of their branch for the year and indications are that we will have very capable executives in all branches. Someone said that the best new year resolution was to have no resolutions but we all must redouble our recruitment and training efforts. It's nice to say that we have the highest percentage of amateurs as members of any state but that percentage is still far too low.

The east coast members forsook Scamander as the venue for their annual January "bash", instead spending the weekend camped at the old mining town of Mathinna Your correspondent missed it but reports give a glowing picture of a great weekend of fellowship.

The North-west branch through secretary Tony,VK7AX, and Barry, VK7FR have set up a new weekly program, "Spectrum" using audio clips of amateur doings from all around the world. This is not in any way meant to rival our official Sunday full-state broadcast and was originally only on our local north-west repeaters. The northern branch requested that they be allowed to rebroadcast on their Mt. Barrow repeater and this is now being done. We congratulate these two members on a very professional format – they are having a lot of fun doing it too!.

Cheers for now Ron, VK7RN.

ar

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or
geencee@picknowl.com.au

Corrections

It would appear that in my enthusiasm to report on the very successful Dxpedition to Norfolk Island that I made a few errors in callsigns etc.

The most important error is in the callsign of the station itself. This was AX9YL not VK9YL. As the expedition was so close to the time of the Olympic Games it is very appropriate that the "AX" prefix was used.

I am sorry to have moved Biny and Merv from ZL2 zone to ZL1. Biny holds the callsign ZL2AZY, and Merv holds ZL2AVY. I got Elizabeth right once and wrong the second time, sorry Elizabeth VE7YL, but I hope you enjoyed being VK7YL for a short time, at least.

My apologies, also to Mio JR3MVF, Kirsti VK9NL, and Lars SM5CAI for giving them the wrong callsigns.

ALARA and BYLARA Awards

I hope some of you took the opportunity offered by the ALARA Contest in November to add to the number of contacts with ALARA members so you have been able to apply for the beautiful ALARA AWARD. You only need 10 YL contacts though they do have to be from at least five different states - this is why the Contest is a good time to make those extra contacts.

If you have made the requisite number of contacts please have two other amateurs sign your log and send it along to Jean Shaw, XYL of VK3CMS QTHR the callbook, along with just $5. I am sure you will be pleased to hang the certificate on your "brag wall".

To gain the BYLARA AWARD you need to contact at least 15 YL members (it must include at least 10 British (G, GM, GW, GI, GJ, GU) calls. Gill G0WAU is the Awards Manager.

All bands and all modes are acceptable and the awards are open to YLs, OMs, and SWLs. Contacts might be able to be obtained if you listen in to some of the regular nets. There are 40 metre nets on Wednesdays and Fridays at 11.30 GMT or Summer time, on 7.065+/- QRM

Our New Junior Vice-president

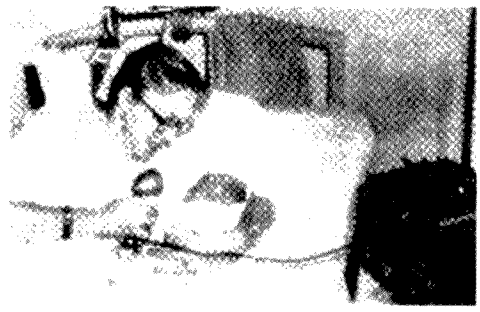
We are very pleased to have Susan VK7LUV to fill this position on our executive. It has been vacant since the last AGM. Susan is an active amateur, as the reports of her certificates in last months AR show, as well as an active Mum to young children. Isn't it always a good idea to ask a busy person to do something? Somehow they seem to find the time. Welcome aboard, Susan.

Many Aspects Of Amateur Radio Remain The Same

Reading a 1955 copy of CQ I came across this item. I think we can say things have not changed very much in 45 years.

We still use 2-metres to keep in touch with family and friends from our hospital beds, we still introduce our children to amateur radio as soon as possible — though not all of us do it at only 8 hours old! We still have some families in which both husband and wife hold amateur licences and we still operate mobile as well as from fixed stations.

This particular news item also included an advance notice of the 1st International YL Convention to be held on June 24th-27th 1955 in Santa Monica California. That was probably the very first ever International gathering of YLs. If anyone has a copy of the CQ from later that year, which holds a list of attendees at that International meeting a photocopy of the pages would be very much appreciated. It would be interesting to know how many YLs travelled from overseas to meet their counterparts in the US.



KN6HRP, Laura Lee Townsend of Santa Barbara, introduced 10 hr old son Peter to OM KN6ELR at home via 2-meter rig at her hospital bedside. In all, they had about 20 QSOs and Laura Lee rag-chewed with the 2-meter gang as far away as San Diego (200 miles). Now both K6ELR and HRP are active on 2-meter Mission Trail Net, work all bands 160 to 10 phone and CW, and also operate mobile on 10. Peter's pediatrician is K6CRJ. Photo courtesy SBRC president K6ATX.

20TH ALARA CONTEST — 11th November, 2000

Gwen VK3DYL	203	Top score overall, Top score VK YL, Top phone score, Top VK3 Alara member
Bev ZL1OS	186	Top DX YL, Top ZL Alara member
Judy VK3AGC	153	
Susan VK7LUV	130	Top VK Novice, Top VK7 Alara member
Elizabeth VE7YL	130	Top VE Alara member
Meg VK5YG	111	Top VK5 Alara member
Alex ZL1BVK	104	Top ZL OM
Bev VK4NBC	92	Top VK4 Alara member
John VK3MGZ	75	Top VK OM
Celia ZL1ALK	74	
Marilyn VK3DMS	74	CHECK LOG
Christine VK5CTY	61	
Trevor VK3PP	55	
Dot VK2DB	49	Top VK2 Alara member
John VK5EMI	40	
Alan VK7JAB	35	
Stan VK3JSS	25	
Yohko JA8GIA	24	Top Japan YL non-member

SUMMARY:

VK Alara members	8
DX Alara members	3
DX YL non-member	1
VK OM's	5
DX OM's	1
Total logs	18
Check logs	1

AMSAT

Bill Magnusson VK3JT

AO-40 returns after a brief absence

The AO-40 control team spent some sleepless nights in the run-up to Christmas 2000. The two metre beacon transmitter unexpectedly stopped functioning on 13th December 2000. A motor "burn' had been performed just a day or so before and AO-40 had been propelled into its next transitional orbit. The communications problem was of course quite unexpected and it was decided by the control team to allow a planned series of events to occur on board AO-40 before trying to re-establish communication. The team needed to let these "fail-safe" procedures take their course rather than to immediately try more active recovery methods. In that way as much stored data as possible would be preserved for later analysis. This would allow the mishap to be better studied and hopefully, the cause pin-pointed. The study is underway as I write this column. As events unfolded, it fell to Ian Ashley ZL1AOX to send the re-set command. Happily AO-40 responded and the 2.4 GHz beacon sprang into life on Christmas day 25th December 2000. Since that time Feverish activity has taken place behind the scenes. A series of uploadings have taken place to fully reload the flight software and start the diagnostic routines. The present attitude of AO-40 is such that the 2.4 GHz antenna is pointing away from Earth much of the time. We are getting the best squint angles for only brief periods around perigee so the process of collecting data has been a time consuming one. Currently the telemetry is showing that the flight software upload has been successful and we are awaiting the uploading of message block and whole orbit data software. As more and more circuits are tested a clearer picture will emerge of what may have caused the two metre beacon to stop transmitting. As the facts emerge, authoritative reports are being posted to the AMSAT bulletin board by Peter Guelzow DB2OS. The procedure of recovering full control over AO-40 is a delicate one and will require the collective expertise of the entire command team to be brought to bear. Please do not take any notice of speculative writings that may appear on bulletin boards or on the packet radio networks. Regular news items will appear on the AMSAT bulletin board, the AMSAT News Service and on the various AMSAT web pages. Official bulletins will be signed by either Peter Geulzow DB2OS or Karl Meinzer DJ4ZC. In the meantime the early confusion regarding object numbers and the true position of AO-40 has now been resolved and the satellite has been positively identified by NASA-NORAD. Authoritative keplerian elements are appearing on the various distribution services signed by Ken Ernandes N2WWD.

The latest report from Karl was distributed just in time for inclusion in this column. Here is his report.

Greetings,

Since my report from late December, command stations have implemented the strategy which I had outlined (in that report). The first priority was to determine which command-uplink channels were available. This work was difficult, very time consuming (and for the satellite) somewhat dangerous due to the unknowns. The command stations did a magnificent job! Due to their combined efforts I can report the following findings:

1. After some blind transmissions to test the omni-antennas around apogee (that failed to produce a response), the scheduler was activated and programmed in such a way as to prevent lock-out. This strategy turned out to be very prudent and the scheduler-operation went smoothly and resulted in no additional anomalies.
2. The scheduler then took AO-40 through a number of modes, which allowed the P3D team to determine the following:
   a. V, U and L-1 receivers work
   b. V, U and L high-gain antennas work
   c. U and L low-gain antennas do not work
   d. the status of the V-band low-gain antenna has not been finally determined. Apogee blinds tests are in progress as I write this to accurately determine the status of this antenna.
3. The V-band transmitter was operated for one MA-unit. It demonstrated a marked temperature increase, but no signal was heard. This was a quick-look test and this result should not be considered final. Further tests will be necessary (including the need to determine if the matrix was set properly). These tests will have to wait until the spin rate is reduced to ensure that the satellites heat-pipes will be able to

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA. 5001.

Graham's email address is: vk5agr@amsat.org

handle the dissipation for extended periods.

4. Magna-torquing was started to reduce spin and the first indications are a loss of around 0.5 rpm - roughly consistent with theoretical predictions. We can conclude that the system works. In order to use Earth-sensing data, a small additional program needs to be installed which stores data at apogee for later recovery when telemetry reception becomes available.

What's next?

During the next days the attitude control system should be returned to full functionality. It will be used to reduce the spin to a value consistent with heat-pipe operation and also with the requirements to change attitude. These changes are necessary for sun-angle constraints, communication access and also to reduce the effect of our ongoing mass-loss on perigee altitude. Newer model calculations show that the mass loss could be larger than my previous estimates; thus it would be prudent to use the resulting thrust to increase perigee altitude (right now it is decreasing it). Once the spin/attitude situation is under control, we will continue the check-out of other systems (such as):

1. Determine the status of the V-band transmitter (controlled experiments)
2. Determine the status of the U-band transmitter
3. Determine the serviceability of the ATOS (Arcjet) to determine if it can be planned on for a strategy toward an improved orbit
4. Test the momentum wheels to determine if AO-40 can be put into a three-axis mode which would greatly reduce the impact of the loss of the omni-antennas

Present data so far indicates that although we have lost some systems in AO-40, there has been no further deterioration after the second incident. In particular, if ATOS and three-axis stabilization are still serviceable, AO-40 will still be able to produce a large fraction of the Amateur Radio service expected from it. Personally, I am optimistic and I believe that the command and engineering team stand a good chance of turning AO-40 into an extremely useful Amateur Radio satellite.

73, Dr. Karl Meinzer, DJ4ZC

Doppler shift upon Doppler shift

Since the 2.4 GHz beacon has been operating continuously on AO-40 an interesting phenomenon has become apparent. AO-40 is quite a large beast. It is hexagonal in shape, more than 2 metres across and almost a metre thick. The hexagonal "top and bottom" surfaces house the antennas, the cameras, the earth/sun-sensors and of course the motors. It so happens that the 2.4 GHz antenna is situated off-centre and well out towards the perimeter of the spaceframe on one of the hexagonal surfaces. At present the spacecraft is spin stabilised and the attitude is such that we are looking at the side of AO-40 for much of the orbit. The solar cells are on the 8 rectangular side surfaces. Eventually they will be "un-wound" and form a long rectangular structure almost as long as a cricket pitch. But for the moment they are still all wrapped around the edge of the AO-40 spaceframe. If you can imagine the satellite spinning on its axis while you are looking at it side-on, it will be apparent that the 2.4 GHz antenna is alternately moving towards you and away from you a distance of a metre or so every few seconds as AO-40 spins. The Doppler effect says that an RF source moving towards you has its wavelength shortened (frequency increased) and vice versa. On lower frequencies this effect would be indiscernible but on 2.4 GHz and with the current spin rate, it results in about +/- 14 or 15 Hz movement of the signal with each revolution of the satellite. This is quite significant when trying to demodulate the 400 baud PSK telemetry and many stations have found it nearly impossible to keep their demodulators locked onto the signal. The effect has been dubbed "wobulation" by the control team. The control stations have re-activated the magna-torquing and this will be used to gradually slow the spin rate and alter the attitude of the satellite. Both these things will have a bearing on the amount of wobulation exhibited on the 2.4 GHz beacon and hopefully make the job of capturing telemetry blocks a lot easier. Eventually when AO-40 is in its final orbit and 3-axis stabilised and earth-pointing at all times this wobulation will be minimised even on 2.4 GHz.

Packet Operations Begin on ISS

An announcement was made on 8th Jan 2001 that the packet radio system on board ISS was to be activated in a limited way. At the time of writing I have had no reports of any signals heard. It is however good news that happenings on ISS may be slowing down enough that some "recreational" activities can be scheduled.

Bill Magnusson VK3JT
Milawa, Vic.

Silent Key

DAVID BRIAN VK3ADD

On 15th of December 2000 David Brian VK3ADD past away after a long battle with a tumor in the brain, he was 53.

Born in the U.K, David came to Australia with his parents as a young lad. He lived most of his life in Dandenong. He was a bachelor and he had a great circle of friends. He had worked for 20 odd years at the Defence Department as a Technical Officer. He then moved to Phillip Island for a few years making more friends and then moved back to Dandenong. Former VK3ZST, Dave was very active in the Radio scene from HF to VHF throughout the 60s and 70s. He was involved with the formation of the Gippsland Gate Radio Club, as it was known then, and was the club's first Vice President. Dave kept a close knit group of friends over the last few years. For myself, however, it was in 1974 that I meet Dave for the first time. I was only 14 years old. He introduced me to the hobby. I'll never forget that first time walking into his radio shack and saying "Wow"! By 16 I was licensed. Dave and I shared many good times in those days.

David will be sadly missed by all that knew him. He was a good bloke.

Clint Jeffrey VK3CSJ

DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

DXing the other side of the globe

Someone mentioned to me that a lot of space is given over to Dxpeditions to the Pacific in 'DX Notes', and that the Pacific is not real DX to VK amateurs. The truth of the matter is that to the rest of the world, Pacific countries, including VK, are real DX contacts for them. This is why considerable effort and expense is expended in mounting Dxpeditions to this area. VK amateurs are just as eager (or should be) to work TF, OY, JX, JW or VE8 on the other side of the globe. Besides, the amateur population of some of the Pacific countries is very small, so although not DX they can certainly be a rare catch for some VK operators. When conditions from VK into Europe or the US is reasonable many stations line up to work almost any VK station that is on the band. Remember that the number of VK amateurs is relatively small, in the great scheme of things, therefore the opportunity to work VK is appreciated by most Europeans and US stations.

I have been experimenting in the shack with the new mode called PSK31. The popularity of this mode is increasing rapidly overseas but very little is heard of it within Australia. The mode itself is reminiscent of RTTY in that you type on a keyboard and text is transmitted and received on a PC monitor. However, the 'modus operandi' is totally different to RTTY. Information is conveyed not by switching between two audio tones (mark and space) but by changing the phase of a continuous tone (approx. 1kHz). I have downloaded some software from the Internet that decodes the RXed audio signal and generates the TX signal via the PC sound card. A simple interface has to be built to isolate the PC from the transceiver and also to transform the RX and TX levels at the sound card ports to compatible levels for the radio. So far I have had 6 QSOs on 20m with a variety of European stations and 2 US stations, one of which was on 30m a notorious band for QRM/N. Tuning is fairly critical for successful operation, but amazingly, the mode is fairly QRN proof. I sometimes have some severe QRN here from a local who has a very noisy electric bench saw who refuses to let me fit a mains filter, but PSK31 seemed not to notice it at all. I was very impressed. If anyone wants the Internet address for the software, and a diagram of a simple interface circuit, then please drop me a line and I will E-mail, or snail mail, it to you. Over the next few months I will try and spend some time on this mode and see who and what is around on this mode, will I hear you on the bands? I hope so.

The DX

4O8, Kosovo. **Chris, G0TQJ will be based in Kosovo, Yugoslavia for 4 months. He** hopes to use the call 4O8/G0TQJ but does not know for sure yet. Operation will be in Chris's spare time, SSB mostly but will shift to CW if requested. QSL will be via G0TQJ. [TNX G0TQJ and The Daily DX]

7Q. Harry, G0JMU, will be operating as 7Q7HB again for a month in February. His past activity using this call has seen SSTV, PSK1 and operation on the WARC bands, all of which proved very popular. Allan, G0IAS is inviting E-mails to g0ias@amsat.org to arrange a sked etc, "let me know what your requirements are", Allan says, "and if it is possible, we should be able to help". [TNX 425 DX News]

A5, Bhutan. Glenn, (W0GJ/A52GJ) will be at work at the hospital in Thimphu, Bhutan from the 29th of December until early February. Glenn and his family, Mark (N0MJ/A52MJ), Vivien (KL7YL/A52VJ), Melissa (N0MAJ/A52YL), Carrie (N0CMJ) and Paul (W0PRJ), hope to be on the air on all bands and modes, placing an emphasis on the low bands at sunrise and sunset. QSL routes are via their home calls. [TNX The Daily DX and 425 DX News]

C56, The Gambia. Two German Amateur operators announce they will be active from The Gambia from the 20th of February until the 5th of March. Mike, DL2OE and Hans, DL7CM will be using C56/homecalls on 6 to 160 metres on CW, SSB and RTTY. They will be running 150 watts only; this is the legal limit for The Gambia. QSL via their home calls. [TNX DL2OE, DL7CM and The Daily DX]

CX, Uruguay. Jorge, CX6VM is active on 12m(+/- 24.897MHz) and 17m(+/-18.073MHz) between 10.30-12.00 UTC and 21.30-22.30 UTC from Monday to Friday, but he is able to extend these time frames at the weekends. QSL direct only to W3HNK, Joseph Arcure Jr., P.O.Box 73, Edgemont, PA 19028, USA). [TNX CX6VM and 425 DX News]

OE, Austria. The special prefix OE75 has been authorised for use by Austrian Amateur radio operators from the 1st of January until the 31st of December 2001. The call is to celebrate the 75th anniversary of the Austrian IARU society (OEVSV). An award is available from OEVSV for the event and further information can be had from their website at http://www.edu.uni-klu.ac.at/~cirrasch [TNX OE8CIQ and 425 DX News]

J28EX, Djibouti. David, F5THR has been operating as J28EX since May 2000. He will be in Djibouti until May 2002. The QSL is via the bureau to FB1BON, or direct to Mr Patrice Brechet, P.O. Box 522, 85305 Challans CX, FRANCE. [TNX F5THR and The Daily DX]

P2, Bougainville Island. Look for Steve, VK4EMS to be active again as P29BI from Bougainville Island (OC-135) starting on 6 December for two months. He will operate (probably on 20 metres SSB only) in his spare time. QSL via VK4EJ, Bernie McIvor, 30 Brennan Parade, Strathpine 4500, Australia. [TNX 425 DX News]

S2, Bangladesh. Carl, SM6CPY, has had to delay his trip to Bangladesh. Carl

was originally planning to be there during late December to early January. Now, he is expecting to be active as S21YD from the 12th to 19th of February. The trip had to be delayed due to local flooding. [TNX SM6CPY and OPDX]

V31, Belize. Klaus, DJ4SO, will be active from Hopkins Village in the south of Belize from January 17 to February 12. He will use V31SN and will be QRV mostly on CW, RTTY, PSK31 and some SSB. Look for him on all HF bands with an emphasis on 6, 12, 17 and 30 metres. 80 and 160 metres will depend on the antenna possibilities. QSL via DJ4SO either via the bureau or direct. [TNX DJ4SO and The Daily DX]

ZC4, UK Sovereign Base Areas on Cyprus. The ZC4 club station should be up and running as ZC4ESB (Eastern Sovereign Base) on all bands and modes for at least the next three years. This will include participation in most contests as well. Anyone needing ZC4 will have plenty of time to bag this one. The operators will be Steve, ZC4BS, Des, ZC4DW and Graham/ZC4GK. [TNX OPDX and 425 DX News]

IOTA Activity

SA 013. Felix, CE0XT, should be on the air during the second week of February 2001 on 180 – 10 metres, WARC bands included. Operating SSB, CW, RTTY and PSK. The operation will have three or four 1kW stations. This will be a multi-national group of 9 operators headed by Marco, CE6TBN. The specific island will be San Ambrosio (SA-013). San Felix is 34th on the ARRL's most needed list.

Special Events

SM, Sweden. Kungalv Radio Club, SK6NL will be active as SI900TKM from the 1st of January through until the 31st of December 2001. Further information on this call is available at http://www.listen.to/sk6nl QSL via SK6NL. [TNX SM8VVT and 425 DX News]

DXpeditions

Agalega 2001. The 3B6RF DXpedition to Agalega [425DXN 497] is confirmed to take place from the 5th to the 18th of May. The team now consists of HB9BQI, HB9BQW, HB9BXE, HB9CRV, HB9HFN, HB9JAI, HB9JBI, 3B8CF, 9A4TU, CT1AGF, DL3KUD, DL6UAA, F6HMJ, G3KHZ and NK6F. One of the team, Joe, HB9AJW, has been forced to cancel his position on the trip. The team is now looking for a good CW operator with contest and field day experience to replace him. If interested please contact Hans-Peter, HB9BXE at the following E-mail address (hb9bxe@pilatusnet.ch). [TNX HB9BXE and 425 DX News]

A group of amateurs from the OK DX Foundation are heading out to the Pacific again. The team plan to operate as T32RD from East Kiribati from the 11th until the 25th of February. Operators include Jarda, OK1RD; Jirka, OK1RI; and Frank, OK1EK. All bands from 10 - 160 metres, CW and SSB. They will be shipping three IC-706MKIIG's and two Alpha 91B amplifiers. Antennas will comprise a Titanex vertical (27 metres high) for 80 and 160 metres, a 2 element quad for 40 metres, a ground plane for 30 metres and yagi beams for 10 – 20 metres. Low bands will be given lots of attention as will working into Europe. The pilot for the low bands will be Mike, OE6MBG and Vasek, OK1ADM will be the pilot for all other bands. The QSL manager for T32RD will be OK1RD. [TNX OK DX Foundation and The Daily DX]

3D2, Conway Reef. Hrane, YT1AD, reports that their plans are firm for the upcoming DXpedition. The operation will take place February 18-27th in 2001. The operators will be YT1AD, YU1RL, YU1NR, YU7AV, YS1RR, Z32AU and Z32ZM. Activity will be on 160-6 metres as well as 2 metres. The modes to be used are CW, SSB, RTTY, PSK and SSTV, with four complete stations and several antennas. Callsigns have already been allocated and will be announced when operations begin. This activity, in common with all other well-equipped DXpeditions, will be an expensive one with the total cost of the DXpedition amounting to around US$45,000. Any donations to offset this cost will be highly appreciated by the organisers. [TNX YT1AD, YS1RR, OPDX and 425 DX News]

D6, Comoros. Everything remains on course for the D68C DXpedition to the Comoros, active from about 8 to 28 February 2001 [425DXN 495], including an entry in the multi-two section of the ARRL CW Contest (17-18 February). Some 3000kg of equipment was shipped on 30 November and 28 operators are signed up to participate (some will be there for the whole of the period, some for part of the time): 5B4AGC, 5B4WN, 9H1EL, DL7AKC, G0OPB, G3NUG, G3OZF, G3SED, G3VMW, G3WGV, G3XTT, G4JVG, G4KIU, G4TSH, G4VXE, GU4YOX, JA1RJU, JA3AER, JP1NWZ, M0BJL, M0DXR, N7CQQ, PE9PE, SM5AQD, UT8LL, W3EF and W3WL. The chief pilot will be Martin/G3ZAY, Ray/9M2OM (G3NOM) will be the pilot for Asia and pilots for other regions will be announced in due course. QSL via G3SWH (SWL QSLs will be handled by Bob, BRS32525). News just in says that three new operators have joined the team: Tim/ G4VXE, Yoichi/JP1NWZ and Rob/PE9PE (who will be especially welcome to 6 metre, VHF and satellite operators). This DXpedition will be a very expensive one and the organisers are looking for further sponsorship, especially from DX groups and foundations, is sought and being co-ordinated by Wes/W3WL (blamboley@aol.com, for the US), Taizo/ JA3AER (arakawa@sakurura.ner.jp, for Japan) and Steve/G4JVG (g4jvg@cwcom.net, for the rest of the world). Donations can be sent to John/ G3WGV (g3wgv@aol.com). Look for the latest news on the D68C Web Page at http://www.dxbands.com/comoros [TNX G3XTT and 425 DX News]

QSL Addresses

EP4PTT C/O Directorate of Telecommunications, Box 11365 - 931, Tehran, Iran

GJ2A JARS, P.O. Box 338, Jersey JE4 9YG, United Kingdom

JW0HR Vlad Shakun, P.O. Box 224, N-9178 Barentsburg, Norway

JW0HS Ivan, P.O. Box 127, Barentsburg N-9178, Svalbard via Norway

LU5FC Jesus Rubio, San Juan 2694, Rosario 2000, SF, Argentina

LU9HS Javier Santillan, Fournier 2783, Barrio Matienzo, X5011CDO Cordoba, Argentina

OZ5AAH Preben Jakobsen, 9 Knoldager, DK 2670 Greve, Denmark

PP5MQ Mario Marquardt, P.O. Box 212, 89201-972 Joinville - SC, Brazil

SV2ASP/A Monk Apollo, Monastery Dochiariou, GR-63087 Mt. Athos, Greece

T92000 P.O. Box 59, Sarajevo BA-71000, Bosnia & Herzegovina

Z35M Vladimir Kovaceski, P.O. Box 10, 6330 Struga, Macedonia

ZA1K Ben, P.O. Box 7464, Tirana, Albania

BA4DW David reports that some sources available on the Internet give an

incorrect address. Please note that his correct address is David Y. J. Zhou, P.O. Box 040-088, Shanghai, 200040, China.

TI9JJP TI2JJP, Jose Pastora, P.O Box 2048-2050, Costa Rica, America Central.

ZP6CU P.O. Box 73, Caacupe, Paraguay

Round up

Chuck Brady, N4BQW has been active as 3Y0C from Bouvet Island (AN-002) since the 16th of December 2000. Chuck, a NASA astronaut, will be on the island as a member of a group of scientists for approx. four months. This is not an amateur radio DXpedition and Chuck will operate as and when time allows, although he does expect to get on air fairly frequently. He will have limited access to a generator and will use a large bank of batteries at other times. He is currently active on 10, 15 and 20 metres, but he hopes to be active on other HF bands as well. His equipment comprises an amplifier, vertical antennas for 160-40 metres and beams for 30-10 metres. Currently, Chuck is running 700 watts into a G5RV antenna. He has Yagi beams, but these will be installed later. SSB is his favourite mode but can use a hand key for an occasional foray on CW. QSL will be via WA4FFW, but please no cards until an official QSL address is released. Check the following address http:// www.qsl.net/zr1dq for the latest information from the island. [TNX The Daily DX and 425 DX News]

Turkmenistan has authorised the use of the call EZ21xx to commemorate the new millenium and a number of stations have already taken the opportunity to use the call. EZ21A, EZ21AQ and EZ21BO have all been heard recently. [TNX The daily DX]

Angelo, I6BQI, will be touring around the Pacific for six weeks. His trip will begin the first week of February 2001. Angelo plans to operate CW on all HF bands 160 – 10 metres and also 6m from Tonga as A35BQ, from Nuie as ZK2BQI and also from YJ, 5W, C2 and T3 if he can obtain the appropriate licences. No mention of a QSL route but via his home call would probably be a safe bet. [TNX 425 DX News]

Greek 10m Beacon. John, SV3AQR reports that SV3AQR/B is located at Amalias, Greece and transmits on 28182.5kHz using 4 watts to a vertical antenna. Signal reports would be greatly appreciated and can be sent to SV3AQR/B, P.O. Box 30, Amalias 27200, Greece or via Packet at sv3aqr@sv8rv.zak.grc.eu or E-mail at sv3aqr@packet-g.ceid.upatras.gr [TNX SV3AQR and 425 DX News]

An interesting item of news that arrived in my mailbox too late to make the January 'DX Notes' was of a special event to commemorate the first transatlantic radio transmission by Marconi. The Marconi Radio Club, W1AA (they can be found on the Internet at http:// personal.tmlp.com/k1vv/w1aa) operated from Cape Cod (Massachusetts) as W1AA/CC to celebrate the 98th Anniversary of Guglielmo Marconi's first transatlantic radio transmission between Cape Cod and England. "CC" was Marconi's first call sign for his transatlantic Cape Cod Station. Operation was to have taken place with two stations, one SSB and the other CW, on 20-10 metres from the 12th until the 22nd of January. The QSL route for those lucky enough to have worked the either station is via the W1 Bureau (for DX stations). [TNX K1VV and 425 DX News]

Eugene, RA0FF (ra0ff@bgtelecom.ru) reports that the "Asia DX Window" (ADXW) Internet Web Cluster (http:// dx.bgtelecom.ru) now has an open special notice board for skeds on 160 and 80 metres. [TNX RA0FF and 425 DX News]

Those of you who have computers may be interested in a new piece of software called DXVIEW. Given a callsign or prefix, DXView determines the associated DXCC entity, reporting its location and beam heading from your QTH. DXView presents a world map, upon which beam headings, stations you spot, the sun's position, and the solar terminator is continuously displayed. DXView is free, contains no advertising and its commercial use is expressly forbidden. Version 1.1.0 of DXView is available at http://www.qsl.net/dxview/download.htm [TNX AA6YQ and 425 DX News]

Prefix List. Rod, AC6V has produced an excellent resource for all DX'ers and SWL's. He has just finished updating and expanding a Prefix List at http:// www.ac6v.com/prefixes.html. The list includes ITU Block Assignments, ITU Zones, CQ Zones, details (where known) of call districts and much more. The information has been gathered over a period of some 20 years so it should be very comprehensive and informative. [TNX AC6V and 425 DX News]

Sources

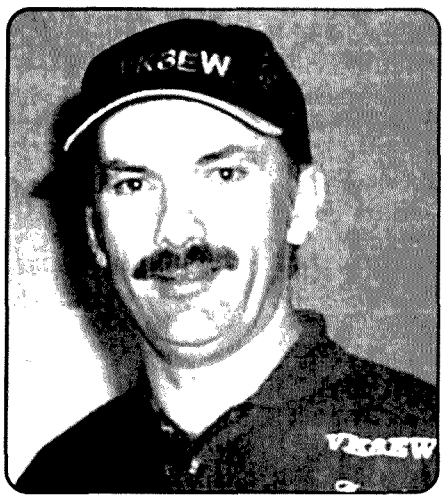
As always, a sincere thanks to the following individuals and publications; G0TQJ, DL2OE, DL7CM, CX6VM, SM6CPY, DJ4SO, AC6V, AA6YQ, RA0FF, K1VV, SV3AQR, G3XTT, YT1AD, YS1RR, HB9BXE, SM6VVT, 425 DX News, OPDX and The Daily DX.

ar

Awards

John Kelleher VK3DP, Federal Awards Officer
4 Brook Crescent, Box Hill South Vic 3128, (03) 9889 8393

VK3EW leads the log-jam



Not very often am I confronted with a log-jam at the head of the DXCC listings. One can easily see who are our leading DXers. Sometimes one just jumps out of the pack.

In this particular case, it is an operator that I have known for all of my amateur life. He is one of that breed of operator who will work long hours, and still attend gleefully to the wants and worries of others. He is a font of amateur knowledge, and runs a great amateur station.

Most of you will, without doubt, instantly recognise him. He is David, VK3EW (Electric Wireless), who now heads the WIA SSB listings, having worked and confirmed all entities on the current ARRL DXCC list. He was a pilot station during a recent DXpedition in the Pacific area, and is well known internationally. We had a recent meeting, where I vetted all his QSL cards. My eyes went a bright green when I closely checked his P5 card.

When you read this, I will have completed my fourth stay in hospital. Without the very splendid expertise of our local hospital staff, I feel that you would have been looking for a new Awards Manager. I mean it.

Japan : The JARL 21st Century Dream Award.

To commemorate the beginning of the 21st Century JARL will issue the following special award to licensed amateurs and SWL worldwide. "JARL 21st Century Dream Award" will be issued for contacts with more than 21 different amateur stations on a single band (including satellite communications) or single mode. Contacts with the same station on different bands will not qualify).

Requirements : A list of contacts (receiving a QSL card is not necessary) furnished with the call signs of stations worked/heard, dates, bands and modes, and reception report. Do not send QSL cards. The fee for overseas operators is 8 Irc's.

Only contacts made from January 1 ,2001 through December 31 2001 will be acceptable. JARL will start accepting applications on April 1, 2001 and will close on March 31, 2002. Applicants can request for maximum three of the following five endorsements - Bands, modes, QRP, QRP/p custom endorsement. A custom endorsement is one the recipient chooses with a name of up to 16 letters, for the same working method, such as location, equipment or antenna.

For more information, direct all correspondence to :

Japan Amateur Radio league
— Award Desk
1-14-5 Sugamo, Toshima,
Tokyo 170-8073 JAPAN. or
oper@jarl.or.jp

Mention has been made with particular reference to USA postal rates and charges. It seems that the purchase price for Irc's will rise to $1.75 with the normal exchange rate of 80 cents of stamps (airmail) with no cash refunds. For an airmail letter, one ounce to anywhere in the world (except Canada and Mexico) will be 80 cents. A 2 ounce airmail letter, however, will cost as follows:

Group 3 - $1.60
Group 4 - $1.70 and
Group 5 - $1.55.

Group 3 is mainly Western Europe, but not totally.

Group 4 is Japan, Australia, and New Zealand.

Group 5 is the rest of the world.

These rates are effective from Jan 7 2001, for both domestic and international mail.

Now follows the WIA DXCC listings wef 31st December, 2000.

Regards es best 73 de John, VK3DP.

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of December 2000

L21183	MR G MORROW	VK2HCD	DR C DEVERY
L50087	MR R H CHESTER	VK2ISA	MR J KIRK
VK2AVE	MR J BUSSING	VK2TRT	MR P RADFORD
VK2DAT	MR A BAUER	VK5ZAM	MR S F WARREN
VK2GQR	MR K E KOVEJOY	VK6GO	MR H OOSTERBAAN

Silent Keys

The WIA regrets to announce the recent passing of:-

J H L (John) FIELD	VK2AKF
W C GOODMAN	VK3JFQ
(Les) BELL	VK4LZ
P L (Philip) HAY	VK6AQO

DXCC LISTINGS

ROLL OF HONOUR SSB

VK3EW	334/340
VK5MS	333/387
VK4LC	333/380
VK5WO	333/365
VK6LK	333/358
VK6HD	333/358
VK3QI	333/347
VK3AKK	333/346
VK3DYL	333/339
VK2FGI	333/339
VK4UA	331/345
VK1ZL	331/337
VK4OH	330/337
VK6RU	329/384
VK6NE	328/344
VK2DEJ	328/334
VK3YJ	325/331
VK4AAR	323/327
VK3AMK	321/340
VK5EE	321/327
VK2AVZ	319/330
VK7BC	319/329
VK6VS	319/323
VK3CSR	316/325
VK5FV	313/317

ORDINARY LIST SSB

VK6AJW	312/317
VK6APK	310/315
VK5WV	306/328
VK6PY	306/312
VK3JI	304/319
VK6RO	303/309
VK3IR	302/308
VK4LV	300/302
VK4SJ	300/301
VK4ICU	294/296
VK4DP	293/305
VK2WU	291/296
VK6DY	291/294
VK4BG	286/302
VK6ABS	285/
VK3CYL	282/288
VK4EJ	275/277
VK3DP	272/275
VK3GI	263/267
VK4BAY	263/266
VK3VQ	259/276
VK6ANC	258/262
VK5IE	258/261
VK3UY	258/260
VK2HV	252/
VK3CIM	250/254
VK2PU	243/247
VK6YF	238/241
VK7TS	237/238
VK8KTC	231/233
VK2UK	229/233
VK6APW	228/229
VK3ETM	226/227
VK3SM	222/242
VK5BO	217/222
VK4EMS	215/
VK3DD	213/217
VK4IL	212/
VK4XJ	204/216
VK3DVT	201/204
VK2CA	201/
VK3EFT	198/201
PY2DBU	195/197
VK6WJH	183/
VK2FHN	173/
WA1MKS	171/
VK6APH	168/169
VK4CHB	167/168
VK7JAB	162/
LU5DSE	161/
VK4ARB	159/160
VK4IT	154/155
VK4AO	153/
VK4CHB	152/153
VK2GSN	152/
VK4BP	148/
VK2SPS	141/143
VK6LC	139/140
VK3DQ	133/147
VK2LEE	130/132
TI2YLL	127/
VK4VIS	126/128
YC8EMH	126/127
VK7LUV	126/
TG8NE	125/
SM6PRX	121/126
HL4YD	118/119
VK2MH	116/118
VK7WD	115/116
VK5GZ	113/115
VK6NV	111/113
JA8XDM	111/
C21DJ	109/
VK3MRG	108/
JE9EMA	108/
VK5UO	107/110
HC2HYB	106/107
VK4LW	105/
VK2EJK	104/
JN6MIG	103/104
ZS6IR	102/104
KB2NEK	102/103
C21NJ	102/
VK2FZR	102/
JH3OHO	101/103
VK2EJM	101/103
VK3KTO	101/102
VK1PRG	101/
VK2IRP	100/101
ON4BCM	100/

ROLL OF HONOUR CW

VK6HD	333/354
VK3QI	333/345
VK5WO	326/342

ORDINARY LIST CW

VK3KS	307/335
VK4LV	287/294
VK4ICU	279/
VK6RU	278/322
VK3JI	271/296
VK3AKK	270/275
VK4KU	251/
VK6MK	246/249
VK2CWS	244/246
VK3DP	242/245
VK3DQ	234/261
VK7BC	234/243
VK4DA	233/235
VK3CIM	228/229
VK4DP	205/216
VK7RO	201/204
VK5GZ	197/199
VK6PY	190/194
VK6HW	179/182
VK5UO	165/166
VK7TS	165/
VK5BO	159/184
VK4XJ	150/163
WA5VGI	146/148
VK4UA	143/145
VK4AAR	140/142
VK7DQ	131/132
VK2TB	123/125
VK7CQ	120/122
DK6AP	120/
SP1AFU	112/113
VK8KV	112/113
K5QNM	110/113
VK5BWW	110/111
VK6NV	109/110
OK1FED	109/
VK2FYM	106/108
VK4CXQ	106/
VK4EMS	104/
UR5BSJ	103/105
VK3DG	102/
SM6PRX	101/102

ROLL OF HONOUR OPEN

VK4LC	333/380
VK5WO	333/369
VK6HD	333/360
VK3QI	333/348
VK4UA	331/347
VK6RU	330/385
VK3AKK	327/338
VK7BC	327/336
VK3UY	326/329
VK4AAR	324/328
VK6AMK	322/341
VK2AVZ	320/330
VK3JI	315/344

ORDINARY LIST OPEN

VK4LV	313/317
VK4DV	310/325
VK4DP	309/323
VK6RO	309/315
VK3DP	305/309
VK4ICU	303/305
VK4BG	293/312
VK3CYL	282/288
VK3VQ	274/291
VK3CIM	274/278
VK5BO	264/302
VK6ANC	261/265
TF5BW	260/264
PY2DVU	254/259
VK6MK	253/256
VK7TS	252/254
VK2HV	253/
VK2CWS	250/252
VK5UO	248/250
VK3DQ	246/275
VK6APW	239/240
VK2ETM	238/240
VK4DA	234/236
VK4XJ	233/249
VK4EMS	223/
WA5VGI	216/218
VK5GZ	204/206
VK2EFT	202/205
VK4CHB	177/179
VK6APH	171/172
9A4KA	168/
SM6PRX	162/169
VK3VB	153/155
VK4EMS	150/
VK6LC	142/144
VK4EZ	129/138
YB8GH	127/129
VK3VB	126/128
VK7CQ	123/125
SPIAFU	114/115
VK3MRG	109/
VK3OZ	104/105
VK2AJE	100/

ar

Contests

Contest Calendar February – April 2001

Feb	_	Mexican RTTY Contest	(RTTY)	
Feb	10/11	WW RTTY WPX Contest	(RTTY)	
Feb	10/11	PACC Contest	(CW/SSB)	
Feb	10	Asia-Pacific Sprint	(CW)	
Feb	10/11	RSGB 160 Metres Contest	(CW)	
Feb	17/18	ARRL DX Contest	(CW)	
Feb	23-25	CQ WW 160 Metres Contest	(SSB)	
Feb	24/25	REF (France) DX Contest	(SSB)	(Dec 00)
Feb	24/25	UBA DX Contest	(CW)	
Feb	24/25	RSGB 7 KHz Contest	(CW)	
Feb	25	High Speed Club Contest	(CW)	
Mar	_	ARRL DX Contest	(SSB)	
Mar	10/11	RSGB Commonwealth Contest	(CW)	
Mar	10/11	World-Wide Locator Contest	(CW/SSB)	
Mar	17/18	John Moyle Field Day Contest	(All modes)	
Mar	17/18	Russian DX Contest	(CW/SSB)	
Mar	17/18	Bermuda WW Contest	(CW/SSB)	
Mar	17/18	DARC HF SSTV Contest		
Mar	24/25	CQ WW WPX Contest	(SSB)	
Apr	7/8	SP DX Contest	(CW/SSB)	
Apr	7/8	EA RTTY Contest		
Apr	7/8	King of Spain Contest	(CW/SSB)	
Apr	13-15	Japan Intl. DX Contest 20 – 10 m	(CW)	
Apr	14	TARA PSK31 Rumble		
Apr	14/15	Holyland DX Contest	(CW/SSB)	
Apr	21/22	YU DX Contest	(CW/SSB)	
Apr	21	EU Spring sprint	(SSB)	
Apr	28/29	Helvetia DX Contest	(CW/SSB)	
Apr	28/29	SP DX RTTY Contest		
Apr	29	Harry Angel Memorial Sprint	(CW/SSB)	

Results ARI International DX Contest May 2000

(VKs only) CW Single Operator (Place\call\score)

96 VK4TT 29176

RTTY Single Operator

37 VK6GOM 20796

REMEMBRANCE DAY CONTEST 2000

VK4 Division Wins

Through consistent improvement in both the HF and VHF sections, the VK4 Division has broken the stranglehold of the VK7 division and taken out the Remembrance Day Contest premiership for 2000. From 5th place in 1999 to 1st place in 2000 is a tremendous effort. Congratulations to all those who participated and submitted their logs.

Most divisions registered some improvements in their divisional scores over last year. Also encouraging this year is the number of Limited Novice class operators who took part. Hopefully this increase in contest activity will continue.

There was some confusion in the rules regarding the use of computers for logging and sending CW. I agree that the wording was unclear and this will be addressed in the rules for 2001. There was never any intention to exclude the use of computers for these purposes. In fact their use is encouraged, as the logs

tend to be a little more accurate and much easier to read.

The other issue is that of cover sheets. It is very important to include the name of the operator on the cover sheet or in the log. Some cover sheets made no provision for this and so it makes it cumbersome to find the details in order to print and send out certificates. Please check the cover sheet you are using and make the appropriate changes.

I would like to apologise for the late production of the results. My current employment has seen me away from home from mid July through to late December 2000. I was home for only 5 weekends during that time. Luckily, one of those was RD weekend. I was actually able to operate for short periods during the contest. Unfortunately, collation of the contest results had to give way to family and household matters until the holiday season.

Here now are the results for the contest. Please note that due to the rule change prohibiting automated or robot operation, the VK3 Division's 2000 VHF Benchmark has been adjusted from 11342 to 9927 in an effort to minimise any disadvantage or penalty to that division.

Divisional Scores

Table 1 shows the placing of each division along with their overall Improvement Factors.

Table 1: Divisional Ladder

1st	VK4	2.533
2nd	VK7	1.328
3rd	VK2	1.202
4th	VK3	1.172
5th	VK5/8	1.047
6th	VK1	0.780
7th	VK6	0.729

The total scores in both HF and VHF are shown in Table 2.

Table 2: Divisional Scores

Div'n	HF	VHF
VK1	840	40
VK2	5755	69
VK3	4754	8758
VK4	5882	2574
VK5/8	4915	1213
VK6	2143	3425
VK7	1796	1476

There is some uncertainty and even mystery as to how each division's score is calculated. To make it all a little clearer, I have included the following live example of how it is done. I will use the VK3 Division's figures in the calculations.

First is the calculation of Benchmarks for VK3 for 1999 RD Contest.

1999 Benchmarks

(As published in 1998 Results)

HF 3773
VHF 7988

1999 Scores

(As published in 1999 Results)

HF 2886
VHF 10903

Formula:

2000 Benchmark = (0.25 x 1999 Score) + (0.75 x 1999 Benchmark)

Calculations:

HF

2000 Benchmark = (0.25 x 2886) + (0.75 x 3773)
2000 Benchmark = 721.5 + 2829.75
2000 Benchmark = 3551

VHF

2000 Benchmark = (0.25 x 10903) + (0.75 x 7988)
2000 Benchmark = 2725.75 + 5991
2000 Benchmark = 8717

Those 2 benchmark figures are the scores the division needs to beat to register a positive improvement factor in each section of the contest.

Now to calculate the final score, let's use the points that the VK3 division scored in HF and VHF this year.

Formula:

Improvement Factor = 2000 Points divided by 2000 Benchmark

Calculations:

HF

4754 / 3551 = 1.339

VHF

8758 / 8717 = 1.005

The two improvement factors are now averaged to give the division's final result.

Formula:

Overall Score = (HF Improvement + VHF Improvement) / 2

Calculation:

Overall Score = (1.339 + 1.005) / 2
Overall Score = 2.344 / 2
Overall Score = 1.172

Here now, are the Benchmark figures for the year 2001.

Table 3: 2001 Benchmarks

Div'n	HF	VHF
VK1	680	152
VK2	4693	65
VK3	3852	8727
VK4	4050	1219
VK5/8	4039	1467
VK6	2670	4504
VK7	1841	1025

Individual Scores

The individual scores for entrants are listed below. Certificate winners are denoted by an asterisk (*) and the top Australian scores in each section by a hash (#). Certificates will be issued to both the top single operator and top multi-operator stations in each division.

VK1

HF Phone

EY	99*
DW	86
JDX	79

HF CW

AU	202*

HF Open

ENG	242*
VP	132

VHF Phone

EY	26*
DW	14

VK2

HF Phone

XN	556*#
AKJ	484
DCL	358*
CAA	294
XT	233
IBT	207
BGF	165
VG	148
GWK	144
RD	136
BDT	130
AGF	113
KET	90
SWR	84
WI	56
JON	51
KUR	46
BJK	40
EI	37
CNI	35
EJU	35
BVU	25
CF	20
MQX	14
KWX	11

HF CW

KM	288*
BHO	266
AYD	262
OI	208
EL	202
AZR	120
II	86
PS	76
RJ	70
GT	52

HF Open

BO	490*
WL	123

VHF Phone

HDH	32
BDT	19
YHN	18

VK3

HF Phone

CB	322*
APC	258*
SAA	217
AHY	204
OM	183
EK	162
KMC	120
EX	117
JK	111
KTO	109
DS	93
RB	84

ER	83
KQB	81
WB	66
KRB	61
FIM	59
CMC	55
SB	54
AAM	53
ADW	53
AMW	52
MMM	49
ACR	47
BVW	46
US	46
AQ	45
BYY	45
DI	44
FT	44
DXL	41
DKT	38
DY	36
PC	36
CRP	32
EA	31
EST	31
PDX	30
MGZ	29
DET	20
KK	24
PRA	22
BCZ	20
ADA	19
CAM	19
WI	19
AAJ	18
KB	17
WW	17
JNB	16
CEA	14
AYF	10
GK	9
ACZ	6
VNA	5
JED	4
JNH	4

HFCW

BKU	228*
VB	190
XX	116
AMD	80
DID	68
JI	26

HF Open

JSM	228*
YE	135
VP	98
PP	55

VHF Phone

SAA	890*#
MZ	573*
DI	360
TYR	319
JK	298
HGF	211
ER	205
EA	200
JSM	200
CMC	198
ACR	193
KBD	190
XJU	189
SB	176
FT	175
OK	175
DXL	171
SAC	160
KTO	155
TEN	150
XDJ	147
RB	137
JED	131
US	118
AQ	116
2TWO	112
ZUG	107
JMD	103
WWW	102
FGN	101
NDJ	97
KKJ	90
MGZ	85
BYY	82
GK	81
DYL	80
PC	80
YDJ	68
YNG	57
CAM	56
NYE	56
LSL	54
TGX	54
APF	53
DID	53
VP	51
ZPF	50
JNH	49
KKJ	47
VNA	45
BGS	44
JDO	41
CAT	37
ADA	33
KB	33
CRP	32
EST	32
EWM	30
VKC	30
JTW	28
TJN	28
APP	25
XH	25
ZWI	25
JNB	24
EX	23
KRB	23
ZBN	23
AMW	22
WI	22
MTA	19
TFE	19
CEA	15
CB	12
KK	12
AYF	10
AHY	6
DET	4

VHF Open

APC	298*
YE	133*

VK4

HF Phone

DO	420*
WIL	382*
BAY	303
ADC	277
FNQ	202
WW	184
SJ	176
BAF	132
IS	123
CYI	104
AGP	100
WST	98
IRW	96
KKN	79
AWL	76
KF	68
ACW	64
PJ	54
KDL	50
EMA	40
ZJ	33
ACC	31
ILD	31
BSH	30
LMB	23
ADY	18
EV	18
FK	17
TI	16
WIR	15
3CE	10

HF CW

WID	292*
XA	230*
BUI	218
IH	178
XW	146
LP	116
EMM	84
OW	84
TT	34
IW	10

HF Open

LT	315*#
DB	312
WIT	226*
GZ	117
LV	90
ZA	90
AKI	70

VHF Phone

3CE	223*
ZBV	203
HBP	201
WIL	186*
EHT	155
ADC	114
AML	111
LC	106
CKG	105
OF	91
MA	80
KF	79
3YID	78
ZA	76
BAY	55
PJ	49
WIZ	48
GUY	47
BB	42
ANN	39
ZXZ	35
ADY	28
EV	24
WIT	24
FNQ	17
BIB	12
TI	11
ZJ	11
KKN	8
FK	2

VHF Open

AR	314*

VK5/8

HF Phone

SR	534*
BQ	417*
BWH	290
GRC	256
BP	227
XY	126
ASN	105
EMI	80
RV	75
FD	70
AIM	49
AKQ	67
OQ	67
RK	62
NN	61
KMK	55
TW	35
DG	30
ZQ	30
NE	25
AFZ	21
MH	20
SE	18
ATQ	6
ACF	1

HF CW

UM	306*#
8HA	210

HF Open

BRC	774*#
ATU	4 2 5 *
RG	227
GZ	115
WO	75
ZL	56

VHF Phone

BRC	335*
AR	189*
GRC	139
XY	130
MX	120
ZKK	82
AVQ	57
AIM	50
RV	35
FD	25
ATQ	20
SE	20
ADD	11

VK6

HF Phone

CSW	306*
KG	165
DDX	136
AR	109
AB	79
KH	71
PX	70
NHY	63
GL	55
SAR	44*
ABS	41
TS	33
OE	30
RZ	28
AD	25
YF	21
NGW	20
APK	17
AO	14
MIN	12
WU	11

HF CW

AFW	202*
AJ	152
PG	100
AF	56

HF Open

VZ	264*
HK	19

VHF Phone

ANC	237*
JIP	235*
HU	215
SAA	215
AD	200
BDO	198
HAO	177
SAR	173
MIN	160
AR	148
JP	146
NKB	136
CSW	129
NU	125
KG	120
KFD	114
NGW	91
ZKO	78
AP	77
FJA	77
TS	67
XV	61
YF	60
TT	42
RO	38
YJ	29
KH	20
PX	14
AO	12
HK	11
WU	11
KCC	9

VK7

HF Phone

MS	217*
CK	210
JGD	199
RN	163
KC	125
KRW	120
DG	79
NGC	62
KH	38
EH	30
PP	30
RM	29
SA	22
WR	19
JP	16
BM	15
KBE	15
NDO	15
AC	10
EB	10

HF CW

JE	110*
LCW	22

HF Open

TS	178*
KT	62*

VHF Phone

HDM	220*
DG	201
XDB	136
JGD	114
ZCR	100
EB	99
FB	91
KRW	90*
TRF	88
TS	83
JK	50
RM	45
NDO	44
ZTW	41
KK	38
WR	22
PP	14

SWL Section

Peter Kenyon	405*#
James Zinkler	165
Christopher Elliot	115

Overseas Section

HF Phone

ZL3TX	74*
ZL2ADN	41

HF Open

ZL1ALZ	465*
ZL1BYZ	292
ZL2AJB	112

I received lots of comments with the logs this year. These comments and suggestions are always very welcome. It would take several columns to reprint them all here so I've selected one which particularly caught my attention and which, I believe, sums up RD 2000. It's from Roy, VK4BAY. He says, "Good conditions on all bands. Good company, good spirit, good competition. This is my 15th consecutive RD as a single op and I've enjoyed every one." Thanks Roy and thanks everyone.

73 and see you in 2001,

Alek. VK6APK

2001 John Moyle Field Day Contest

17th and 18th March, 2001

From: Eric Fittock VK4NEF, John Moyle Field Day C.M.
108 Queensport Road, Murarrie Qld 4172
PH. 07 3390 5664 (home)

Well, once again those who enjoy a weekend in the bush should be planning for this year's John Moyle Field Day. The rules are the same as last year.

If anyone wishes to contact me privately to discuss rules etc, my home phone number is 07 3390 5664, and my address is as shown in the Log Submission section below. I wish all entrants good luck, and look forward to hearing you on air during the contest!

Overview

1. The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.
2. The contest takes place on the 3rd full weekend in March each year, and runs from 0100 UTC Saturday to 0059 UTC Sunday, 17-18 March 2001.
3. The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.
4. Single operator portable entries shall consist of one choice from each of the following (e.g. 6 hour, portable, phone, VHF/UHF): (a). 24 or 6 hour; (b). Phone, CW, or All mode; (c). HF, VHF/UHF or All Band.
5. Multi-operator portable entries shall be All mode, and consist of one choice from each of the following: (a). 24 or 6 hour; (b). HF, VHF/UHF or All Band.
6. Home and SWL entries may be either 24 hour or 6 hours, All mode, All band.

Scoring

7. Portable HF stations shall score 2 points per QSO.
8. Portable stations shall score the following on 6m:
   (a). 0-49 km, 2 points per QSO;
   (b). 50-99 km, 10 points per QSO;
   (c). 100-149 km 20 points per QSO;
   (d). 150-199 km 30 points per QSO;
   (e). 200-499 km 50 points per QSO;
   (f). 500 km and greater, 2 points per QSO.
9. Portable stations shall score the following on 144MHz and higher:
   (a). 0 to 49 km, 2 points per QSO;
   (b). 50 to 99 km, 10 points per QSO;
   (c). 100 to 149 km, 20 points per QSO;
   (d). 150 km and greater, 30 points per QSO.
10. For each VHF/UHF QSO where more than 2 points is claimed, either the latitude and longitude of the station contacted or other satisfactory proof of distance must be supplied.
11. Home stations shall score:
   (a). Two points per QSO with each portable station.
   (b). One point per QSO with other home stations.

Log Submission

12. Logs must be accompanied by a summary sheet showing: callsign, name, mailing address, section entered, number of contacts, claimed score,location of the station during the contest, and equipment used, and a signed declaration stating "I hereby declare that this station was operated in accordance with the rules and spirit of the contest". For multi-operator stations, the names and callsigns (legible) of all operators must be listed.
13. Logs must be postmarked no later than 27 April 2001, and forwarded to: "John Moyle Contest Manager, 108 Queensport Road, Murarrie Qld 4172, Australia". An ASCII text copy on a MS-DOS floppy disc would be most helpful. Alternatively, logs may be e-mailed to: esr@powerup.com.au Logs sent by disc or e-mail must include a summary sheet and declaration, but the operators name (legible) is acceptable in lieu of a signature.

Certificates and Trophy

14. At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Additional certificates may be awarded where

operation merits it. Note that entrants in a 24 hour section are ineligible for awards in a 6 hour section.

15. The Australian portable station, CW section, with the highest CW score will be awarded the President's Cup, a perpetual trophy held at the Executive Office, and will receive an individually inscribed wall plaque as permanent recognition.

Disqualification

16. General WIA contest disqualification criteria, as published in Amateur Radio from time to time, applies to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified.

Definitions

17. A portable station comprises field equipment operating from a power source, e.g. batteries, portable generator, solar power, wind power, independent of any permanent facilities
18. All equipment comprising the portable station must be located within an 800m diameter circle.
19. A single operator station is where one person performs all operating, logging, and spotting functions.
20. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use a callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multioperator entry.
21. A multioperator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.
22. A multioperator station may use only one callsign during the contest.
23. Multioperator stations may only use one transmitter on each band at any one time, regardless of the mode in use.
24. Multioperator stations must use a separate log for each band.
25. A station operated by a club, group, or organisation will be considered to be multioperator by default.
26. None of the portable field equipment may be erected on the site earlier than 28 hours before the beginning of the contest.
27. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be disqualified, and at the discretion of the manager, may be banned from further participation in the contest for a period of up to 3 years.
28. Phone includes SSB, AM and FM.
29. CW includes CW, RTTY, and packet.
30. It is not expected that any other modes will be used in the contest, but if they are, they shall be classed as CW.
31. All amateur bands may be used except 10, 18 and 24 MHz. VHF/UHF means all amateur bands above 30 MHz. Note: On 6 m, the region below 50.150 has been declared a contest free zone, and contest CQ's and exchanges may only take place above this frequency. Stations violating this rule will be disqualified.
32. Cross-band, cross-mode and contacts made via repeaters are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency where a repeater is not used for the contact.
33. Stations may make repeat contacts and claim full points for each one. For this purpose, the contest is divided into eight consecutive three-hour blocks: 01-0359. 04-0659. 07-0959. 10-1259. 13-1559. 16-1859.19-2159. 22-0059 UTC. If you work a station at 0359 UTC a repeat contact may be made after the start of a new block providing, they are not consecutive or are separated by five minutes, since the previous valid contact with that station on the same band and mode.
34. Stations must exchange ciphers comprising RS(T) plus a 3 digit number commencing at 001 and incrementing by one for each contact.
35. Portable stations shall add the letter "P" to their own cipher, eg. 59001P.
36. Multioperator stations are to commence each band with 001.
37. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.
38 The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either 6 or 24 hours later.

ar

Spotlight on SWLing

Robin L. Harwood, 5 Helen Street, Newstead TAS 7250 AUSTRALIA 61-3 63 44 2324 (International) (03) 63 442324 (domestic) New FAX number 1-775-923-1855 e-mail : rharwood@iprimus.com.au

The 'grey line' phenomenon

Have you noticed that short-wave reception seems to be better around the times for sunset and sunrise?

I first discovered this many decades ago, when I started listening and recently noticed it again, especially around my local sunrise. This effect has been documented as the grey line effect. In fact, you will notice signals will come up out of the noise threshold and within 30 minutes they are gone again. This is because it is either sunrise or sunset at the transmitting location. Your local sunrise/sunset is also a very good time to listen.

I have found at this location in Tasmania that the times leading up to sunset by about 90 minutes are good and once the sun has set, propagation drops away sharply, particularly on the higher frequencies. Later on the paths may open as the sun rises or sets, in other locales. Conversely I have found that the best times for listening is up to 90 minutes after the sun rises and that the lower frequencies quickly drop away as the sun rises higher. Also the higher frequencies propagate better in daylight.

The closer you get to the Equator; there is less twilight with the result that the time is shorter. I personally have noticed this when I have been in Queensland.

Here are some examples of this grey line phenomenon. Nigeria can sometimes be heard on 7255 kHz between 0600 and 0700 which correlates to their local sunrise. As it is almost on the equator, the signal will peak around their local sunrise and quickly fade down again. I should emphasize that Nigeria is not there in our local summer months and is best heard from March to August. Also listening on the 60 metre and 90 metre tropical broadcasting allocations, you will find that often African signals will propagate best at our local sunrise while signals from Latin America will be best around their local sunrise. In fact one can follow the sunrise as the Caribbean will come in first, followed by the West Coast of South America and then Central America.

Signals from Europe also hang in for longer at their local sunrise and again it is possible to follow the propagation as the sun rises. Middle Eastern signals are usually the first at 0300 followed by eastern Mediterranean stations around 0400. Central Europe is around 0500 followed at 0600 by the UK and western European locations. Mid Atlantic signals usually aeronautical usually come in at 0800 with Brazil one hour later.

I have been asked why American stations are very loud on the higher frequencies around 2200. For example, WHRA in Greenbush, Maine is extremely loud on 17650 at 2145. Well it is just after our local sunrise here and the sun is just setting on the North American east coast. There is a seasonal variation with this as the sunrise-sunset times will be different, depending on the latitude.

The grey line phenomenon is not new and has been used by amateurs and professionals. I believe that a freeware computer programme is available to take advantage of this phenomenon.

I am hearing the Voice of Islamic Iran in English from 2130 to 2225 on 11740 kHz. It is for listeners in Oceania and the signal level is quite good, as is the modulation. However the diction from one of the male presenters was very poor.

China Radio International in Beijing has an excellent signal broadcasting to this region at 0900 till 1055 on 15210 and 11730. The first 30 minutes is the News and Reports and the final 25 minutes is a feature. The production is very good, compared to the fare dished out during the Maoist era. The transmission is repeated at 1200, presumably for WA but they have made a terrible mistake in choosing 9760 because the VOA from the Philippines is also on the channel in English. Fortunately the other channel of 11675 is excellent. At 1255, CRI drops 9760 and brings up 11900 at 1300.

I also note that the Chinese domestic relays on 8566 and 9390 kHz have gone, replaced by 7120 and 9610.

Incidentally the latter is also used by Taiwan Radio International. Other odd channels may also disappear, as there was a re-organization of networks, just before Christmas. The powerhouse on 11000 is still there in our evening hours but 11040 and 11100 have gone. Also noticed that the domestic relays are easily heard in our daytime on the 16 metre band, particularly 17565 and 17890.

Radio Australia has commenced using the Singapore relay on January 4th in Khmer and Chinese. 0500-0530 17865 Khmer 2300-2330 9730 Khmer 1400-1530 15435 "Chinese" Also from the 15th. of January, they are on from Taiwan at 15110 from 2330 till 0030. My information also is that they hope to be using Taiwan plus the Darwin site and interestingly the Tinian VOA site.

I believe that the "Christian Voice" from Darwin has been heard testing on a number of channels but the transmissions were of short duration. No commencement date has yet been announced.

Well that is all for this month. Until next time, the very best of monitoring!

ar

Repeater Link

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
VK6UU@VK6BBR will2@iinet.net.au

Never enough time...

Brief

With no time to spare this is all I can produce in a short half-hour. Work is particularly busy during the Christmas New Year period, with the Hopman Cup taking up almost all my time. Can't wait for retirement in less than 3 years.

Still waiting for the license for the 40 metre HF-gateway. Two queries to the local ACA have passed our requests onto Canberra. The license was submitted to the ACA in July last year.

40 Years On

I have an article almost ready for this month on a topic from way back before I obtained an amateur license, Tesla Coils. At about the age of twelve I started to become fascinated with high voltage electricity and built an Induction Coil, followed by a Tesla Coil. I knew little about what I was doing and was never able to make the Tesla Coil work very well. Forty years later, the Internet opened up a vast volume of information on how to build Tesla Coils. Inspired by this I built a small coil based on the design information from the Internet. If you are on the Internet, do a search on Tesla Coils and be amazed at the sorts of high voltage electricity produced by "ordinary" people, just for fun. Voltages well over one million volts. My efforts so far are modest, but I know now how to make a Tesla Coil stand up and make its presence known. More next month.

Won't Fit

In closing this brief half-hour effort, what little time I have found has been used to re-house my other computer into a bigger case. This all started about a year ago when I decided to add a CD burner. A simple task that failed at step one; insert CD burner in spare CD bay. The CD burner would not fit all the way into the bay. Investigation discovered the memory chips on the motherboard were in the way. As long as I did not mind the CD burner sticking out a couple of centimetres, it would have worked. I decided against this option and shelved the project. A larger case or a smaller motherboard was needed. The larger case has been purchased and the computer re-housed. What is disappointing about the situation is the manufacturers must have never tried the motherboard in a case that had more than one CD drive. Even in the largest tower case I could find, the last two memory sockets can not be used, if the lower bay is used. We all have experienced this red faced result when finishing a project, only to find the door won't shut etc. But you expect a little more from the experts.

Reminds me of the time I installed some extra speakers in the front door of a car. They worked great but I could not wind the car windows up or down.

Silent Key

John Lindsay-Field VK2AKF

John passed away on Thursday 21st September 2000 following many months of illness. He was born in 1918 and brought up in Melbourne, finally attending Geelong Grammar School. His family later settled at Warbreccan in Deniliquin in NSW, which John ultimately owned and managed for the rest of his life. He and his wife Pam had 5 children, 4 sons and a daughter; the twin sons are now running the property. Like their father the boys went to Geelong Grammar School where John gave lessons in radio voluntarily on Fridays for many years.

He developed an interest in radio in his teens and obtained his call sign of VK2AKF in the mid '30s. Although amateur radio was his great love and joy he was a very public spirited person serving on many committees and on the Deniliquin Municipal Council for 12 years some of which were as Mayor. He was particularly interested in the development and running of the State Emergency Service where he applied his radio communication skills for their benefit for over 30 years. In fact he was particularly proud of the medal he received from the SES which was their National Medal with Clasp and also received honorary Life Membership.

For many years he was Secretary and President of the Federal Inland Development Organisation (FIDO) where he and I developed a close and lasting friendship. That organisation was responsible for the development and upgrading of the inland highways, such as the Kidman Way, which forms part of the road from Darwin to Melbourne. Under John's stewardship through FIDO's efforts a major bridge over Cooper Creek at Nappa Merrie was opened in 1992.

He served during the war firstly in the AIF and then in 1941 transferred to the Australian Merchant Navy as a radio officer and over the next 4 years also served in the Dutch and UK Merchant Navies.

John was a member of the Wireless Institute for 62 years, a member of the Geelong Grammar Foundation, VRC, and the NSW RSL. He will be long remembered by his many amateur radio friends as well as those he worked with and inspired in Local Government pursuits.

David Coffey VK2COF

VHF/UHF AN EXPANDING WORLD

David K Minchin VK5KK
Postal: PO Box 789 Salisbury South Australia 5108
E-mail: tecknolt@arcom.com.au
Web page: http://www.ozemail.com.au/~tecknolt
Fax +61 8 82346396
Phone 0403368066
All times are in UTC

Tasmania on 10 GHz!

Tropospheric propagation has followed a normal summer pattern so far this year with good ducting along the southern coast of VK3, 5 & VK6. Trans Tasman contacts have been had on a number of times throughout November 2000 to January 2001. Rob VK3EK has been touring around VK7 with both 3 & 10 GHz equipment with good results

Trevor VK5NC, reports ... A new vk7 10GHz record was established on the 3rd January 2001, at 0843 UTC between Vk3EK/7 at Bridgeport on the north east coast of vk7 at locator QE39QA and VK3ZQB /P3 at Port Fairy, grid locator QF11DP. Distance 524kms. At 0850 UTC VK3EK/7 worked VK5NC/P5 at Cape Northumberland grid locator QF01HW. Distance 667 kms. Signal reports were 57/59. At 1113 UTC, VK5NC worked VK3EK/7 on 3.4GHz also over a distance of 667kms. Both these contacts are now claimed as respective 3 & 10 GHz VK7 records

Rob, VK3EK/P7 was also heard by VK5DK/P5 on the Bluff, West of Mount Gambier on 10GHz. It would appear Rob's 10 GHz receiver was not working at its best so two-way contact did not result. After these contacts 24GHz was attempted between VK5DK, VK5NC & VK3ZQB but signal levels made voice difficult to copy and no 2 way contacts were made ....Trevor, VK5NC

More Microwave Tropo DX

On the 11th of January, 2001 another strong Tropo system lead to good coastal ducting from VK3 & VK5 from 144MHz to 10 GHz. Unfortunately conditions peaked 2 days early for the Summer Field day and with fire bans expected to preclude access to the more favoured sites during the field day, a number of stations went out portable two days early.

Vk3XPD worked VK3ZQB, VK5DK & VK5NC at Mt Edward (approx. 500km's) with 59+ signals on both 5.7 & 10 GHz. From Summertown, about 4km North of Mt Lofty, VK5KK/P5 worked VK5NC/P5 and VK5DK/P5 over the 350km path around 1010 UTC with 59++ signals. At 1027 UTC VK5KK/P5 worked VK3ZQB/P3 at Port Fairy, distance 502km on 10 GHz followed by 5.7 GHz over the same path at 1048UTC. Signals peaked over 59 on both bands. Interestingly VK5KK & VK3ZQB continued to ragchew on 10 GHz for the next 2 * hours with signals rarely dropping below S9! At various stages, different forms of path enhancement occurred including a reasonably long burn from a plane heading East!

Attempts were made to work VK3XPD over the longer 680km path but no path was available on 144 MHz, let alone higher. While Strong coastal ducting was at play, the duct had little land penetration. 144 MHz was also open to VK6 Esperance, at the same time. The Esperance beacon has been heard, in Adelaide and Mt Gambier, almost every morning from 2/1/2001 to 12/1/2001. Unfortunately, Bill VK6AS has not been well, precluding operation.

Tropo DX

Those who have been looking at William Hepburn's "Tropo" site over the last few months would have seen some interesting results from his Tropo prediction charts. Feedback from various quarters indicates that we are now going out more at the right time! It has been helped along by a return to a normal Tropo year. Ducts have been evident, atleast locally, even with relatively high humidity locally.

One observation I have made is the tilt on the ducts across the Bight, confirming that the Albany to Adelaide path is no where as common as perhaps the Esperance to Mt. Gambier one. The observation would also indicate that this path could well be the best for higher Microwave work. While the path is under the current 10 GHz record, eyes are now set on exploring this further. Another observation is high occurrence of Coastal ducts Vs over land ducts this year. A reversal of last year from a VK5 perspective.

William Hepburn's "VK" maps can be found at http://iprimus.ca/~hepburnw/tropo_aus.html . More work is needed to fine-tune the map Vs actual. Other information from high atmosphere soundings can be used to compliment. If anyone has feedback from other parts of Australia, please pass this on.

Summer Field day

Hot weather and total fire bans/ closed forest roads precluded extensive operation in many parts of VK5 but a good showing in the contest came from VK2,3&4. After the success of the 4-grid square DX-pedition during the Spring Field day with VK5UE and VK5AIM, it was a bit of an anti-climax!

VK2 KU reports ... "On 13 Jan 2001 (Summer Field Day) after a lengthy drought, VK2KU worked: VK3KAI/p at QF54cg (Batemans Bay) on 1296.2MHz at 0415, 51 51 (#12). VK3KAI/p at QF53bu (Dalmeny) on 1296.2MHz at 0538, 51 51 (#13). VK2KU also worked VK4OE/p in QG61 (near Cape Byron) on 144.17MHz at 2036, 41 51 (#55) Thanks Peter and Doug." ... VK2KU.

Ron VK3AFW reports on his "backpacking" station used during the Field Day ... "Last Saturday as I could not go to my preferred field day QTH I spent time in 4 grid squares, QF22, QF21, QF11, QF12. For the first hour or so I operated from the summit of the You Yangs, a small 340-m high mountain near Lara. This involved carrying the station some 1.6-km horizontally and

160 m vertically. Gear was an IC706G, a 7 AH gel cell, a two section 5 m mast, 3 large tent pegs, a hammer, mast guy assembly, roll of RG213, a diplexer and a 3 ele 2m beam and a 6 ele 70 cm beam on the same boom, a couple of hand tools, logbook, pen, a camera and a bottle of water. Total weight about 15 kg. This is the same, except for the antenna, as the station operated on the mornings of 29 Dec 2000 - 1 Jan 2001 from the summit of Mt Buller (1800 m) near Mansfield.

At Mt Buller I used a 6-element beam for 2m and the same on 70-cm hoping for some 3rd harmonic performance. This was improved by taping a full wave (on 70 cm) loop to the 2m driven element. My experience with this arrangement motivated me to make a new beam for backpacking operation. I also did not want to have to spend much time assembling the station. The 6 element started life as an NBS 5 ele. Each element was attached to the boom with a plastic mount and butterfly nut and bolt. This took up little room in a vehicle, however the balun feed to the folded dipole has broken on several occasions necessitating emergency repairs - hence the tools and a bit of hook-up wire in the kit. It also took longer to assemble than I liked.

I decided to go for a small single boom yagi for 2m and 70cm. The Kent Britain Cheap Yagi design appealed to me as a "no fuss will work" approach. Kent used one 25 mm x 25-mm wood boom per band, but I wanted to make things as simple as possible so decided to build two yagis on the one boom. The 70-cm beam is in front of the 2m beam. I left a 125-mm space between the 2m director and the 70-cm reflector. Two holes were drilled here to take a TV mast mount. The elements are all 0.125 inch or 3mm dia. - the directors are aluminum rod - the 2m driven element is brass and the 70 cm driven element is silver-solder rod. It worked every bit as well as I hoped. The 2m elements flop a bit and I'll look at using thicker elements for another version, however, Kent's design is for 3 mm elements so changes here will have a degree of risk. The whole thing is built on a 1.2m length of 20 x 40 mm DAR hardwood which is strong, reasonably light and easy to carry. Pine would be lighter again and if knot free would be preferred. I had the hardwood in the garage.

Microwave Primer Part Nine: Antennae for 10 GHz

Last month we discussed the various ways of getting RF to the antenna. A good article appears in the Jan/Feb 2001 issue of QEX regarding circular Waveguide for those interested in using the ∫" copper pipe. This month we get onto antenna. Again what is outlined is equally applicable, albeit scaled, for 1 GHz to 24 GHz. Antennas at microwave frequencies fall into two groups, direct radiating and focused radiating using a concave reflector.

Direct radiating include the humble dipole (15mm long!), open Waveguide, conical or pyramidal horn and slotted Waveguide. I have yet to see a yagi made for 10 GHz but if you can make ships in a bottle then maybe you could try it! Focused radiating types are typically prime focus or offset dishes. Invariably antennas in the first group feed the second group so this discussion will concentrate on the feed/dish scenario. Gain of a dish is proportional to its 2 dimensional surface area multiplied by the dish efficiency factor. Typical dish efficiencies vary from 30 – 65%.

A prime focus dish is one that has a focus located along the centre line of the dish. The paraboloid shape is uniform around this centre line, i.e. it looks like a wok! The focus of the dish is measured as a fraction of the diameter. Typical "F/D" ratios vary from 0.3 – 0.6, with 0.35 being common. The angle of radiation required to efficiently illuminate a 0.35 F/D dish is approximately 135 degrees in both planes. Feeds are usually selected so the –10db points correspond with this beamwidth. This restricts feed types to simple dipole reflector types or splashplate types like the "Penny" feed. Unfortunately these feeds tend to under illuminate the dish in one plane more than another, typical efficiencies end up being as low as 25% and not much better than 45% at best. Some of this loss is also attributed to blockage from the feed as well as under illumination around the centre line.

An offset fed dish is one that has the focus offset along one plane parallel to the centre line. The feed can be offset anything up to 30 degrees from the mean dish centre. Angles greater than 25 degrees usually places the feed out of the line of the actual dish boresite eliminating feed blockage problems. Some dishes mostly intended for satellite use smaller offsets or Oval shaped reflectors to give wider beamwidth in a particular plan. This is usually done so two DBS satellites on close orbits can be covered by one dish heading. The feed almost always faces skyward towards the dish, highlighting another advantage ... no ground noise pickup from feed spillover. This is also applicable for terrestrial use where prime focus can exhibit some ground noise pickup from underside spillover.

An offset dish is still a paraboloid despite it having a complex shape. It is simply part of a larger paraboloid. Being part of a larger dish means its F/D ratio is correspondingly higher. Typical DBS satellite dishes have a F/D of 0.6 or higher, with a 28-degree offset. This type can be visualized as a petal on a prime focus dish about 210% bigger. This property of an offset dish and some math's can be used to calculate the focal point and illumination angles. The derived illumination angles are then used to design the feed antenna, either a conical/chaparral feed or a pyramidal horn. I like the pyramidal horn feed; in fact W1GHZ has a program that calculates the horn dimensions from the offset dishes basic dimensions! Due to the higher F/D the beamwidth is only around 60/80 degrees. It is far easier to get a uniform horizontal and vertical pattern from a feed at these angles, hence offset feeds can have up to 65% efficiencies. That's 3db better gain for the same surface area as a poorly illuminated prime focus dish!

Last year, at VK5LP's QTH we sat down and compared two receiving systems. One 600mm prime focus dish with dipole feed and one 600mm offset dish with horn feed. Using Sun noise as the reference, the prime focus could barely detect sun noise (under 1 db). The offset dish had better than 3 db sun noise. Eric was left with no doubt as to which one should go up his tower!

The offset dish is the better performer however this comes with one disadvantage .. the offset along one plane has to be allowed for when aiming. While the angle can be calculated and allowed for in fixed station use, some form of "sighting" apparatus is required to locate the horizon, especially at night. This may be as simple as a sighting tube offset at the correct angle. At night you

could almost use a Laser LED pointer if enough moisture or dust was in the atmosphere.

Turning to direct radiators, any of the above feed antennae can be used as direct radiators. A Large Horn feed can have up to 18-20 dbd gain. Waveguide can also be used as a radiator with about 6-8 db gain. Another way of using Waveguide is as a "Collinear" type radiator using the slotted Waveguide. The slots are ° wavelengths parallel to the run of the Waveguide on one or both of the wide sides of the Waveguide. When the Waveguide is slotted on both sides and mounted vertical, a low angle horizontal omnidirectional antenna results. 8 slots on either side will give around 10-dbd gain. If you slot one side you end up with 13-dbd gain over an arc of about 150 degrees. Slotted waveguides are used mostly for beacons & ATV repeaters however they have been used for mobile operation too!

In Closing

Commercial manufacturers, of late, seem to be taking renewed interest in producing all mode transceivers that include VHF and above frequencies. The following is not a product endorsement or advertisement however this new transceiver breaks new ground! Yaesu have introduced, overseas, a new "Portable" all mode transceiver, the FT817. The FT817 is of similar size and configuration to the FT290/490/690 series all mode portable transceivers of the eighties. More appropriately, it could be described as a portable version of the FT847 base unit. Yes, the FT817 HF plus 50/144/432 MHz multimode including PSK31 and 9600 baud packet!

The FT817 transceiver is best described as QRP unit with no more than 5watts on any of the bands or 2.5-Watts when running from internal batteries (either 8 x AA cells or a Nicad pack). Release details promise a high level of specification, similar to that offered in larger mobile and base HF/VHF & 430 Transceivers. Its use for driving higher frequency transverters is perhaps one application that goes begging! No word on any local release, with the Australian dollar performing as it is, one can only hope it isn't priced past its worth. We will have to wait and see.

I'll leave you with this thought. ... "Did the first roll of toilet paper come with instructions?"

Till next month

73's David VK5KK AR

ar

Silent Key

Les Bell VK4 LZ

Les Bell MBE (MLY) 4LZ, Airlie Beach, died after a short illness on 11th December, 2000, aged 97.

He was the founder, Net Controller and Mentor of the long running Coral Coast Group which he started on 28th September 1967 — non-stop, 7 days a week, 21.00 hrs GMT frequency 7.060 MHz. Only two original members remain out of thirty eight — Charlie 4BQ and his wife Evvy VK4EQ. Approximately twenty have passed on since its inception, including Les's wife Bertha some ten years ago.

He started very young in Radio on Spark Gap transmission, and until his demise could still do 30 wpm Morse. He received his citation for installing Radar behind the Japanese lines.

In a World Wide Radar reunion he was the star attraction held at the Rocke Complex Soldiers Point in Newcastle.

In his early days he was a marine engineer on a badly leaking vessel coming back from France. He jumped ship at Kaveiony and worked for a German named Wynder in his machine shop. He later purchased the business from his employer, and employed the natives in exporting copra. At that time Errol Flynn (the movie actor), then nineteen, was a labourer in his workshop.

In the early Japanese invasion of New Guinea, Les and his two brothers were Coast Watchers, sending essential information to the RAAF. His elder brother Lincoln lost his life in that enterprise. It is all recorded in the book "The Coast Watchers".

At the age of forty two, he decided to try to join the RAAF as a pilot by putting his age back, but was soon found out and relegated to Radar.

A New Zealand author, Gillian Shadbolth, has almost finished writing his life story.

All who were associated with Les will agree on his mental and physical fitness, his high moral standards, his intelligence, his remarkable achievements and his modest character.

A legend that the passage of time will not eliminate.

Les VK2AXZ

ar

HF Predictions

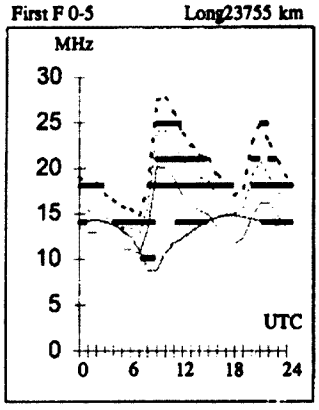
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

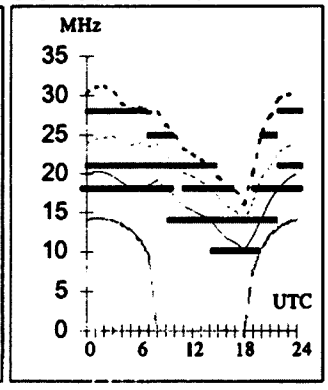
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

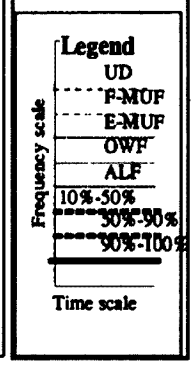
Adelaide-London ## — First F 0-5 — Long 23755 km



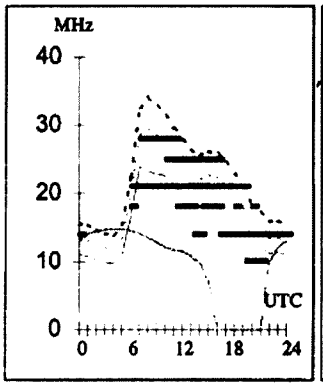
Brisbane-Dunedin ## — First 1F5-9 — Short 2560 km



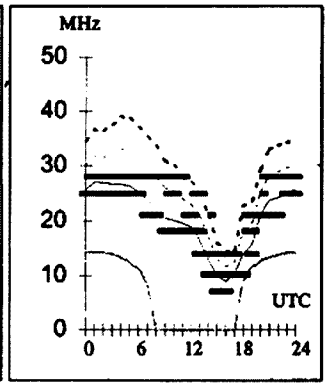
February 2001
T index: 114



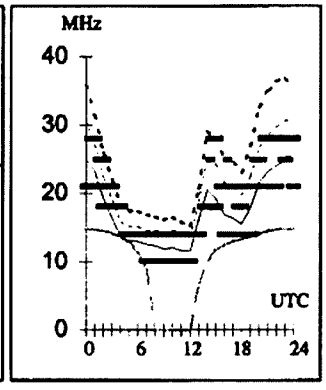
Adelaide-London ## — First F 0-5 — Short 16269 km



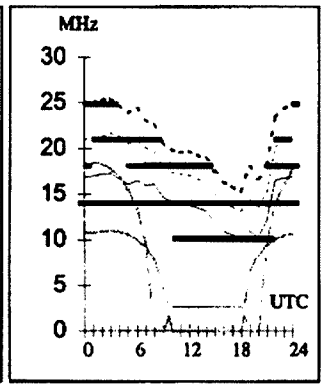
Brisbane-Honolulu 49 — Second 3F5-12 3E0 — Short 7569 km



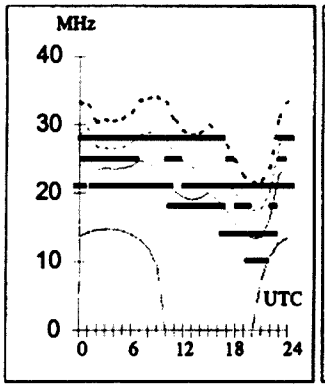
Canberra-New York 68 — First F 0-5 — Short 16218 km



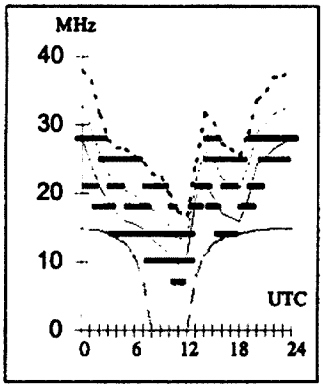
Darwin-Auckland ## — Second 3F12-18 3E2 — Short 5135 km



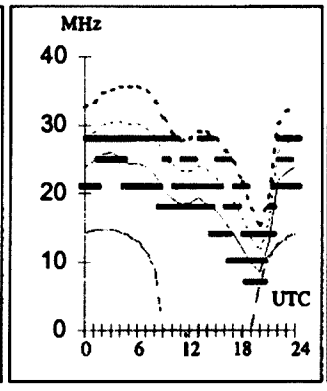
Adelaide-Manila ## — First 2F3-10 2E0 — Short 5813 km



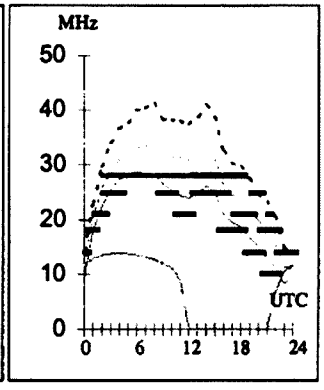
Brisbane-Miami 79 — First F 0-5 — Short 14759 km



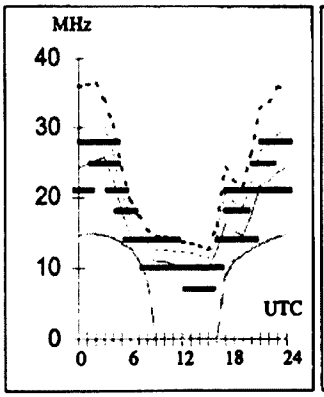
Canberra-graph 10 ## — Second 3F4-10 3E0 — Short 7948 km



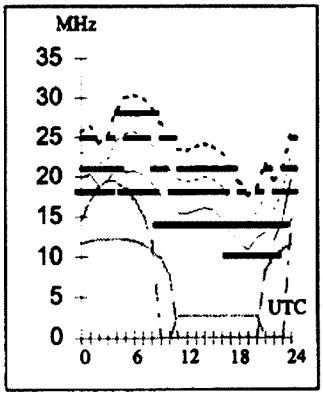
Darwin-New Delhi ## — Second 3F6-13 3E0 — Short 7347 km



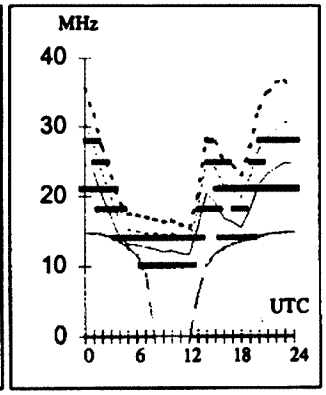
Adelaide-Vancouver 49 — First F 0-5 — Short 13421 km



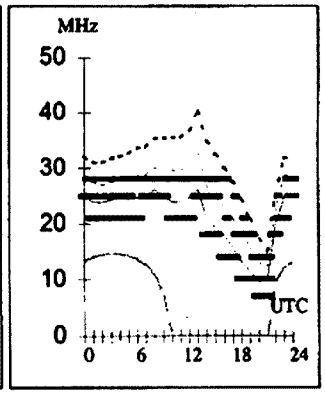
Brisbane-Singapore ## — Second 3F9-16 3E0 — Short 6147 km



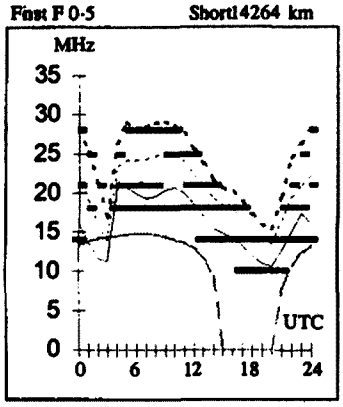
Canberra-Washington 70 — First F 0-5 — Short 15939 km



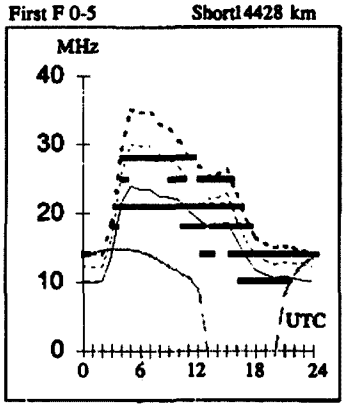
Darwin-Osaka ## — First 2F4-11 2E0 — Short 5263 km



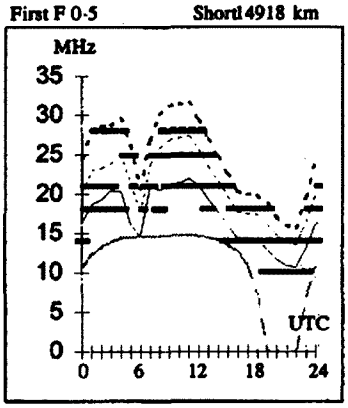
Hobart-Cairo 278
First F 0-5 Short 4264 km



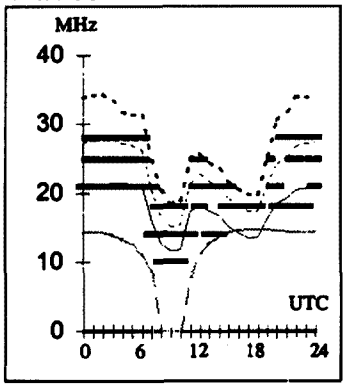
Melbourne-Moscow 316
First F 0-5 Short 4428 km



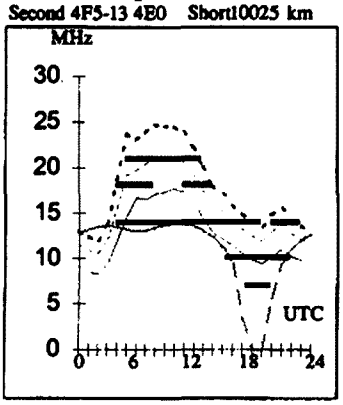
Perth-Dakar 259
First F 0-5 Short 4918 km



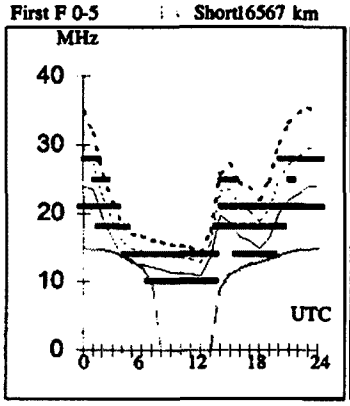
Sydney-Barbados 119
First F 0-5 Short 6155 km



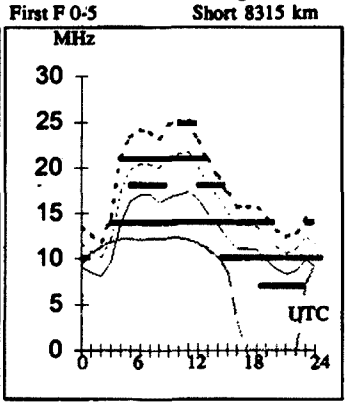
Hobart-Capetown 220
Second 4F5-13 4E0 Short 10025 km



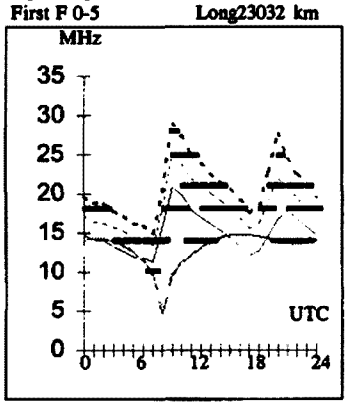
Melbourne-Ottawa 63
First F 0-5 Short 6567 km



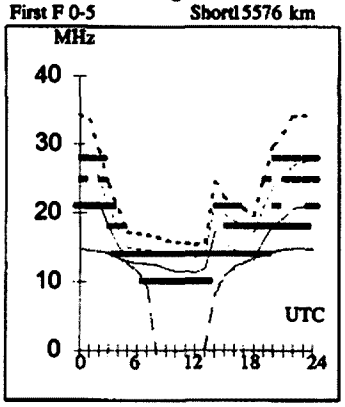
Perth-Johannesburg 248
First F 0-5 Short 8315 km



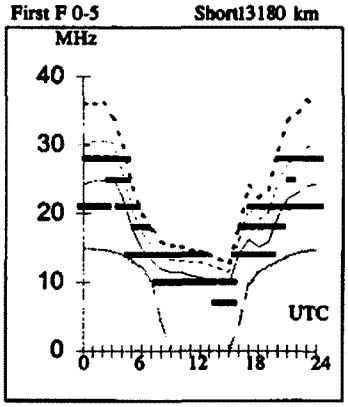
Sydney-London 139
First F 0-5 Long 23032 km



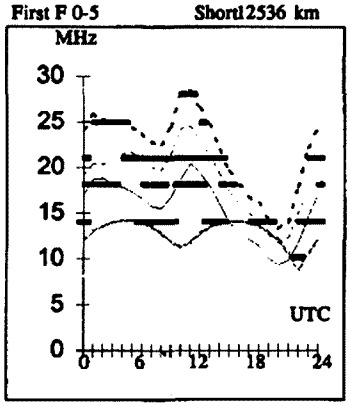
Hobart-Cbicago 72
First F 0-5 Short 5576 km



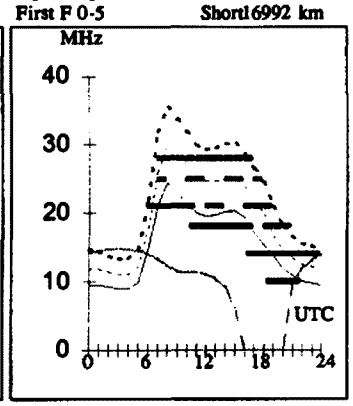
Melbourne-Seattle 50
First F 0-5 Short 3180 km



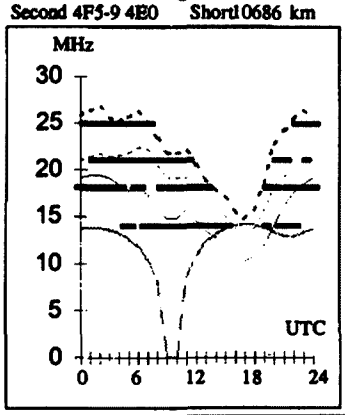
Perth-Montevideo 187
First F 0-5 Short 2536 km



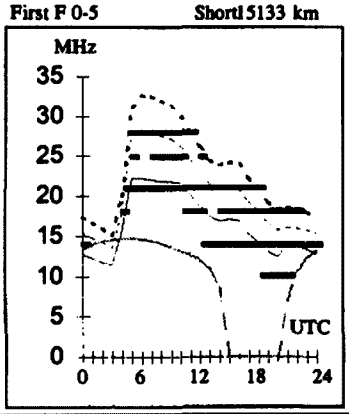
Sydney-London 319
First F 0-5 Short 6992 km



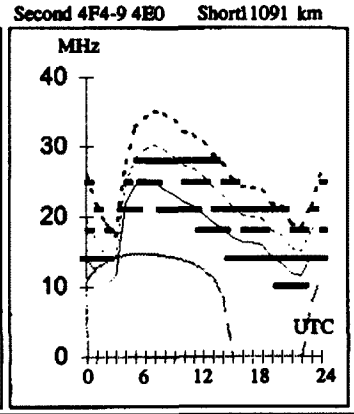
Hobart-Santiago 149
Second 4F5-9 4E0 Short 0686 km



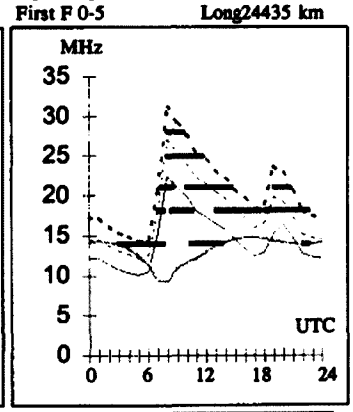
Melbourne-Sofia 296
First F 0-5 Short 5133 km



Perth-Tel Aviv 302
Second 4F4-9 4E0 Short 1091 km



Sydney-Warsaw 133
First F 0-5 Long 24435 km



HAMADS

- Hamads may be submitted on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*
E-mail: newsl@webtime.com.au (Fax: t.b.a.)

Please send your Hamad by ONE method only

WANTED - ACT

Yaesu FT90R and/or accessories; Icom Yaesu or Kenwood power supply around 25amp; Icom 706 MKII accessories; Icom IC4KL. All items in good condition John VK1CJ 02 6251 1816 QTHR

FOR SALE - NSW

Tower 60ft. 10x6ft sections, guyed HD commercial tower (still standing) C/W prop pitch motor in base enclosure: controller in shack: A1 cond: no rust: C/W guys, turnbuckles, mercury limit switches, selsyn indicator tx, motor power transf. Price $950 ono: buyer to remove with assistance from seller on ground. Also, 4 element, 20 metre homebrew yagi beam: 31ft x 3inch boom in A1 condx: no corrosion: on the ground. Price $ZERO - a bonus to the tower buyer. QTHR Art VK2AS 02 9416 7784

Command equipment - SCR-274N Rxs, Txs, Modulators, Racks, Mountings, Remote controls, Bowden cables, Test sets, ARR-2 Rxs, dynamotors. Some in almost new condition. Complete setups possible. Bill, 03 9337 4902, jikajika@net2000.com.au, or Brian, VK2GCE, QTHR, brianclarke@telstra.easymail.com.au.

Kenwood TSS20S transceiver with owner and service manuals and Shure 444 mike $420. VK2OW Maurie 02 9838 1834

WANTED - NSW

National HRO HF coil boxes and original receiver instruction manual required. Allan VK2GR QTHR Ph 02 8850 0141 Email: vk2gr@hotmail.com

Book and circuit diagram for Denton linear amp MLA - 2500. Buy, borrow or copy and costs. VK2BGP QTHR 02 4982 9748

Kenwood Transverter model TV-506 6 metres. In working cond. State price. David VK2AIF Ph 02 6586 4980 or QTHR.

FOR SALE - VIC

Shack sale & workshop clearance (I need the space urgently). 1x Yaesu FT-480R 2m all mode mobile $ 650. 1x Icom IC-271H 2m high power all mode base $ 1100. 1x Icom IC-471H 70cm high power all mode base $ 1400. 1x Icom IC-22S 2m mobile - broken - parts only $50. 1x Philps FM-93 70cm UHF mobile - $200. 1x Beckman 903 valve WWV (2.5 -> 25 MHz) monitoring receiver $150. 1x PFT-203 2 metre 23 channel crystal locked FM mobile - VGC $160. 20x Motorola Maxar 80 VHF mobiles $40 each. 2x commercial UHF repeaters Philips PRF15 (430 - 500 MHz) $1700/pair. 1x commercial VHF repeater - needs minor repairs $400. 1x Bird 6156 VHF 25-500 MHz power meter & dummy load $250. 1x Eddystone communications RX 500 kHz - 32 MHz fully restored $ 500. 1x Tektronix WFM-1480 video waveform monitor - VGC $500. 1x Bosch high quality composite video decoder to RGB/YUV $ 600. 1x Sony VTX-100BC VHF/UHF stereo television tuner $150. 4x Compaq Deskpro-4100 486DX4/100 PCs with 32 Mb RAM & Win 95 $200 each. (PCs don't come with keyboards, mice or monitors). 2x Dataproducts IZR-895 laser printers $300 each. 1x APC Smart-ups 400 power supply - $200. All offers considered!. Paul VK3HZ . (Ex VK3VRD/VK3YWD). QTHR phone 0412 302 939

Vintage Radio Auction - My complete collecton 250 major items - Empire States, Comm. Recvrs, Military, 1000's components, bits 'n' pieces. At Swanpool (Young's place, remember?) March 4th. For details/catalogue send blank email to: vinradauction@getresponse.com OR view: http://maxilink.com/harvey OR Post large SSAE to VK3AHU P.O. Box 40 Violet Town 3669 03 5798 1451

Galvanized tower sections 3m by 350mm triangular section plug together easily transported.24 available $70 each. 4 bases 1.5m $40. Flexible steel guys with turnbuckles. Photos available. Large quantity 16g hard drawn copper antenna wire 50c per metre. Bill VK3AMH QTHR 03 5794 2004 email: vk3amh@eck.net.au

Deceased estate. Yaesu FT 980 HF transceiver with manual $800. IC24/T 2m/70cm hand held (batt flat) $150. Packratt 232 with operators manual $200. Bencher iambic keyer chrome base $50. ATN 13-30-8 log periodic HF beam $500 (you remove). Emtron ENB 2 noise bridge $40. Model 171 SWR/PWR twin meter bridge $20. Drake TR7 250 watt all band HF transceiver with power supply, mic, workshop manual, mint condition $1000. All above, you collect. No reasonable offer refused. Discount if you take the lot. Mike 03 5433 3654

Shack cleanout. E.I.L. 9 valve comms RX mod. HCR 62, $50. Icom IC22S, $50. Pye overland mod.F25 conv. to 2 metres 5 chan. $20, or the lot for $100. Vic, VK3KVT, QTHR, 03 9754 4860

English 'Television' magazine, all issues 1982 to April '97. Offers? Fred VK3JM 03 9801 4972

Drake TR7 transceiver with P/S mike speaker and L75 linear, Yaesu CRO Monitor. All for $2000 or sell separately. VK3LC QTHR Ph 9773 5334

FOR SALE - QLD

Shack Clearance: Kenwood TS 430V HF xcvr. PS 430 Power supply. TM 221A 2m mobile 50watts.TM 421A 70cm mobile 35watts. TR 7200G 2m Xtal mobile 10watts 10channels. SW200 swr/pwr meter. Spoken Type 250 HF linear 10db. Yaesu FT224 2m xtal mobile 10watts 8channel. FT 23R 2m HH. Icom IC2A 2m HH. Realistic Pro 32 200ch Scanner. Phillips FM320 40ch UHF CB. Kenpro KR400 rotator. Kantronics KPC3 packet TNC. Plus numerous other items. Tenders are invited for this gear, deadline 31st March. For complete list, more info, or to submit tender, Call Neil VK4NF QTHR, or Email. nwholmes@ozxpress.com.au. Phone 07 4662 4950, Packet: VK4NF@VK4YH

WANTED - QLD

WWII type 3BZ transmitter and teleradio receivers, also AMR100 receiver, power supply, and plug in coil boxes, always after services amenities receivers Tasma AM5, AWA C17020, Stromberg-Carlson. Ray VK4FH Phone 07 3299 3819 Fax 07 3299 3821 P.O Box 5263 Daisy Hill 4127

WANTED - SA

AWA Teleradio 3B Transmitter type J6798 or 8J6798 for museum display. Also interested in a Type C6770 or 3C6770 receiver (with the internal vibrator power supply Type H6499) or the vibrator supply alone. Tony VK5UA QTHR Ph 08 8269 4095

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

ADVERTISERS INDEX

MISCELLANEOUS

• If you got your licence before 1975, you are invited to join the Radio Amateurs Old Timers Club. A $2.50 joining fee plus $8.00 for one year or $15.00 for two years gets you two interesting Journals a year plus good fellowship. Arthur Evans VK3VQ or Allan Doble VK3AMD can supply application forms. Both are QTHR in any Call Book

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

Bearings

Reading my October 2000 A.R., I note where you asked re a program giving bearings from a designated location to cities around the world. I purchased one such list about 12 years ago from Bint Services, Box 323 Cheltenham Vic.

They also put out QSL cards. The list was very comprehensive; it listed both paths and distances, to just about every city and known location on the planet. Of course there is the chance this firm may no longer be operating. However, someone must have the computer readouts. I hope my info will give you a start. I am enclosing a page to show how they go about it.

Apparently once they have your location your position is fed into the computer and out comes your bearings.

My regards and best wishes to all staff keep up the good work.

73 Les Hawkins VK4DA.

Personal Computerised Heading List For : L. Hawkins (VK4DA) Bundaberg - Q'land. Headings are based on true north - allow for local magnetic variation

If QTH is suburb close to city - I.e. Adelaide/Glenelg then heading/distance from Glenelg to Adelaide may be incorrect. This is due to the fact that the program is formatted to DX headings - not short distances..!

Beam Headings Based On:
Bundaberg - Q-land. Latitude 2 4 52deg South Longitude, 152 21 Deg East

Morse and Mazdaism

I thank Ian Grey (*Amateur Radio* September 2000) for his Zorcrastian contribution to the debate.

It drew attention to some personal slack thinking about Morse code and other technical and social latitudes.

I had forgotten a contact made with a young couple mobile in central Australia whose microphone had been crushed. They could only reach me by tapping two wires together.

The same couple were later rescued from rising floodwater.

Upon reflection I must go back to Morse code and passive repeaters; leaving it to the incomprehensible to pursue the intangible and tell us where they are going, and perhaps why.

Fred Smith VK2EN/ACP

QSL Exchanges

Thank you, John G. Lyons VK2NDR for your letter in November AR. I too have been thinking about QSL cards, firstly that it is a long time since I have seen anyone advertising a QSL card design and print service, and secondly that the exchange decline is most apparent. Regarding the first point, I have made my own cards, laboriously hand-written, photocopied, then pasted on to cardboard.

Johns' concern about the worldwide decline in card exchange is valid. I recently discovered that to send a card to Russia and South Africa would cost $1.50 each at Air Mail rates, and the previously available Surface Mail has been abolished! At these rates it is sensible to use the worldwide (free) service as offered by the WIA, even if it takes a lot longer. By doing this I will save a lot of expense and hopefully help the WIA and other QSL bureaux survive.

Trevor Mitchell VK3PP

Morse still most efficient

I have been incensed by the letter from Ian Gray in September AR. I cannot possibly agree with his views. Unfortunately, for some of us some types of learning are more difficult than others. Learning Morse Code is a great hurdle for some people.

However, we do have set standards and need to adhere to them. In my view, good CW operators do not use computerised morse code. I feel those who do are unacceptable as good CW operators as accuracy is sacrificed for speed. The uncorrected errors show up very quickly those who are trying to short cut the system. Like driving, speed under control is essential. These days a great percentage cannot send 10 words without an uncorrected mistake. We are now moving to an era where those who use Morse code will do so because they want to and it is still the most efficient mode to use in the circumstances for accurate communications.

For Mr. Gray and others – I would suggest you pass your 5wpm test. Thousands of people have done it before. By doing so, you open yourselves up to a brand new world of communications and join a band of operators who are as good as any and better than most.

G.W. Lanyon VK2AGL

Ionospheric Update

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

This quarter the *Ionospheric Update* returns to a more familiar format.

The predictions relating to the peak of solar cycle 23 cannot be tested yet. The smoothed sunspot number is by definition not available till six months after the event. It will have o wait two quarters (at least) before a quantitative change in trend is known.

Solar activity ranged from low to high during the quarter. Activity was low to moderate in October, moderate to high in November and low to moderate again in December. The flare activity reflects this; 10 M class flares in October, 18 M and 5X class flares in November with 7M class flares in December.

Geomagnetic activity also rose and fell during the quarter,

From 3 to 5 October conditions increase d to major storm level

From 13 to 14 October conditions were active.

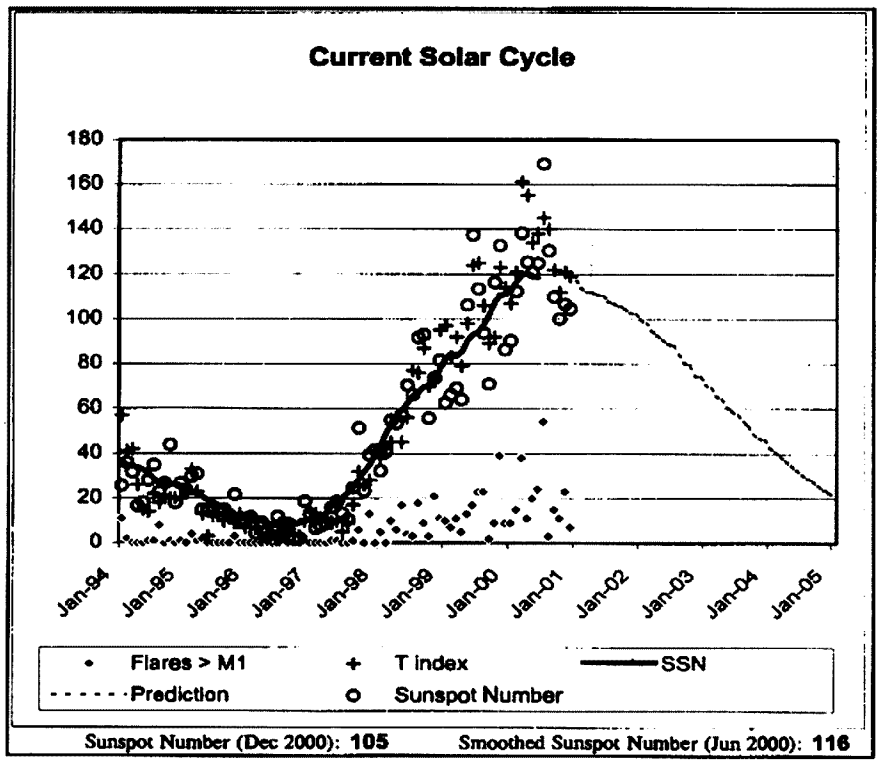
The observation graph shows these variations quite clearly. Note the simultaneous fall in T index indicating a loss of radio propagation.

There was also a minor storm from 28 to 29 October.

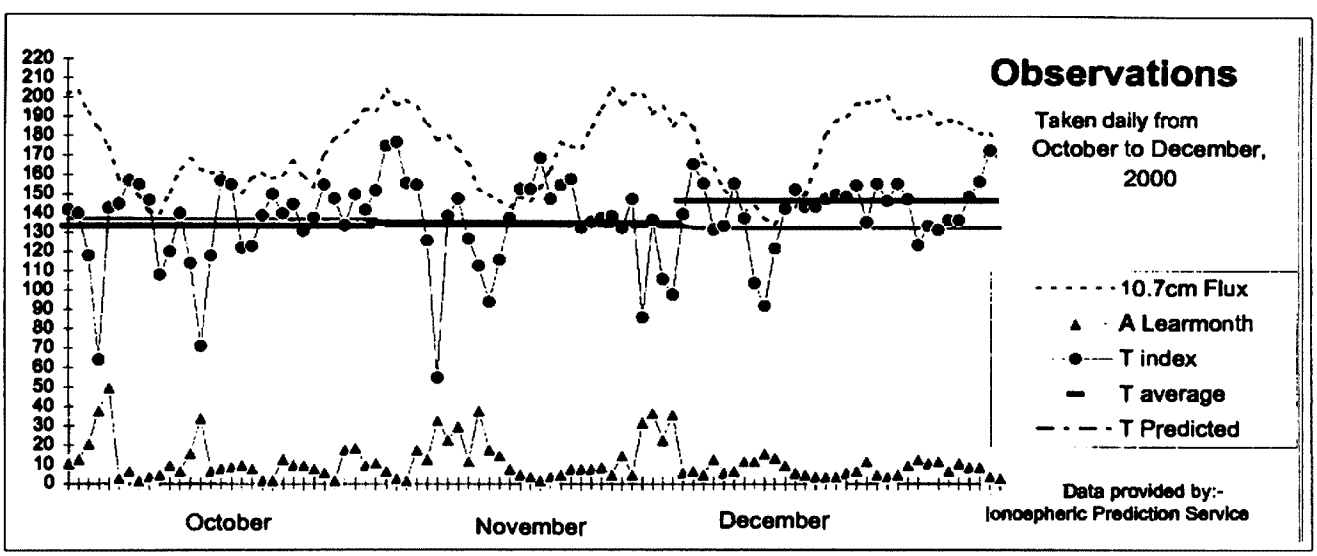
In November there were strong magnetic storms. They occurred on 6-8, 10 and 27-29 November. Their effect can also be seen on the observations graph. The strong rise in the Learmonth A (geomagnetic) index and the simultaneous fall in the T index indicate a loss of propagation and the cause. These storms were associated with coronal mass ejections.

Geomagnetic conditions were unsettled to active from 6 to 8 December and 23 December.

The graph of the current solar cycle has been modified to incorporate the monthly sunspot number. Only smoothed sunspot number is shown as a line for it gives the trend. The most recent sunspot and smoothed sunspot numbers are also included. This graph is expected to appear monthly in the future; on its own



ar



YAESU'S DONE IT AGAIN

Yaesu FT-100D Ultra-compact HF/6m/2m/70cm Mobile

Now you can enjoy the fun of operating on all bands from 160m to 70cm, either at home or in your car, and at a fantastic Yaesu price.

The Yaesu FT-100D features HF/6m/2m/70cm transmitter coverage with 100W RF output on HF and 6m, 50W on 2m and 20W on 70cm, plus you can easily mount the detachable front panel using an optional lead (YSK-100) for more convenient mobile installations. Powerful interference fighting features such as a DSP based Bandpass filter, Notch filter and Noise reduction, together with an IF based Shift control, all aid reception quality during tough conditions. A Speech Processor and VOX facility are provided for SSB users and an internal Electronic keyer plus CW IF filter are provided for CW operation. Also included are Dual VFOs, built-in CTCSS encode and decode, 300 memory channels, all-mode operation (SSB, CW, AM, FM, AFSK, Packet* 1200/9600bps), 100kHz-970MHz receiver (cellular locked-out), and options for an additional AM IF filter.

The FT-100D is supplied with an MH-42B6JS hand mic, DC power lead and comprehensive instructions.

D 3288

YSK-100 remote front panel kit. $165

D 3286

YAESU

Included as standard:

- Digital Signal Processing on both transmit and receive
- High stability oscillator (±1ppm)
- Effective IF noise blanker
- Electronic CW keyer with 50 character message memory
- 8 pole 500Hz IF crystal filter
- Spectrum Scope function
- Larger 66mm internal speaker
- Massive receiver coverage (100kHz – 970MHz, less cellular)

$2870

2 YEAR WARRANTY

BONUS Purchase an FT-100D before 28/2/01, and receive a bonus D 4855 2m/70cm base station antenna and D 9016 20m coax lead, valued at $217

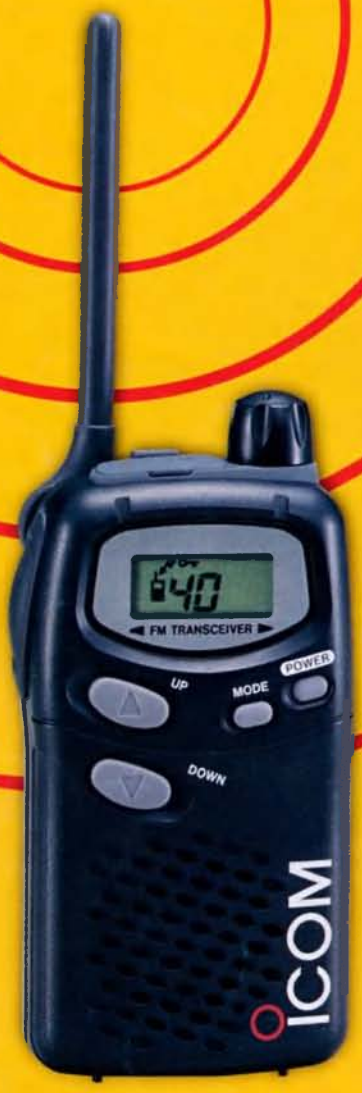
DICK SMITH ELECTRONICS

That's where you go!

* *Requires third party TNC*

Offers expire 28/2/2001.

2146 IBC 4 col.



THE BEST. NO TWO-WAYS ABOUT IT.

Introducing the latest UHF CB two-way radio from ICOM. The IC-40jr "Joey" is super-compact, very lightweight, extra-rugged, water-resistant and lots of fun!

Imagine any activity where you would like to stay in touch with friends and family: • Camping • Climbing • Horseback Riding • Mountain Biking • Scouting • Hiking • Orienteering.

And don't worry about the weather because the Joey is built water-resistant. That means you can use ICOM's Joey in wet environments: • Boating • Canoeing • Boat launching • Fishing • Skiing (water or snow) • Sailing. Outstanding features include Smart Ring and 'Out of Range' indicator. The compact design with fold down antenna fits neatly in your hand or pocket. There's also a 2 year warranty and an easy to read LCD screen and more....

After all, why buy a radio intended for active use if the radio can't survive the activity?

ICOM
Clearly Ahead

March 2001
Volume 69 No 3

Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

Regular Columns

VHF, UHF and Microwave Propagation and The Great Australian Bight

CTCSS Encoder Board

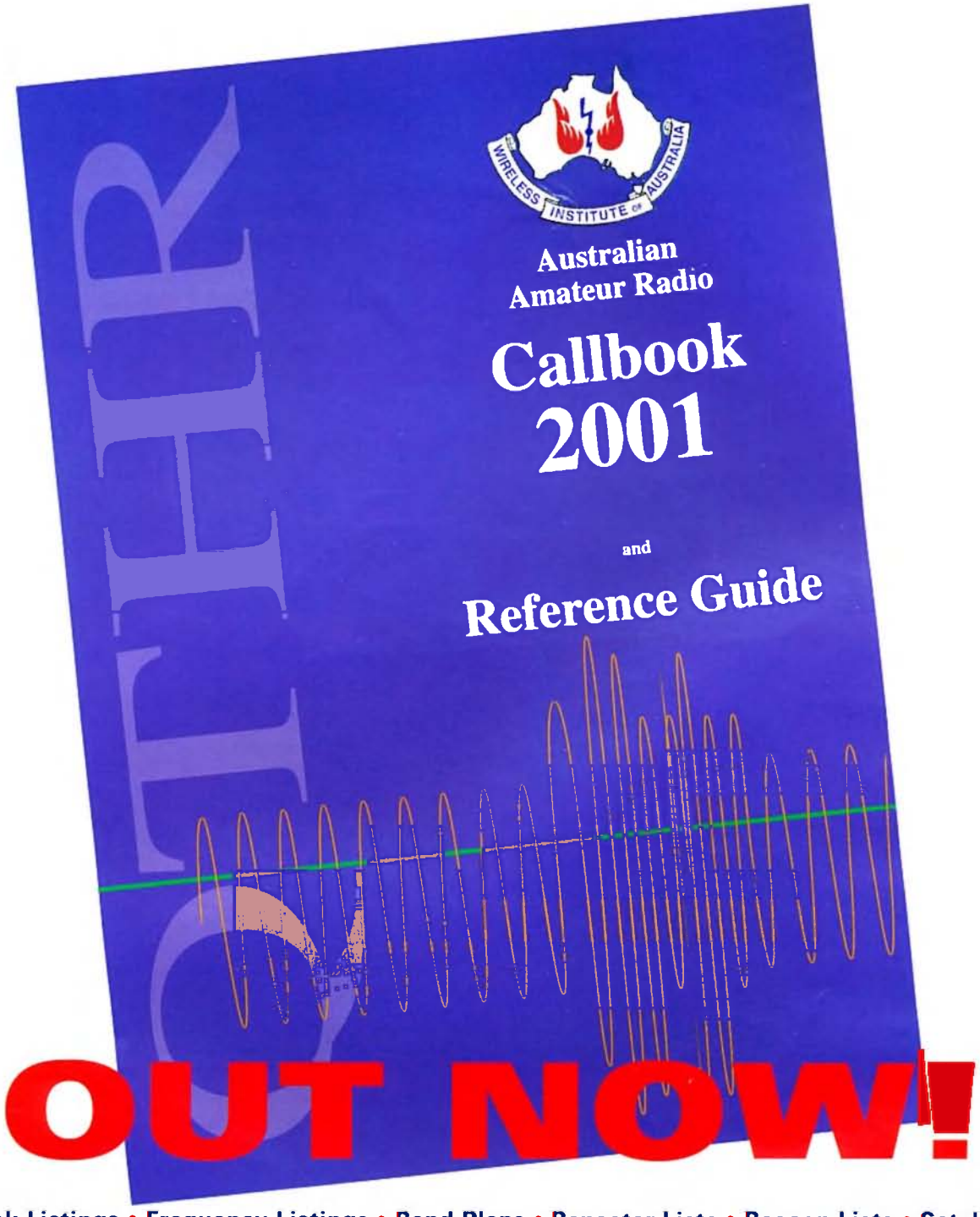
Add tone squelch to the local repeaters (147.025 and 438.575) to combat interference from various sources.

World War 2 *Clandestine Communications* Part 3—

Clandestine Listening Stations

A legendary Silent Key—
Fred Hammond VE3HC

Technical Abstracts •Skeleton Sleeve Fed Monopole•A Better PL259•Inrush Timer



Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies
and more!

The "WIA Call Book 2001" is now available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 3
March 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members
Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: t.b.a
e-mail: *newsl@webtime.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191
Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 0419 532 164

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Our cover this month

Luigi Iemi VK6YEH of WA VHF Group Inc White radomes over slotted waveguide antennas for 5.7 (on left) and 10 GHz beacons. Story Page 40

General

Technical

Columns

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues
Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9526 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Editorial Comment

Colwyn Low VK5UE

I have to start on a positive note...

I have received a number of articles to put at the bottom of my once empty barrel. I am now hoping that there will be a steady stream of new material to share with you. This month we have the second of our new column "Beyond our Shores". I hope you will all appreciate this widening of our horizons. Next month we will add a column on Computers in Amateur Radio. If we could get a regular feature on construction of equipment for 430MHz and above, it would broaden our coverage.

I found the first copy of *RadioMag* in my local newsagent on 2nd March close to the new *Radio and Communications*. I noted that the full text of Martin Luther's ideas for Amateur Radio in the 21st Century were in *Radio and Communications* March 2001. While this will not suit every one, we need to be thinking how we make the WIA work better for all Radio Amateurs with its present structure. It could be we see some modifications which will improve the structure and its effectiveness.

The WIA structure is almost unique, in that we each belong to a Regional Division, which elects Federal Councillors, who then meet infrequently to discuss problems and hopefully find answers. The Federal Convention appoints four Directors whose job is to run the WIA. The Federal WIA. The Convention makes the policy. The Directors see it is carried out. I think the ordinary member has trouble realising that the Directors are three levels or steps away from them. They have trouble with the path through local Division to Federal Convention to Directors of the WIA. In all other National organisations I am aware of, the membership is part of the national body and elects its office bearers at an Annual General meeting or by a nation wide postal ballot. The Local Branches are funded from the central purse and run local programs for the benefit of members. It's all food for thought, I'm backing discussion at present not a particular path.

I get occasional feed back on the current form of the magazine some good, some critical. Criticism is necessary to keep us on our toes. We do have problems with photographs and PC board patterns. Most of this comes from the fact we use a newspaper press for printing the body of the magazine and it has limited capability to deal with high resolution and soft tones. To put cost in relative perspective. We now produce the magazine for the cost of the print run only on the next rung up the quality ladder. Until the membership increases none of us can afford to pay more for a higher quality of presentation. We get AR to you for about $30 a year or $2.50 an issue.

As I work on this I am sorting out what I can do in the John Moyle Field Day as another commitment is going to take out Saturday evening. So I have to optimise travel and operating time and whether I work all bands or just HF or VHF. The results of last year's Field Day are still being collated. I had hoped to publish them in March but I hope we can do it in April. I think we should try and get results from all contests published within three months of the event. Never having had to run a contest I am not sure how the entries are checked, but if checking every log in detail is what has to be done maybe we should just check a percentage of the entries in each log at random.

Well that is enough for one issue keep operating, keep building, keep experimenting and enjoy your Amateur Radio.

73 Colwyn VK5UE

The views expressed in the Editorial are solely those of the editor and are not necessarily those of any WIA body.

New WIA Director

The Directors of WIA Federal have invited Geoff Taylor VK5TY to join them on the Board until the next AGM. Mr. Taylor accepted this offer and after due process with the ASIC I can now confirm that he is a member of the Board.

Regards, Peter Naish.

WIA Comment

Peter Naish
WIA Federal President.

The rapid growth and usage of the Internet has been a phenomenon during recent years. It has achieved a level of popularity and availability throughout the World that has revolutionised the way we communicate and access information. The "chat" lines and similar services provided by the Internet have enabled anybody with the right equipment to talk at virtually no cost to anywhere in the World. Here we have a rival to Amateur Radio for those who are solely interested in communications rather than technology. Maybe this is one of the reasons why young people are not joining the ranks of Amateur Radio? Some may see the Internet as a threat to our hobby but I believe it is an asset which Amateur Radio enthusiasts can use to enhance their activities. A splendid example of this is the recent trend to use the Internet to link together Amateur Radio repeaters and so extend their area of coverage both nationally and overseas. Many of us will have observed and used the VK repeaters which were connected via the Internet to local and overseas repeaters during this year's Australia Day celebrations. Elsewhere in this issue of "Amateur Radio" you find a letter from the ACA which confirms that the Internet may be used for repeater linking and sets out the conditions under which the Internet may be used. This is important progress and it results from requests made by the WIA to clarify the licencing position on Internet linking.

On a new subject, this is the time of the year when most of the WIA Divisions hold their Annual General Meetings. These are important events because they provide an opportunity for WIA members to have their say on how the WIA is performing and to become involved in WIA affairs if they so wish. The Federal Councillors appointed by each Division will be representing you at the WIA Federal Convention to be held at the end of April. At that meeting many items of national policy, both technical and administrative, will be debated and determined. With the continuing threats to our portion of the radio spectrum from commercial interests it is vital that the WIA continues its strong representation of radio amateurs to the ACA and its government masters. So, please support your WIA Division in any way you can to ensure that the Amateur Radio Service continues to be a major part of Australian life.

WIA News

Internet repeater linking permission from ACA

Glenn Dunstan VK1XX, ACA /WIA liason committee, has raised the above with the ACA on behalf of the WIA and all Amateurs. The following letter from the ACA sets out the current position.

File Reference: X 2001/223

Mr Peter Naish, President, Wireless Institute of Australia, PO Box 2175 Caulfield Junction Victoria 3161

Dear Peter,

Linking of Australian and Overseas Amateur Repeater Stations via the Internet.

I refer to Glenn Dunstan's inquiry on behalf of the WIA concerning the linking of Australian Amateur repeater stations to foreign Amateur repeater stations via the 'Internet'. While the specific inquiry was concerned with the linking of voice repeaters the following advice also applies to data repeaters.

The linking of Australian Amateur repeater stations to foreign Amateur repeater stations via the 'Internet' is permitted providing that linking arrangements and the general operation of foreign repeaters in the network comply with the relevant Australian legislation. In particular, this means the conditions contained in the Radiocommunications Licence Conditions (Amateur Licence) Determination No.1 of 1997 and those contained in the Radiocommunications Licence Conditions (Apparatus Licence) Determination No.1 of 1997.

The Australian Communications Authority is aware of several Amateur packet gateway stations that form part of an Amateur network. We understand that this network transports communications between Amateur stations within Australia and amateur stations in other countries. It is further understood that, through the use of software controls, such communications are fully isolated from the general public.

The interlinking of Amateur stations in Australia with other Amateur stations, including Amateur stations overseas, via the 'Internet' is approved on the following basis:

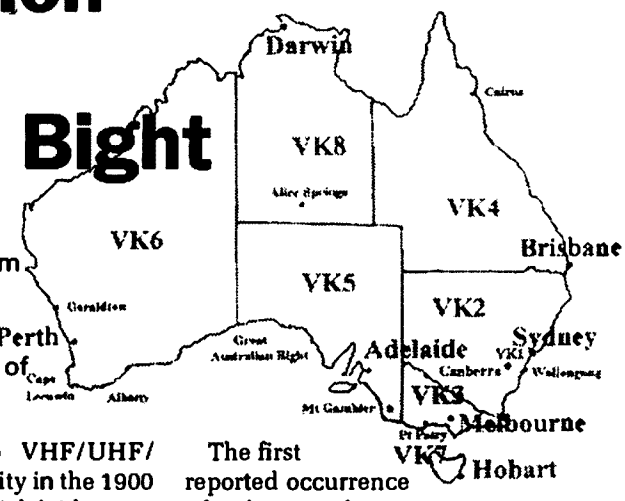
- *Access by non-Amateurs is prohibited*
  The ACA considers that interlinking of Amateur stations via the 'Internet' does not constitute a connection to the PTN, providing that non-Amateurs are technically precluded from gaining access. In these circumstances the 'Internet' connection is analogous to a private line.
- *The interlinking must accord with all applicable licensing conditions. This includes the requirement that the interlinking must not be used to extend, in Australia or overseas, the access privileges of any Amateur. In addition, licensees of Australian Amateur stations linked with other Amateur stations are reminded that they remain fully responsible for all transmissions via their station. It is also particularly important to be aware of 'third party traffic' arrangements when linking with stations in overseas countries.*

If you require any further information, please contact Mr Clive Franklin on (02) 62195239 or by e-mail at clive.franklin@aca.gov.au.

Yours sincerely, Alan Jordan, Manager, Radiocommunications Licensing Policy Team Radiofrequency Planning Group February 2001

VHF, UHF and Microwave Propagation and The Great Australian Bight

by Dr Walter J Howse VK6KZ
4 Renton St, Melville WA 6156
wjhowse@bigpond.com



Dr Walter Howse has studied, and exploited since 1975, the anomalous propagation on the amateur radio frequencies from 144 MHz up to 10 GHz across the Great Australian Bight. This article brings together those studies and experiences for the benefit of other amateur radio operators and poses a number of questions for others to consider.

The location of the Great Australian Bight and some of the key locations can be seen from the map below.

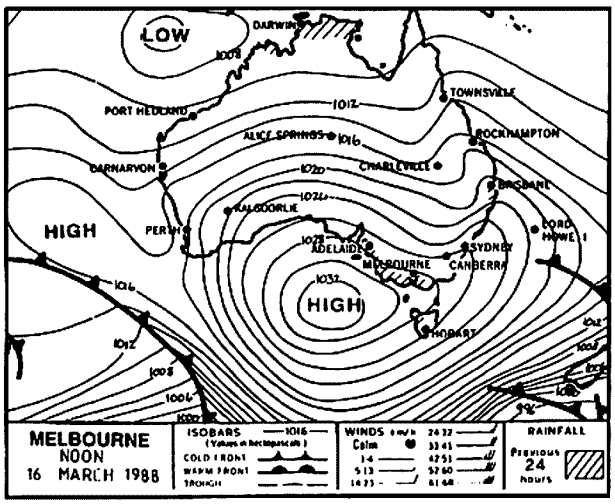
Cape Leeuwin/Augusta (34°S 115°E and population 800) and Albany (35°S 118°E, population 19000) are at the western end of the path but occasionally points as far north as Perth (32°S 116°E, population 1.2 million) can be involved. Commonly Adelaide (35°S 139°E, population 1.1 million) and Melbourne (38°S 145°E, population 3.2 million) are towards the eastern end of the path. The most distant points with contacts on 144 MHz have been South Druin (38°S 146°E) and Perth. There is no permanent amateur radio activity at Cape Leeuwin/ Augusta. However the West Australian VHF Group Inc has obtained a licence to place beacons there on 144, 432 and 1296 MHz. The equipment is planned to be installed in late August/early September 2000.

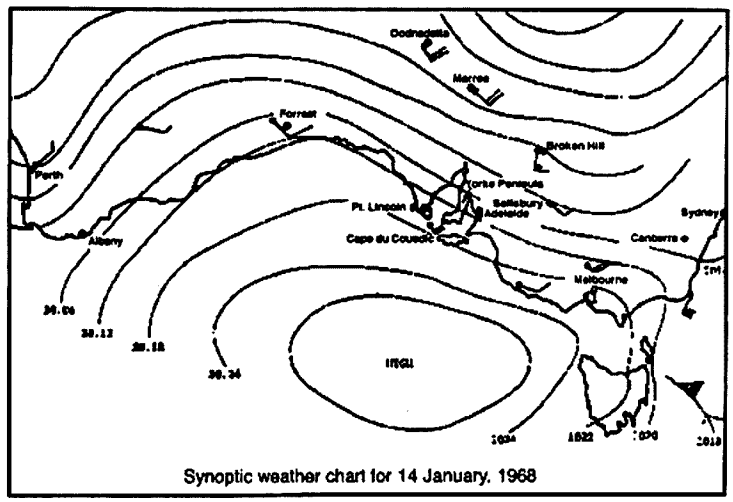
Significantly (and disappointingly) there is virtually no VHF/UHF/ microwave amateur activity in the 1900 km between Albany and Adelaide apart from Esperance where there is activity on 144 and 432 MHz.

Had alert Western Australian amateurs read the 1948 report of wartime radar experiences by F J Kerr they would have tumbled to the excellent paths available on the north/south path along the western coast, along the northwestern coast of WA and the east/west one across the Bight. This report was based on observations from 112 Royal Australian Air Force 200 MHz air warning radar stations near the coast of Australia during the period March 1944 to August 1945. The data demonstrated that "super-refraction in summer often extends over a large area of southern Australia" (p444). Interestingly this report was referred to in *Amateur Radio* for May 1950 but its significance appears to have been ignored.

The first reported occurrence of long distance propagation on 144 MHz between Western Australia and South Australia amateurs was a contact between the late Rolo Everingham VK6BO in Perth and Clem Tilbrook VK5GL in Adelaide on 144 MHz on 30 Dec 1951 at 07.12 UTC with AM signal reports given by Rolo of 5/5-8 and received 5/5-6 This contact of 2164 km was just short of the then world distance record of 2253 km.

On 9 February 1952, Rolo again worked VK5GL on 144 MHz at 03.12 UTC. He then worked Reg Galle VK5QR at 03.22 UTC. Reg Galle commented "Clem and I intend watching each time the weather map indicates a possibility - viz cold front from west to east near the coast plus a parallel isobar close to it. Both breakthroughs showed this oddity on weather maps ...we are very keen to test one metre gear"





Synoptic weather chart for 14 January, 1968

The commonly accepted theory had been that these contacts had been achieved by Sporadic E. However observations emerged in the late 1960s which indicated that similar contacts could be possible by tropospheric propagation. (In the 1980s with the additional knowledge, a study by the author of the relevant weather charts suggests that the 1951 contact may well have been by Sporadic E and the second by tropospheric means).

The Weapons Research Establishment of the Australian Defence Scientific Service began propagation tests between Albany and Salisbury 25 km north of Adelaide in South Australia using beacons in Albany on 135.5 MHz (5 kW and 12.2 dB gain yagi) from December 1966 and on 1769 MHz (1 kW and 35.7 dB dish) from October 1967. An early report of that research, McAllister, showed that from October 1967 to April 1968 there were sixty openings of 135 MHz of at least two hours duration, eighteen openings of 24 hours duration and one which lasted for a fortnight in January 1968. The openings on 1769 MHz were not as frequent (twelve occasions only) nor did the signal reach the same high level as at VHF. Further the VHF signal was always present when a UHF signal was received. Illustrating this was a graph showing that in one week in January 1968, the strength of the VHF beacon peaked at 10 dB below free space and that of the UHF beacon at 25 dB.

Spurred on by the success of these tests and urged on by the then President Don Graham VK6HK, the West Australian VHF Group (Inc) installed a 144 MHz beacon in October 1968 at Mt Barker 50 km north of Albany. This led to the first of many contacts on 144 MHz between Albany and Adelaide. This first QSO was between Wally Green VK6WG and Mick McMahon VK5ZDR on 3 January 1969.

Subsequently the Great Australian Bight has been bridged on a number of the other amateur bands with first contacts made on

- 432 MHz on 11 December 1972 between VK6WG and VK5ZDY
- 1296 MHz on 25 January 1977 between VK6WG and VK5QR
- 2304 MHz on 17 February 1978 between VK6WG and VK5QR
- 3456 MHz on 25 January 1986 between VK6WG and VK5QR
- 10368 MHz on 30 December 1994 between VK6KZ/p and VK5NY/p

In addition to the Albany Adelaide path of about 1900 km, contacts have been made over longer distances from points in the south west of WA as far west along the coast as Cape Leeuwin (on 144, 432 and 1296 MHz) by VK6KZ/p and as far north from Perth (on the same bands) to points south and east of Adelaide and into Victoria. These contacts all cross the Bight and the longest distances worked have reached

- 2864 km on 144 MHz VK6KDC Manjimup - VK3DEM Bairnsdale
- 2864 km on 432 MHz VK6KDC Manjimup - VK3DEM Bairnsdale
- 2449 km on 1296 MHz VK6WG Albany - VK3ZBJ Melbourne

These openings appear to be dependent on the presence of a high pressure cell in the Great Australian Bight. For example the following weather map of 16 March 1988 was provided in a paper by Jamieson illustrating the conditions of "a virtually stationary and typical high pressure system which produced outstanding results from Albany to Adelaide and Melbourne over a period of four days on all bands to 3.5 GHz".

The studies reported in 1948 by Kerr and those by the Weapons Research Establishment also make this link between good propagation and the surface pressure distribution. But is there more than a high pressure cell needed?

Russell Lempke VK3ZQB pointed out the significance of the charts of the upper level pressures and the relationship between the peaks in the upper levels and the peaks in the Mean Sea Level (MSL) charts. His paper presented to the Gippsland Technical Conference in 1999 and to be available at the 2000 Conference concluded

I found the upper level map gave clear and reliable indication of a pressure system that was likely to produce propagation, and it also indicated by the size of the upper level cell, the approximate area that could be expected to be in the duct. Analysis revealed that propagation was likely when the cell's 500 Hpa point, had an altitude around 5.9 kilometers, and its position at 500 Hpa, was not too far from the cell centre at ground level. Some displacement always occurs, as the top of the cell will lean toward the landmass where there is a large, warm, dry air mass in the upper atmosphere during summer.

Certainly the author has experienced upper level disturbances, not shown on MSL charts, which have destroyed propagation! The presence of these crossing the Western Australian coast in a south east direction certainly discourages a journey to the south coast even if a strong high pressure cell is shown on the MSL charts in or approaching the Bight!

The author is of the view that in addition to the presence of a favourable high pressure cell there needs to be a further mechanism coupling the signal into and out of the duct. The main duct is presumed to be provided by the subsidence inversion formed when the air descending slowly within the cell becomes progressively heated by compression. Such heated air is also low in moisture due to its high altitude origin.

What does the research relating to the Bight say?

Baker reported observations which showed that it was unlikely that the 135.5 and 1769 MHz signals could have crossed the Bight between Albany and Adelaide by multiple reflections between the sea and an elevated layer. He suggested that the propagation may occur in an elevated duct if a tilted layer is present which slopes upwards near the transmitter in the direction of propagation.

McAllister was confident that both the 135.5 and 1769 MHz signals were propagated by the same basic mode and proposed that the signals were fed into the surface duct at Albany and guided along an elevated duct which gradually rose in height across the Bight to the 1500 m level above Adelaide where they were scattered out again to the receiver.

Isobaric charts provided in these articles indicated that the position of the centre of the high pressure cell was south of the path - a phenomenon which has been confirmed by many observations by the author and many other amateur operators.

Referring again to the wartime research on the 200 MHz radar echoes, Kerr reported that from mass plots of echo occurrence, super-refraction in southern Australia occurs most frequently in the rear halves of the migratory anticyclones. The

characteristic feature of the region in the rear of an anticyclone in southern Australia is an offshore gradient wind, which carries warm, dry continental air across the coastline. Kerr stated that "super-refraction in southern Australia is associated with an offshore gradient wind". Nowadays this is described as an advection inversion.

Kerr suggested that when hot continental air is crossing the coast at a fairly small angle, the cooler air over the sea, assisted by sea breeze processes, forms a frontal discontinuity along or near the coastline, with a wedge of cool maritime air undercutting the continental stream. This he described as a coastal front, sea breeze duct. The surface of the discontinuity approaches ground level 80-160 km inland rising towards the sea with the height at the coastline being commonly 600-1000 metres.

In addition to this, Kerr described an offshore streaming diffusion duct as follows

As warm dry air passes over a slightly cooler sea surface, the lower layers are progressively modified by downward eddy conduction of heat to the cooler sea and upward eddy diffusion of moisture from the sea into the air. Modification of the air in the lowest layers increases the lapse-rate of refractive index, producing a surface duct for some distance out to sea. (p.455).

He also described nocturnally-cooled air carried out to sea which could extend the duration of super-refraction of the offshore streaming type. Kerr proposed that these processes were responsible for three types of diurnal variation namely

Coastal front, sea breeze 1300-1900 hours

Offshore streaming 1700-0100 hours

Advection of nocturnally cooled air 2400-0900 hours

It is a combination of a subsidence inversion and these processes that appear to be needed for the path across the Bight.

This is reinforced by the diurnal variations noted in the path. Baker noted that anomalous propagation at 135.5 MHz was more likely to occur at night and in the morning than in the afternoon. The diurnal variation of the 1769 MHz signal was similar to, but not as marked, as that at VHF.

Is it the lack of such processes in the winter months which inhibit propagation when the intense highs with central pressures exceeding 1030 hectopascals are present in the Bight region?

Using a chart recorder and dedicated receiver, Colin Hurst VK5HI monitored the Albany beacon VK6RTW on 144 MHz over the period October 1979 to March 1980. His unpublished graphs of signal strength and UTC time showed that the beacon was strongest between 0600 UTC and 2300 UTC or 1400 local time to 0700 the next day. Observations by the author and others on a less systematic basis support this view. Hurst also reported that during the six month period of his observations, the signal strength was at 10 dB below free space for 1 hour, at -15 dB for 2.5 hours, -20 dB for 11 hours, -25 dB for 29 hours, -30 dB for 53 hours and above his receiver threshold of -55 dB for 221 hours.

Over a period of time, the world record distances established across the Great Australian Bight on the bands from 432 MHz to 3456 MHz have been exceeded by contacts between Hawaii and California. Apart from being shorter (2000 km versus 4000 km), the Bight path appears distinctly different from the Hawaii/California path since the latter does not skirt initially along a land/sea interface as the signals leave (or arrive at) Hawaii. The Hawaii/California path appears to depend significantly on the height of the operator at the Hawaiian end. The report by Overbeck and reinforced by later reports of contacts over this path, pointed out the importance of being between 1500 and 2600 m above sea level in Hawaii. Contacts from points at lower altitudes are much less frequent. Overbeck suggested that the maximum height of the duct at the California end was about 450 m. Such observations were repeated by Tynan and Pocock.

In the case of the path across the Bight, there are few points above 200 m anywhere at the western end of the circuit. Most of the author's successful operating has been from about this height. He has not found a suitable site close to sea level. Wally Green VK6WG has made his contacts from 144 to 3.5 GHz from less than 100 m above sea level. At the South Australian end, contacts have been made from virtually sea level upwards to at least 700 m.

Do the small land masses of Hawaii mean that the mechanisms for getting into or out of the upper level duct in Australia are not present and that is why altitude appears so important in the Hawaii/California path?

Some further observations about the Bight path.

Firstly the path does not necessarily end at or close to the South Australian coastline. As pointed out earlier contacts have been made from southwestern Australia to Melbourne and beyond. Contacts from Perth to Adelaide and beyond are rare (see Howse) but have occurred notwithstanding the approximate 600 km of land between Perth and the Bight. Such contacts on 144 MHz in early 1996 extended 500 km beyond the South Australian coastline to beyond Melbourne over land (see Jamieson).

Contacts between stations along the south coast of WA and Melbourne and beyond are much more frequent and usually occur as the high pressure cell moves further east in the Bight with sometimes the loss of the Adelaide stations. Since few stations in the northern suburbs of Melbourne have been heard when stations in the southern suburbs are being worked, the author suggests that the roughly east-west valley between the end of the Great Dividing Range and the Otway Ranges may preserve the far end of the duct enough to continue the propagation. Interestingly the only station worked in central Victoria from Perth and Albany has been VK3CY in Wedderburn which is north of this part of the Great Dividing Range.

The frequent contacts made by Darryl Church VK6KDC from Manjimup (250 km south of Perth and 180 km west of Albany) to Adelaide and beyond - especially his contacts to Rob Ashlin VK3DEM in Bairnsdale on both 144 and 432 MHz - indicate that the over water path of the Bight can be extended at each end by at least several hundred kilometres.

The only contact between WA and Tasmania on 144 MHz was from David Lloyd VK6AOM in Esperance to an unknown station in Devonport. The lack of contacts is probably due to the population distribution in Tasmania and the mountainous terrain in the north west of that State. Esperance to Devonport missed most of that terrain.

David also worked into New South Wales in 1986 on 144 MHz and the Great

Circle path would have been across the Bight to Adelaide and then across land to Sydney. On 20 February 2000 Bill Hockley VK6AS worked Rod Collman VK2TWR in Nimmitabel on 144 MHz - a similar path across the Bight and then a roughly equal distance across land. Mechanism?

The track of the high pressure cells is at higher latitudes in summer and the track moves towards the equator in the winter months. Notwithstanding the potentially more favourable location of the high pressure cells across the continent (and much higher central pressures - above 1030 hectopascals), no really long distance contacts (over 1000 km) in the winter months have been made by tropospheric propagation (characterised by length of opening and relatively stable signals in contrast to Sporadic E with short openings and unstable signals) from Perth on any of the VHF/UHF bands. How much is this due to the lack of operators across the central parts of Australia?

Some other observations by the author.

The author lives in Perth and is over 400 km from the south coast. Over a 20 year period he has had to judge when it is worth driving there to exploit the conditions. The author is guided by a number of factors -

- the long wave pattern in the Southern Hemisphere
- the presence of the high pressure cell in, or approaching, the Bight
- the central pressure of the cell - prefer 1026 hectopascals or higher
- the prognosis charts available for the next 2 days and more recently for longer periods
- Perth forecast temperatures - nice when these exceed 36°C
- Presence of a cyclone (hurricane/ typhoon) off the northwest coast of Western Australia
- any reports of reception of the Adelaide beacons on 144, 432, 1296, 2400 or 10 GHz or of reception in Adelaide of the Albany beacon on 144 MHz

On arrival down south, the author is encouraged by low cloud usually carried in a northerly direction across the coast and by fog/mist in the mornings, by reception of any of the beacons from Adelaide or Mt Gambier - and most of all by contacts with the enthusiastic amateurs on the other side of the Bight. They are not only enthusiastic but are prepared to stay awake all night testing the "MUF". Sleep can come in the middle of the day when propagation appears least favourable!!

A word of warning is needed with respect to heavy dependence on isobaric charts. Meteorologists are forced to make judgements when placing the isobars on the map. These placements arise from consideration of the Australian computer model of the atmosphere (and compared with other models from overseas), satellite imagery and the relatively few surface observations (especially from the Bight itself) fed into the system. The isobars may differ from reality. If these charts are then translated by others for the purpose of weather reports on television then distortion is easy to emerge.

The charts available to the author come from the Australian National Meteorological Centre based in Melbourne through the Internet and include manual as well as computer model generated charts. Manual charts include a 24 hour prognosis and the computer 48 and 72 hour prognoses. However the long wave pattern information provides some reassurance of the position and likely persistence and movement of the high.

Favourable conditions in the Bight (and the Hawaii/California path) may be affected by the El Nino Effect. In El Nino years, the track of the highs is even further south and as a result the cold fronts which disturb the propagation are pushed further polewards away from the Bight. A preliminary examination suggests that good conditions have occurred across the Bight in El Nino years.

Finally, do we on the west coast of Australia have another path - one to eclipse the Hawaiian/California one? As far back as 1968, Brian Tideman VK5TN suggested that tropospheric propagation between Carnarvon (600 km north of Perth) and the Malagasy Republic might be good for contacts on 144 MHz and occasionally for contacts between Perth and South Africa. (This is the same path referred to by Pocock in his 1996 article on transoceanic ducting at VHF.) The Kerr article also reported on long range echoes from stations along the northwest coast of Western Australia and of the detection of an IFF (Identification of Friend or Foe) transponder signal from a Ceylon bound aircraft by a radar station at Carnarvon (800 km north of Perth) at a distance of 1600 km.

In March 1996, the West Australian VHF Group Inc installed a directional (towards southern Africa) beacon near Bunbury (180 km south of Perth) on 144 MHz (VK6RBU) and reports of reception of it came by 14 MHz from Reunion Island (6000 km). As a consequence of this, telephone, fax and Internet address information were exchanged with the Reunion operators FR5DN and FR1GZ - particularly by Don Graham VK6HK who constructed the beacon transmitter and the author. In the four years since then, a healthy scepticism continues about those reports and interest seems to have waned on Reunion Island. The operators there did not obtain the necessary beacon licence from France and so the chances of a contact remain very very low.

In summary, the Great Australian Bight is one of the two most exploited paths in the world for long distance propagation of VHF/UHF and microwaves. It has been bridged on all bands between 144 MHz and 10 GHz (except for 5.7 GHz). The main challenges now lie in testing the 10 GHz path beyond the 1912 km mark and testing the upper frequency limit. Maybe water content will deny long paths on 24 GHz but who knows? Anyway there is still 47 GHz and up - one can dream as others did 40 years ago for 144 MHz and the higher frequency bands!

Acknowledgments

Thanks to Eric Jamieson VK5LP who, between 1969 and 2000, wrote the column "VHF/UHF An Expanding World" in Amateur Radio — Journal of the Wireless Institute of Australia and created an ongoing record of significant contacts and happenings on those bands — an indispensable source for all researchers. Appreciation is expressed to all those involved in establishing and maintaining beacons and especially to David Minchin VK5KK and crew for the Adelaide installation on so many frequencies and to the Mt Gambier group. Finally thanks go to Don Graham VK6HK, Eric Jamieson VK5LP and David J Low of the Australian Defence Force Academy for their review of the original draft of this article and the many helpful comments provided by them.

continued on page 21

CTCSS Encoder Board

by Eric van de Weyer VK2KUR

Add tone squelch to the local repeaters (147.025 and 438.575) to combat interference from various sources.

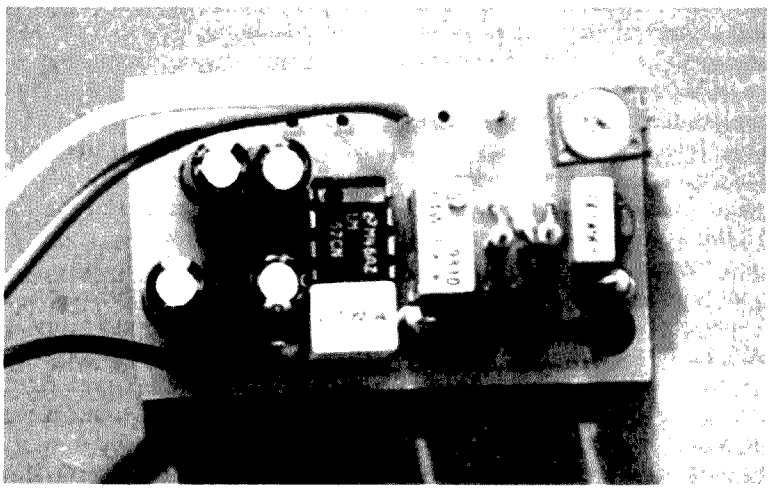


Figure 1

Many of the members of our local club use older, often ex-commercial, equipment on the local 2m and 70cm repeaters, both of which suffer varying degrees of interference due primarily to their proximity to the Sydney CBD. Many of these radios do not have CTCSS (Continuous Tone Coded Squelch System) tones available in them so it was decided to come up with our own encoder board, if possible, at a lower cost than importing ready made ones from overseas. Fig 1 & 3 show pictures of the completed board.

The local repeater initially used 141.3Hz for its tone squelch, however, after some research and looking at was being used around the country it was decided to change to the more common

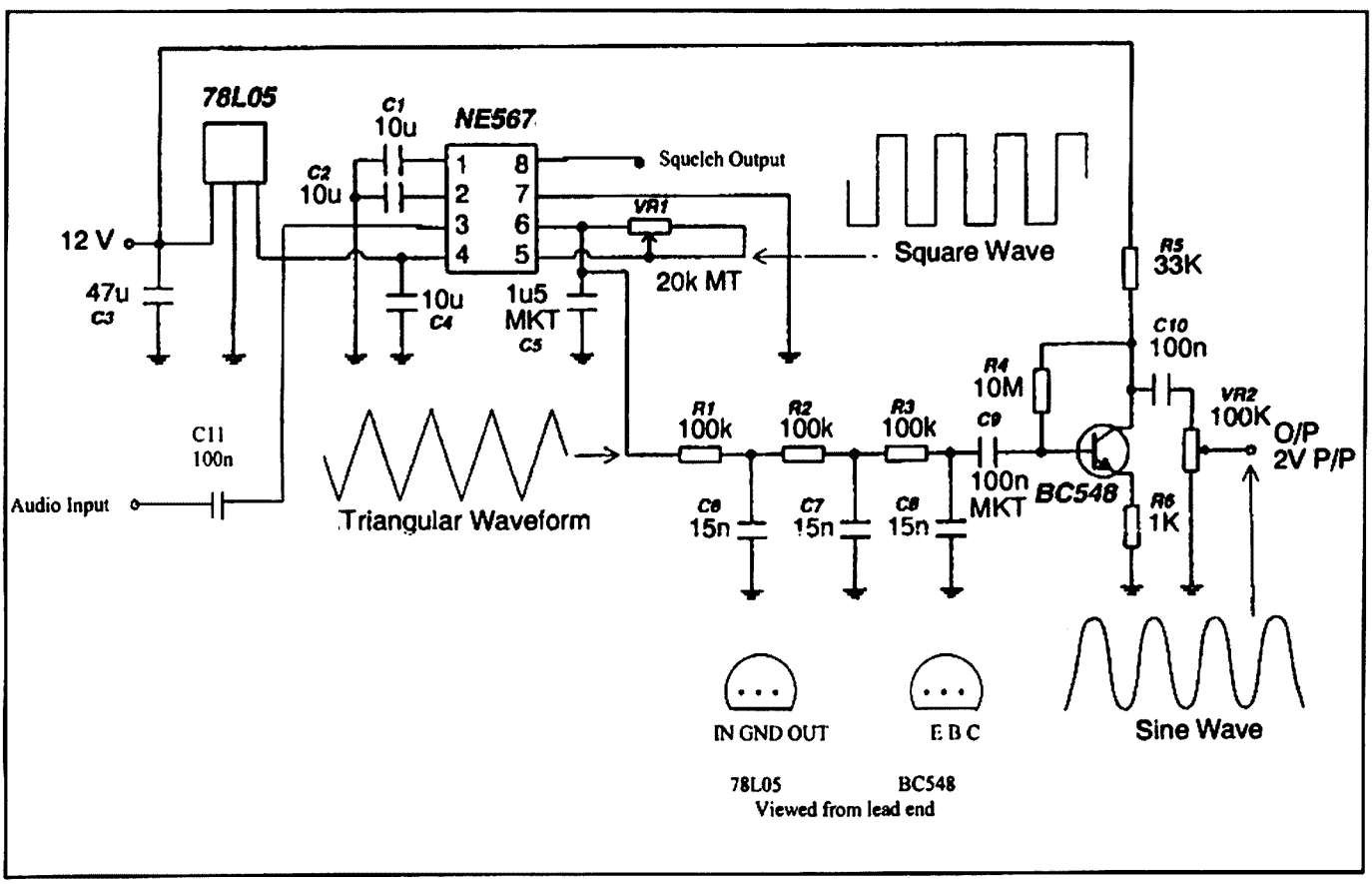


Figure 2

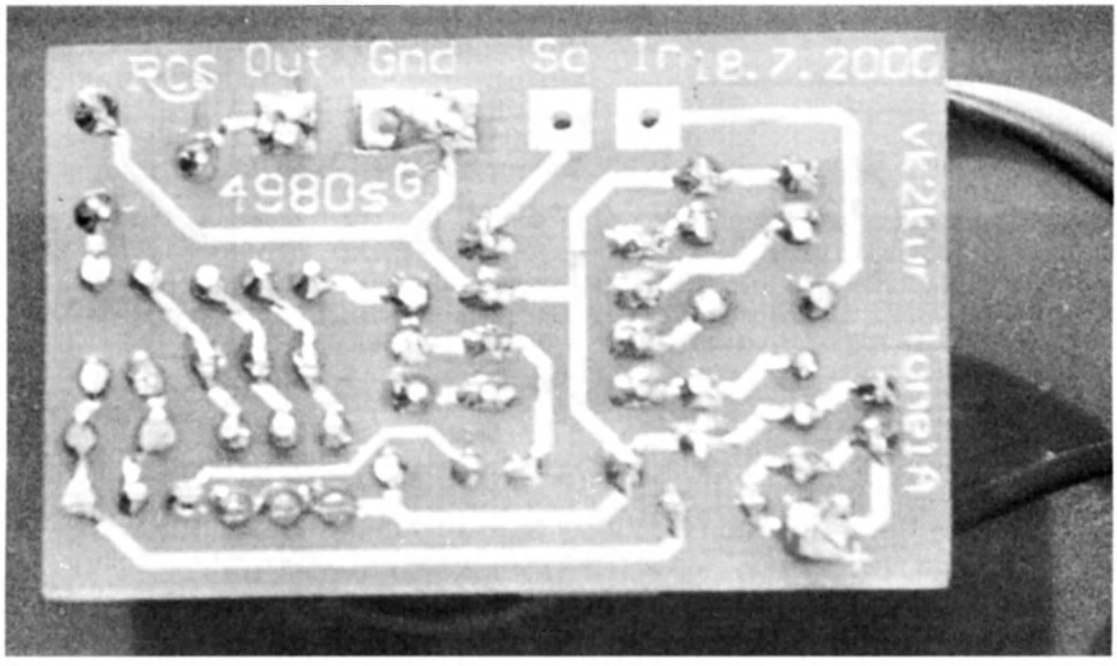


Figure 3

123Hz which is where we are today. In fact, the latest (2001) WIA Callbook notes that 123Hz is recommended for use where CTCSS is being used to overcome interference problems whereas 141.3Hz is suggested for repeater linking purposes.

A simple CTCSS encoder (Fig 2) was described by Will McGhie's Repeater Link column in July 1996 AR (page 46) and this article should be referred to for a full description of the encoder operation. It is based on a NE567 tone decoder IC which has either a square wave or triangle wave output from its oscillator. The triangle output is used and passed through a three stage RC filter which gives a near sine wave output. This is then buffered and fed to the output.

One of the more important features of the encoder is its stability, which is due to the components used most importantly being the 1µ5 MKT capacitor on pin 5 of the IC.

The encoder has two controls. One is a multiturn pot, which is used to set the frequency of the oscillator. It has a frequency range of about 70Hz to about 250Hz . The other pot is used to vary the output level so that the correct modulation level may be set. Depending on the frequency setting they can get up well over 1.5V RMS and usually sit at about .5V RMS at the 123Hz mark. Generally, on FM transmitters, a deviation of between 300Hz and 600Hz is all that is needed to give reliable operation of the tone squelch at the receive end. This is a fairly low level compared to the normal voice deviation of somewhere around 3.5kHz.

The encoder will work on any input from about 8V up as it includes a 5V regulator on board.

I have also added an extra capacitor to the input of the NE567 (pin 3) and bought it to an input pin and also bought out the Squelch output from pin 8 of the IC. This was to make it easier for future experimentation with decoding received tones to enable the radio to be tone squelched as well, although, as yet, I haven't had time to do so.

I set about to design a PCB (Fig 4) for the project resulting in a fairly compact yet easy to assemble board measuring 45mm x 28mm with a component height of 12mm (see attached pictures of the board). This was then manufactured by a local manufacturer and made up into kits for sale to members.

We have now fitted these encoders to several radios with excellent results. The transceivers to which I have fitted them so far include Philips FM900 and FM828, AWA RT80 and RT85, Yaesu FT290 and FT790. I believe that some others have fitted them to other radios as well. Many transceivers include a tone input to feed in such a tone and on those that don't, it is usually a fairly simple matter to find an appropriate place into which to feed it. It is preferable to feed the tone in at a point close to the actual modulator so that it does not go through any pre-emphasis network which may be in the radio.

I have included, on most of the radios I have converted, a switch to turn the encoder on or off so that the tone does not have to be transmitted on all channels although that is usually not a major problem.

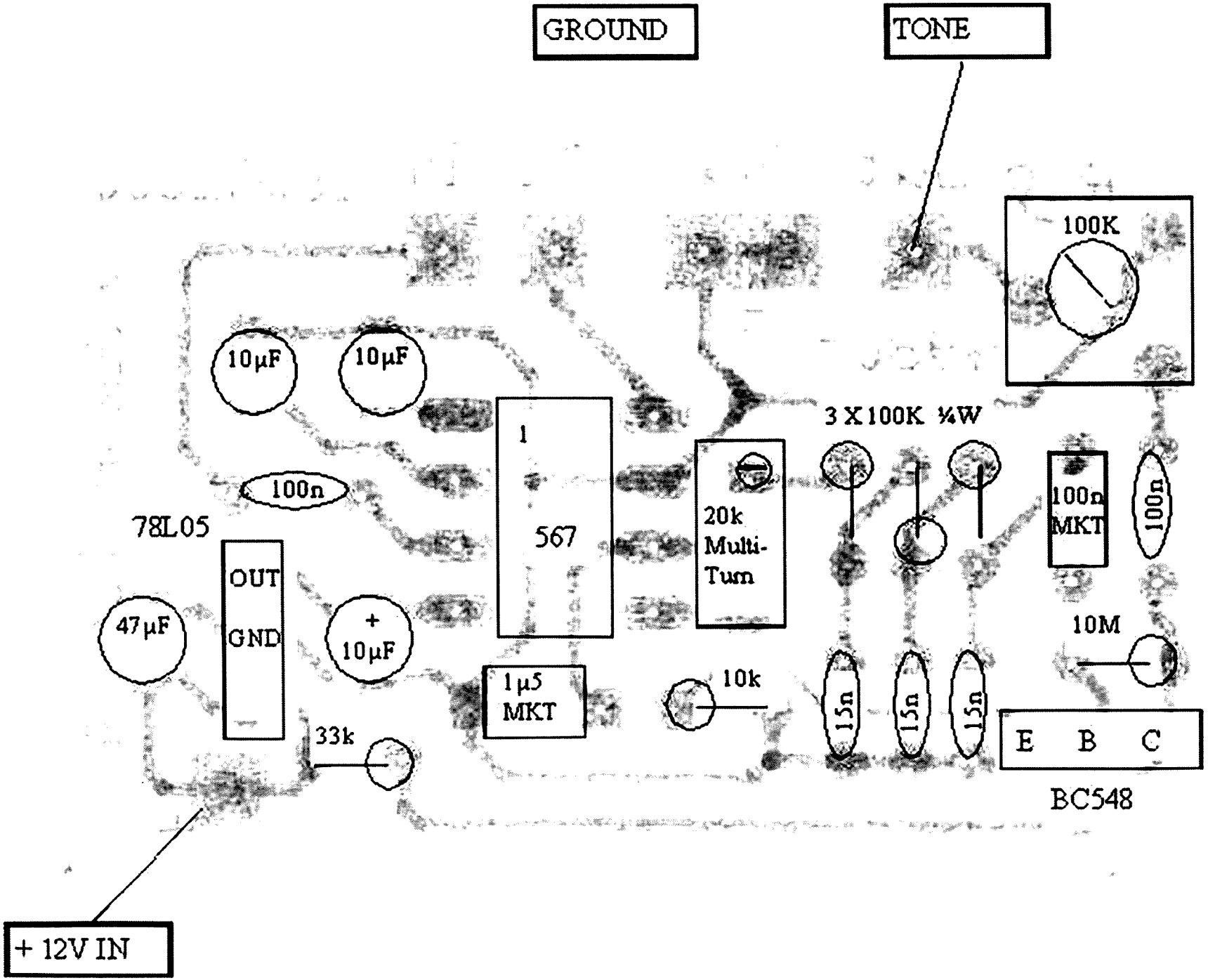
As far as setting up goes, I test each unit as it is made and then tune it to the desired frequency using a frequency counter, before installing it. If you don't have a counter, however, you can tune it once it is in the radio by starting off transmitting on the repeater input and gradually tuning the multiturn pot until the repeater starts transmitting and then keeping going until it drops out. Then wind it back to the midpoint between the two positions. It may be necessary to employ a friend to listen to the repeater for you and tell you when the repeater opens and closes either on another band or over the phone.

Following are brief instructions to install in several radios:

Philips FM900:

On the Synthesizer/Control board:

1. Check that R357 (470k) is installed. It is located between the Deviation and Modulation Balance trimmers. If not, install a 470k 1/4W resistor.


GROUND
TONE
100K
10µF
10µF
3 X 100K ¼W
1
567
100n
78L05
OUT
GND
20k
Multi-
Turn
100n
MKT
100n
47µF
+
10µF
10M
1µ5
MKT
10k
33k
15n
15n
15n
E B C
BC548
+ 12V IN

2. Locate the option connector U405 (one of 3 rows of holes on the board) and connect the encoder as follows:
   Pin 18 - +10V
   Pin 21 - Ground
   Pin 23 - Tone out

AWA RT80 Receive board

1. Locate S201 the Tone Squelch connector .
2. Connect the encoder as follows:
   Pin 3 - Ground
   Pin 6 - +9V
   Pin 7 - Tone output.

AWA RT85 Receive board

1. Locate J358 the Tone Squelch connector .
2. Connect the encoder as follows:
   Pin 1 - Ground
   Pin 8 - +8V
   Pin 6 - Tone output

Yaesu FT290/690/790

On the these radios there is a tone board connector in the area next to the battery compartment with the following connections:
Black – Ground
Red - +9V
Green - Tone out.

These radios also have a tone On/Off switch on the small board also adjacent to the battery compartment.

The foregoing should give many people a quick start to installing the CTCSS board whilst others will need to look into their radios to determine where to connect it. It seems that many radios both commercial and Amateur already have a means of connecting a CTCSS encoder or encoder/decoder in them so it is just a matter of identifying it.

ar

LPDs UHF Radio Amateur Problems in the Netherlands

In the Monthly magazine "CQ-PA"' (one of the Dutch equivalents of AR, there are two national Radio Clubs in PA land') of March 2000 there appeared an article by J. W. A. M. te Broekhorst PA3AYW drawing attention to a ruling by a Judge in the City of Utrecht where a radio amateur (V) was sued for damages by a supplier (F) of Low Power Devices (LPD) transceivers. The ruling was that the radio amateur could not be blamed for any wrongdoing.

I was involved right from the start as V's legal adviser, and as such I feel competent to give the proper perspective of the proceedings. The background of the problems is well known (in the Netherlands) - it involves the restaurants of a hamburger chain (M) which uses communication in the 70 cm UHF band to control a type of relay system. Taking into account the great number of these restaurants, quite a number of Radio Amateurs have knowledge of this problem from their own observations.

Radio Amateur V was well aware of this, and experienced Reality when at a distance of a few kilometres a franchise of M was established. Regardless of the fact that LPD equipment was involved, the signals were of appreciable strength at V's location. V discovered that for some reason the Radio Inspector would not take on cases where Radio Amateurs received harmful interference from LPD's.

To counter this problem, the individual Radio Amateur can only resort to using his appointed frequencies as much as possible. However V decided to take a different approach and wrote a letter to restaurant M. In the letter V stated that his Radio service was interfered with by the transmissions of M, and asked M to cease transmissions or in any case to stop the interference.

Restaurant M did not even bother to a reply but instead went straight to the police and gave, notice that M's transmissions were interfered with and this was caused by V. Also, V repeatedly received phone calls from the supplier of M's LPD equipment and was told by F that M had many problems around the country. V was informed that F had already replaced at a number of other locations UHF LPD transceivers with infra red systems. F requested in no uncertain terms that V should stop what F called 'V's harmful transmissions'. V was then visited by two Radio Inspectors who informed him that they had inspected M's radio equipment and that it conformed to the Regulations, and they confirmed that no transmissions were made by V on the disputed frequencies.

Regardless of these findings F kept on making phone calls to V and said it intended to sue Amateur V with some hefty claims. Next V received notice from a lawyer acting for M as well as F suing V for damages, and curiously ordered V to make sure to stop interference to M, no matter who caused the interference. In an exchange of letters the undersigned answered the lawyer involved and made clear to him the legal position, i.e. in the disputed part of the 70 cm UHF band the Radio Amateur Service has Primary status and the LPD user can't claim any rights. (Note from Editor. In Australia Amateurs are secondary users of the 70cm band)

It appeared that V's problems were over., but unfortunately F and M's lawyer initiated proceedings against V a good six months later. interestingly only on behalf of F. The lawyer claimed an exorbitant amount of damages allegedly suffered by F. For F had to replace M's UHF transceivers with IR equipment. The case had a happy ending for *Radio Amateur* V for the Judge ruled that F had no grounds to pursue his claims.

For us Radio Amateurs this is of the utmost importance, as a supplier of LPD equipment cannot claim damages on behalf of his clients when they complain of interference problems. Although the judgment only related to this particular case, it is no surprise that M did not pursue the matter, this was made clear from the correspondence the lawyer of F handed over to the Judge. From these papers it emerges that M was informed by the Radio Inspector that M as a LPD user has no right whatsoever to lay claims against Radio Amateur V, who is licensed and is the Primary User.

Radio Amateurs can conclude from the Judgment that their position in this part of the spectrum is made clear and reinforced legally. Also in discussions with the two radio clubs and the authorities moves have been made to set aside some frequencies for LPD use outside the Radio Amateur band. These developments are a happy outcome, and let's hope, might lead to a substantial decrease of the LPD plaque.

Meester J.W.A.M. te Broekhorst. Boskamp 79, 3828VV, Hoogland.

[*Meester* translates as Master In Law]

ar

World War 2 Clandestine Communications

Part 3

Clandestine Listening Stations

by Malcolm R Haskard VK5BA

For clandestine operators in the field there needed to be constant monitoring of both agents allocated frequencies and emergency frequencies. Secret receiving stations were established in key locations, each station usually consisting of a bank of good quality communication receivers as well as transmitters. In the case of SOE each operator had their own individual frequency and often a transmit time schedule. With the Coastwatchers there was the standard "x" frequency that all could transmit on, but in addition to this some special operations, particularly where the portable ATR 4A equipment was used, had their own allocated frequency. With the SOE, listening stations were set up at Darwin and Melbourne while the Coastwatchers organisation had their HF listening stations at Darwin, Port Moresby, Rabaul and Thursday Island.

In addition to the constant monitoring of agents and coastwatcher reports there were the secret listeners, stations who continuously monitored the airwaves of the enemy, particularly the kata kana Morse code used by the Japanese. The kana Morse was based on 46 phonetic sounds of the Japanese language. In addition to these there were a further 25 other sound changes, giving a total of 71 kana Morse code symbols to be learned. This took some eight weeks or so to achieve even for a Morse operator already competent at 25 wpm. The initial RAAF group completed their training in Melbourne as inceptors of Japanese Morse messages in September 1941 and moved to the Darwin RAAF Aerodrome where they operated in secret using two Kingsley AR7 receivers. Messages received, both in plain kana and encrypted kana were secretly forwarded to Melbourne. This was the beginning of the RAAF Sigint Force.

In February 1942 Australia came under Japanese attack and with the Darwin RAAF Aerodrome a prime target. The Signet group was instructed to disperse and operate from civil air radio stations around northern Australia. This meant sharing receivers with the civil authorities rendering Sigint operation ineffective for constant listening was needed. Thus by March 1942 it was decided to set up the Sigint section at Townsville, a site where the skip distance for the operational frequencies used by the Japanese would provide favourable listening conditions. The Townsville group was known as Wireless Unit No. 1.

By Mid 1942 the number of trained operators had increased to near 30. General MacArthur's Central Bureau was well aware that with the steady advance of the Japanese, kana traffic had increased rapidly necessitating additional Wireless Units. Prime Minister Curtin approved two more Units and early 1943, No.2 Unit was set up at Darwin and a forward detachment of No. 1 set up at Port Moresby, the whole unit transferring later that year. In all six Wireless Units were set up in secret to monitor and give advance

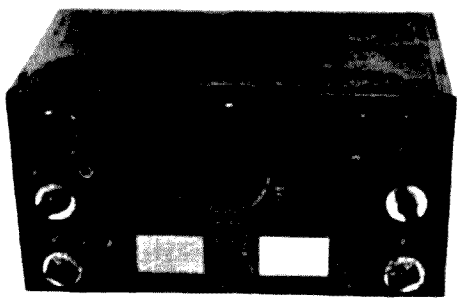


Figure 1a

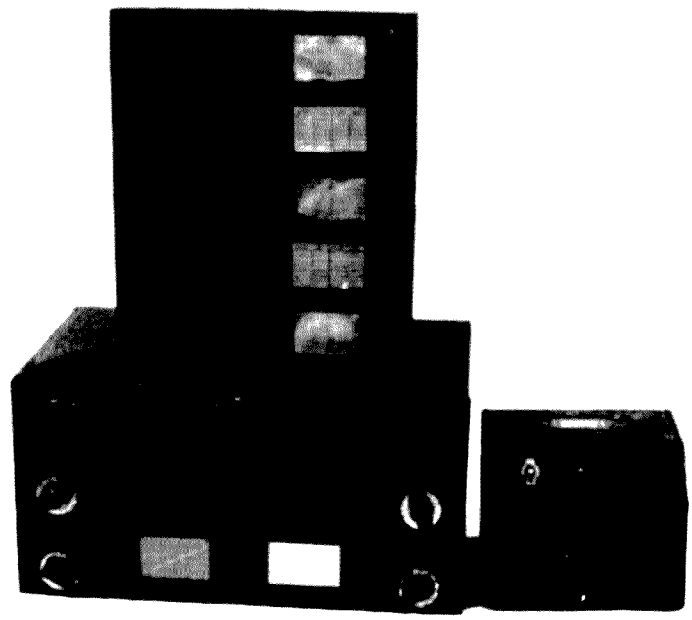


Figure 1b

Figure 1 (a) and (b)
The National HRO Receiver (a) and with plug in coils and power supply (b).
(Peter Holland collection)

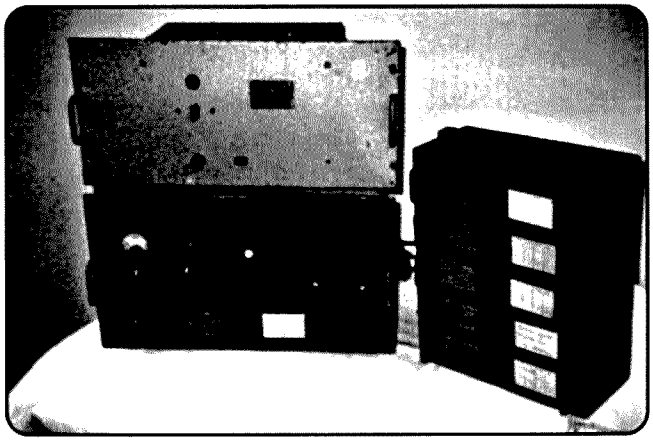


Figure 2
The rack version of the AWA HRO clone, the AMR 101, showing receiver, power supply and coil box. (Peter Holland collection)

warning of Japanese movements and operations (A seventh was requested, but with the war coming to a close it never eventuated). General MacArthur was very conscious of the work the Wireless Units were doing, providing vital information for the war effort, and so he endeavoured to keep them under his control and place then as near as practical to the front lines on the islands to our north and north east, including the Philippines. There was also good cooperation between the Australian Wireless Units and the United States Mobile Intercept Units, camps often being adjacent to each other. So secret was the work of the Wireless Units that it was only a decade ago that detailed information became available on their operations and achievements.

Clandestine operation communication receivers

1. National HRO receiver

While a number of set brands were used all major types have their genesis through the developments undertaken in the early 1930s by the National Company in Boston, USA. In 1934 they produced the first HRO prototype (advertised on the inside back covers of the October and November 1934 issues of QST), the designer, James Millen, being a mechanical engineer ensured that mechanical aspects of the receiver were the best possible, including the 20:1 reduction drive with its vernier, sturdy chassis construction with plug in coil boxes. Electronically this general purpose single conversion communications receiver consisted of two RF stages, a mixer with separate oscillator, two IF stages with a crystal filter, detector, BFO and audio amplifier. The production model using 2.5 volt valve heaters came out in 1936 and set the bench mark for all future communication receivers. With a full set of coils the receiver covered frequencies from 50kHz to 30MHz (See Table 1 below), with a small frequency gap around the 455 kHz IF frequency of 430 to 480 kHz. An S meter and bandspread were included. Figure 1 shows a typical National HRO receiver. Controls, starting from the top left hand corner and moving clockwise are, S meter with two small controls beneath it, the left side being the S meter switch and the right side the phone jack. Centre was the tuning dial, and moving clockwise the pilot light, IF trimmer (selectivity), crystal filter switch and phasing control, RF gain, coil box plugged in, BFO, AVC switch and audio gain.

Several variants were produced of the HRO during the WW2 period. The valve lineup had already been changed to the 6 volt, 6 pin UX series (6D6, 6C6, etc.) in the Model HRO-M, and then in the 1940s these were replaced by metal octal base types, the Model HRO-5. A typical line up was 6K7s for the RF and IF amplifier stages, 6J7s for the mixer, oscillator and BFO, 6SQ7 detector and first audio amplifier and the power output stage a 6V6. Basic receivers without the bandspread and S meter were often called the HRO - junior. In UK some Royal Navy versions had different IF frequencies while still others with shielded aerial inputs, a system switch and modified plug in coil, were used by the Army as direction finding receivers. Although nine standard coil boxes were available, sets were normally only supplied with types JA to JD. Aerial input impedance was approximately 500 ohms, balanced or unbalanced, for these coils.

Coil Set	Frequency Range
J	50-100 kHz
H	100-200kHz
G	180-430 kHz
F	480-960 kHz
E	900-2050 kHz
JD	1.7-4.0 MHz
JC	3.5-7.3 MHz
JB	7.0-14.4 MHz
JA	14.0-30.0 MHz

Table 1. Coil sets available for the National HRO receiver range.

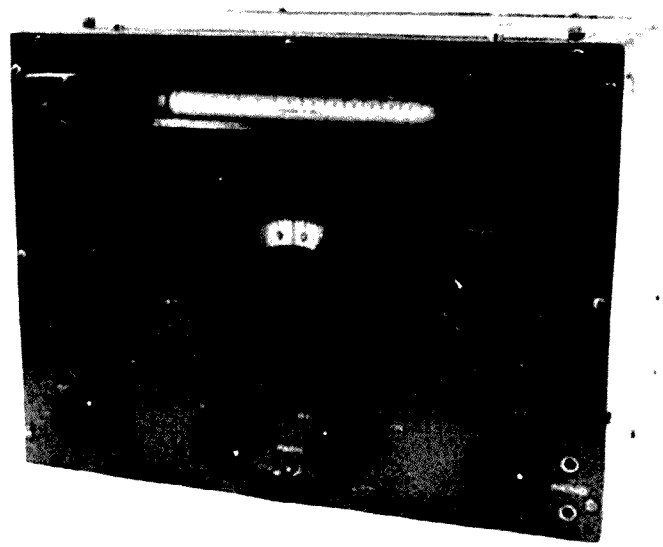


Figure 3
The Marconi CR 100 Receiver, Navy version. This model has a distinctive blue front panel and a radar interference suppression (RIS) socket and control to null out the buzzing interference of the radar transmitter. (Peter Holland collection)

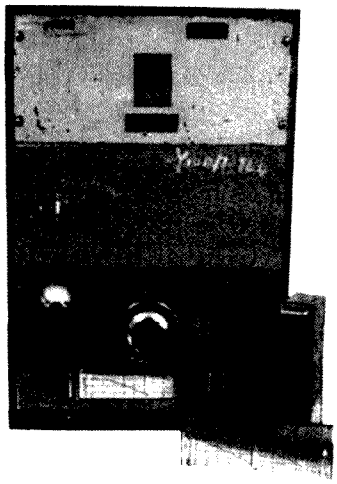


Figure 4a

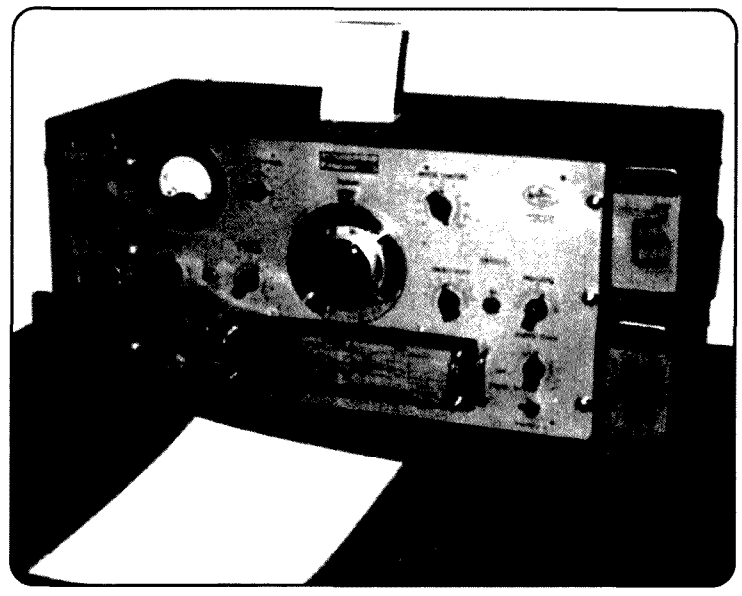


Figure 4b

Figure 4 (a) and (b)
The Kingsley AR 7 Receiver both rack (a) and table top (b) versions. The RAAF serial number has been written in large letters on the rack mounted speaker. (Peter Holland collection (a) and Royal Signals Museum collection, courtesy of Neil Wain (b))

Each plug in coil box had on the front panel, on the LHS, a graph of receiver dial numbers against frequency and on the RHS a table where using a chinagraph or similar pencil the operator could record specific frequencies and dial number readings.

Two separate power supply modules were available, a mains operated unit (115v and 230v AC) and a vibrator supply for 6 volt battery operation, later with the HRO-5 model a 12 volt battery version was also made available, having special connections for the valve heaters. The receiver came in two styles, firstly the table style where the receiver, power supply and speaker were each housed in separate steel boxes, unused coil units stored in wooden boxes a 3 and 5 coil storage box being available and secondly, a rack mounted version, the receiver at the bottom and above it a combined 5 coil box storage unit for the coils not in use, speaker (above the coil box) and power supply unit. The weights of both receivers alone were just over 50 lb., while case sizes were 17.25"W x 9"H x 12"D for the table model and 19"W x 8.75"H x 12'D for the rack model. During the war AWA manufactured National HRO receiver clones for the US Forces the separately housed version called the AMR100 and the rack version the AMR101 (Figure 2). These receivers only covered the frequency range 550 kHz to 24 MHz.

Manual supplied for these receivers provide little information by way of detailed specifications. Basic factors such as receiver sensitivity, selectivity, audio power out and mains voltage range do not get a mention. This is surprising since the HRO receivers were the top of the range of their day and therefore very expensive.

2. Marconi CR100

In 1939 Marconi decided it was time to make a receiver that would offer the Royal Navy a British alternative to the HRO which was widely used. Design work commenced that year, the prototype assessed in the Spring of 1940 and the first batch of 500 model CR100s made in 1941. While the mechanical design is distinctly different to the HRO the electronics is similar. Two RF amplifiers, mixer with separate oscillator, three IF amplifiers at 465kHz, detector and triode first stage audio amplifier, BFO and power outputs stage. A mains power supply (200-250v AC) is included in the same case. A separate DC supply, consisting of a 6 volt battery and rotary converter, was also available. Typical octal valve line up was KTW 62 (or 6K7) for 1st and 2nd RF amplifiers, X66 (or 6K8) mixer, KTW 62 (or 6K7) local oscillator, KTW 62 (6K7 or 6J7) for each of the three IF stages, DH 63 (or 6Q7) signal detector, AVC diode and audio amplifier, KTW 62 (6K7 or 6J7) the BFO, KT 63 (6V6) audio power output and U 50 (5Y3 or 5Z4) full wave rectifier.

Two major mechanical differences to the HRO was firstly that there were no plug in coil boxes, but a front panel band change switch and secondly that the four section tuning condenser was rotated by a spring loaded gear train (coarse tuning reduction 25:1 and fine tuning 170:1) incorporating a logging scale and a cord driven linear frequency scale, the latter on a drum which rotated to the correct frequency scale when the band switch was operated. The frequency range, in six bands, was 60-160 kHz, 160-420 kHz, 500kHz -1.4MHz, 1.4-4.0MHz, 4.0-11.0MHz and 11.0-30 MHz. Aerial input impedance provided was 100 ohm, balanced or unbalanced and a "high" input impedance, while the sensitivity for a 20dB signal to noise ratio was typically from 1 to 4 micro volts over the frequency range. Four IF bandwidths were available, a switch on the front panel allowing selection of 100, 300, 1200, 3000 or 6000 Hz. The narrow bandwidths employed a crystal filter.

Over the years some 8 versions of this set were produced, including a special Navy type B 28 having radar interference suppression (RIS) facilities. Figure 3 shows a photograph of the receiver (the Navy version), housed in its metal case 16"W x 12.25"H x 16.5"D. Standard panel controls, going from left to right were - Top row, HF gain, (the red knob in Figure 3 is the RIS control on Navy sets), tuning (coarse and fine) with the

logging scale immediately above and direct reading frequency scale above that, aerial trimmer and BFO. Bottom row, IF bandpass switch, band change switch, mains switch (lower centre), 5 position operational switch (MOD: Man or AVC, OFF, CW: AVC or MAN), LF gain and two phone sockets. Overall weight was 82lb.

3. Kingsley AR 7

Howard Kingsley the Managing Director of Kingsley Radio Pty. Ltd. had been a Major in the Army, transferring into the Flying Corps during WW1 where he was a fighter pilot. With the approaching WW2 he was keen to supply communication equipment to the armed services, initially trying to convince the Army by demonstrating his portable HF transceivers. While the Army were not interested, the RAAF were and purchased his portable equipment called the ATR1. About that time the Air Force issued a specification for a communications receiver and wishing to continue his success Howard Kingsley strongly invested funds to win this contract. The National HRO receiver, with its robust construction and excellent performance, seemed an obvious starting point for this development, resulting in an Australian made look alike prototype called the KCR 11. Kingsley radio won the contract and the initial order was for 20 units. The receiver was given the RAAF designation AR 7 and during the war some 3200 were made for the RAAF and several customers, including the Dutch Navy, Dept. of Civil Aviation and an Australian Army variation (Australian Reception Set No. 1).

The AR 7 was normally a rack mounted unit (Figure 4), consisting of three modules, the receiver at the bottom, with loud speaker above it and the power supply at the top. The Kingsley look alike HRO receiver was of similar sound mechanical construction using copper/cadmium plated steel sheet, a locally made 20:1 vernier tuning dial while the five plug in coil boxes were made from nickel plated copper sheet attached to a steel front panel. As shown in Table 2 the receiver range is from 140 kHz to 25 MHz with a gap either side of the 455 kHz IF amplifier.

Coil Set	Frequency Range
Band A	140-405 kHz
Band B	409-1430 kHz
Band C	1.420-4.3 MHz
Band D	4.25-12.5 MHz
Band E	12.5-25.0 MHz

Table 2. Coil boxes available for the Kingsley type AR7 receiver

The octal base valve line up were 6U7 for the 1st and 2nd RF amplifiers, 6K8 mixer and oscillator, 6U7 1st and 2nd IF amplifiers, 6G8 second detector, AVC and audio amplifier, 6C8 BFO and 6V6 audio power output. The power supply, which can accept either 230-240v AC or 12v DC from a battery as input (selected using a switch on the power supply front panel) uses two 6X5 full wave rectifiers.

Concluding Remarks

It is now over five decades since WW2 concluded and many aspects of the clandestine HF communication equipment used has been lost, destroyed or forgotten. In preparing this series I have read and inquired widely, at times finding variations in detail, yet I believe that what has been reported is correct. However, I would be both interested and pleased to hear from others on the topic and I may be contacted via my QTH or work email malcolm.haskard@unisa.edu.au.

References

a) General

1. Foot, M. R. D, (1984), SOE. The Special Operations Executive, 1940-46, British Broadcasting Corporation, London
2. Cruikshank, C, (1983), SOE in the Far East, Oxford University Press, Oxford
3. Horton D. C, (1983), Ring of Fire, Macmillian Company of Australia, Melbourne
4. Felt, E, (1946), The Coast Watchers, Oxford University Press, Melbourne
5. Bleakley, J, (1991), The Eavesdroppers, Australian Government Publishing Service, Canberra

b) Technical

1. Handbook. Instructions for the HRO Series of Radio Receiving Equipments, National Company Inc., Maiden, Mass, USA
2. Lightfoot A., "The National HRO Receiver", Radio Waves, Historical Radio Society of Australia, No. 56, April 1996, p8-12.
3. Hoopwood P. A., (G3UKH), "The Mighty HRO", Radio Bygones, No.2, Oct/Nov 1989, p24-26.
4. Meulstee L., (PA0PCR), "The HRO in the British Army", Radio Bygones, No. 18, Aug/Sept 1992, p10-12.
5. Handbook. Communications Receiver Type CR 100, Technical Handbook No. T 1868/1, Marconi Wireless Telegraph Company Ltd, Chelmsford, United Kingdom.
   Grisdale G. L. (G5GZ), "The Marconi CR Series of Receivers", Radio Bygones, No. 31, Oct/Nov 1994, p17-25.
6. Handbook. Communication Receiver RAAF Type AR7 and Power Supply Unit, Kingsley Radio Pty. Ltd., Melbourne, Australia.
7. Handbook. Instruction Book for Type AR-7 Receiver, Airways Radio Equipment, Division of Airways, Dept. of Civil Aviation, Melbourne, Australia.
8. Neilson G. W.,(VK3TES), "The Story of Kingsley Radio Pty. Ltd. 1938-1945", Amateur Radio, Vol. 61, Part 1 No. 6, p21-23; Part 2, No. 7, p16-17; Part 3, No. 8, p22-25.
9. Woods W., "The Kingsley K/CR/11, (AR7)", Radio Waves. Historical Radio Society of Australia, No. 62. Oct 1997, p3-8.\

ar

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of January 2001

215894	MR R L BONNEY
L31557	MR D PLUMB
VK3JOO	MR N LAIDLAW
VK3KGM	MR G JEFFREY
VK3NOV	MR J ONCKEN
VK3ZQ	MR R RUTLEDGE
VK7LH	MR L R HILLER

Fred Hammond VE3HC

Fred Hammond died peacefully on November 7th 1999. Fred had been an Amateur for more than 70 years. He was born in Guelph, Ontario Canada December 15,1912. He started building Radios in 1923 and became licenced in 1929. He co-founded Hammond Manufacturing Co. Ltd. This company is still family run and has subsidiaries in US and UK. Hammond cabinets, transformers and components have a worldwide reputation for quality and reliability.

Fred's contribution to Amateur radio is almost legendary. He was honourable, patient and knowledgeable. He contributed much to Amateur Radio in Canada and worldwide. He was a philanthropist and generous benefactor to the world wide Amateur community.

Fred set up the Reginald Fessenden Memorial Station in Knowlton QC, founded the Guelph ARC in 1946. In 1977 he was Radio Society of Ontario Amateur of the Year and received the ARRL Certificate of Merit. In 1979 he was CRRL Amateur of the Year. He donated hundreds of prepunched cabinets to the Canadian National Institute for the Blind ARC for special CNIB equipment. He supplied and shipped to Geneva in 1979 the equipment to put 4UIITU on air for WARC. He donated equipment with Tom Wong VE3BC to put BY1PK, China's first Amateur Radio station on air. He provided all the custom made cabinets for the refurbishment of W1AW in 1989. In the 1950s he organised several Dxpeditions. He provided much needed material to organisations like the Jamaican Red Cross and QSL cards for CI8C in support of the 1986 Canadian /Russian Trans Polar trek and CY3IARU the Special event Station at the IARU Region Conference in 1995.

He President of the Quarter Century Wireless Club Chapter 73 from 1980-82 and Director of QCWA 1986-90. In 1988 he received the Special Achievement Award at the Dayton Hamfest.

Continued on page 19

Hammond

Museum of Radio

The items on display in the museum will show how the development of wireless or radio equipment has changed during the past seventy or eighty years to the present day technology.

Many types of vacuum tubes from the Fleming valve, Deforest, R.C.A. and other early models of receiving and transmitting tubes are on display.

Several samples of early radio receiving equipment from 1912 to the 1920's and 1930's are displayed as well as some of the microphones used by amateur and broadcast stations during the past sixty-five years.

An effort has been made to show items of interest to the Radio Amateurs, including former popular radio receivers such as Pilot, National, Patterson, Breting, Sargent, R.C.A., R.M.E., Collins, Hellicrafter, etc., Transmitting tubes and other equipment as used by Amateur Radio enthusiests for many years.

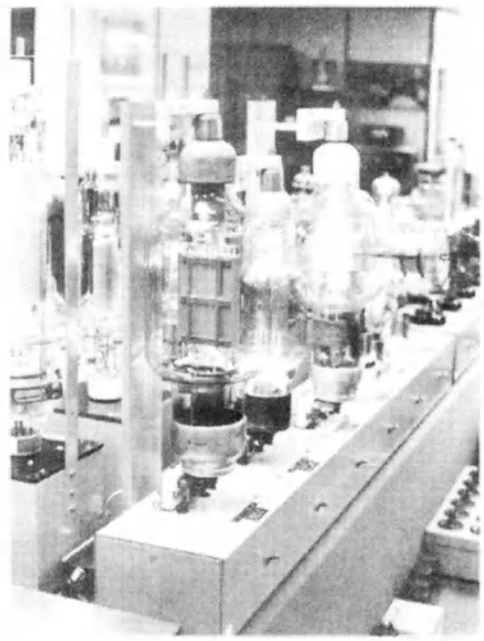
The museum is open from 8:00 a.m. to 5.00 p.m., Monday to Friday (Business Days), or by special arrangements.

HAMMOND MUSEUM OF RADIO

Federal Registration Number 0841126-80-15

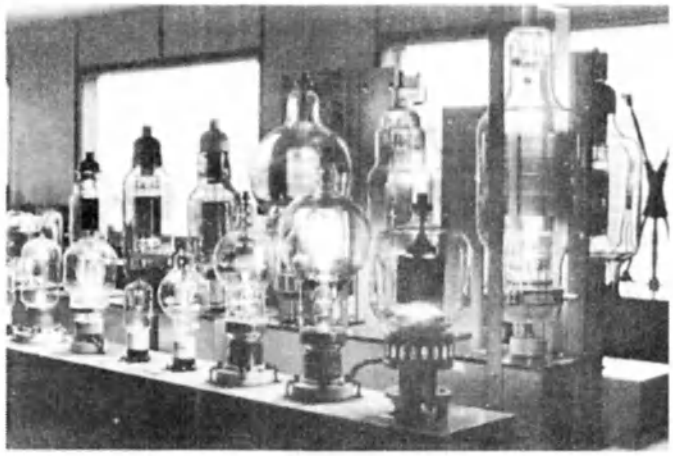
EARLY NATIONAL AMATEUR RECEIVERS
AND COLLECTION OF ATWATER KENT MICROPHONES & HORNS

COLLECTION OF VARIOUS OLD TIME RECEIVERS
AND 1929 ROTARY WHEEL TELEVISION

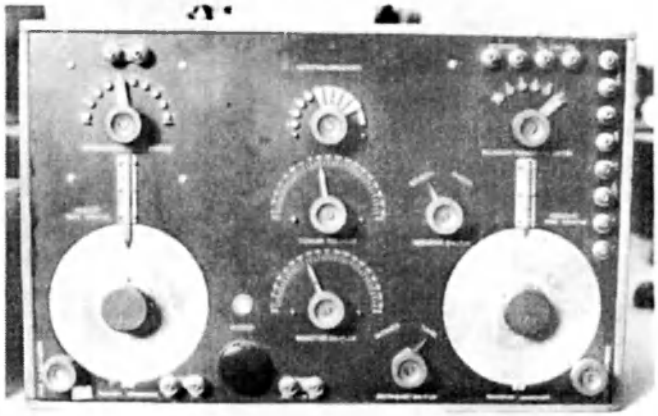


FEDERAL 61 RECEIVER (1923)

IP-500 (1918)



COLLECTION OF OLD AMATEUR TRANSMITTING TUBES



IP-500 (1918)

←1912 RECEIVER

↙MERCURY SUPER 10 (1925)

EARLY COLIN B. KENNEDY RECEIVERS (1923)

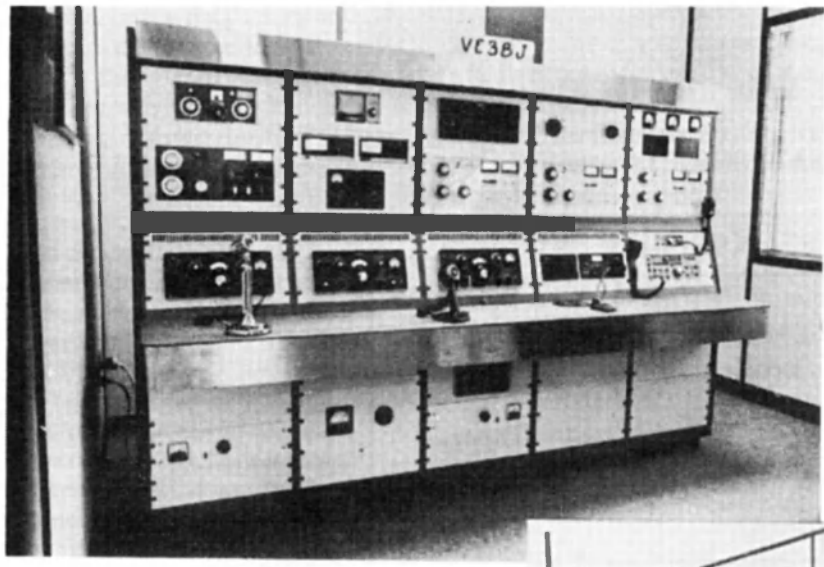
REGENT 1924

COLLINS KWS1 STATION

PATTERSON PR-10 (1933)

BRETING 12 (1935)

RME 69 (1935)



AMATEUR STATION VE3BJ

ACTIVE ON
10 - 15 - 20 - 40 & 75 METERS

5 ELEMENT TELREX BEAMS
FOR 15 & 20 METERS

LEFT TO RIGHT:

COLLINS 30K (1946) – 500 WATT CW
375W PHONE

MARCONI TRIPLE DIVERSITY RECEIVER

R.C.A. AT3 TRANSMITTER AND
HALLICRAFTER BC610

COLLINS KW1 – 1000 WATT
AM TRANSMITTERS (1952)

WITH

COLLINS R390A, 51J4
AND TWO 75A4 RECEIVERS

In January his Hammond Museum of Radio was opened. This contains Fred's large collection of radio equipment dating back to the turn of the century. This is probably the largest and certainly the finest collection of its type in the world. Fred's knowledge of the history of radio development was as vast as his collection.

Fred's unique record of constant support of the Amateur Service and for individual Amateurs throughout his long life is virtually unparalleled.

Drawn from The Canadian Amateur Jan Feb 2000.

The material, shown here, is taken from the Hammond Museum of Radio Brochure.

Thanks to Jim Davis VK7OW for this information. Jim was lucky enough to meet Fred Hammond when he visited Ron Harwood VK7RH some 20 years ago

ar

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

ALARA Contest Results

Gwen VK3DYL	203	Top score overall, Top score VK YL Top phone score,Top VK3 ALARA member
Bev ZLIOS	186	Top DX YL, Top ZL ALARA member
Judy VK3AGC	153	
Susan VK7LUV	130	Top VK Novice, Top VK7 ALARA member
Elizabeth VE7YL	130	Top VE ALARA member
Meg VK5YG	111	Top VK5 ALARA member
Alex ZL I BVK	104	Top ZL OM
Bev VK4NBC	92	Top VK4 ALARA member
John VK3MGZ	75	Top VK OM
Celia ZLIALK	74	
Marilyn VK3DMS	74	CHECK LOG
Christine VK5CTY	61	
Trevor VK3PP	55	
Dot VK2DB	49	Top VK2 ALARA member
John VK5EMI	40	
Alan VK7JAB	35	
Stan VK3JSS	25	
Yohko JA8GIA	24	Top Japan YL nonmember

The number of logs is not marvellous but it was good to have several more logs this year, some positive thinking in the new century, and perhaps a little impetus from the International YL Convention in Hamilton last October helped. We were pleased by number of OMs who contacted us during the contest - five of whom took the trouble to write up and send in their log. What about the rest of you!! Every log counts, you know.

There was a bit of a problem with the address for the logs, this year. Please do check that you have it right- whenever you send in a contest log. It is such a waste if your log doesn't arive after all your effort.

Congratulations to Gwen VK3DYL, the overall winner and to all the section winners.

Unfortunately no one submitted a CW log so there is no winner of the Florence McKenzie Trophy.

Please take note the Contest in 2001 will be held on *the last weekend in August*. This should give us better propagation conditions than November.

The times the Contest will run are still to be decided. You will be advised in this column and in the ALARA Newsletter.

Thank you to everyone who took part - we hope to hear all of you again this year along with hopefully many others.

Recognition Of The Amateur Licence In Electro-technology Courses

In the last few months a number (at least 25) of amateurs have become accredited Assessors, qualified to assist holders of the amateur theory licences to gain an exemption from the first year of the Electro-technology courses run by the TAFE colleges after only a small amount of additional work.

Anyone wishing to obtain this exemption can apply to these people, complete some practical projects and show an understanding of the Occupational Health and Safety rules that apply within the workplace, to the satisfaction of the assessor, to gain a certificate that can be presented to the TAFE.

This accreditation has been agreed to by the TAFE authorities after consultation with both employers and the unions and recognises that those who work to gain their amateur certificates have learned many of the aspects of electro-technology that are part of the Level 1 courses.

The hope is that this accreditation will encourage more young people to enter the field of electro-technology as a career and assist those amateurs who, perhaps gain their licences while still at school to see a real benefit for making the effort at a young age. It is likely they will finish their electro-technology courses ahead of their peers and go into the workplace at a qualified wage earlier than otherwise.

There are accredited assessors in all the mainland states, at this time. The list of names is available from your local WIA. In VK5 there are two YL assessors, Mary VK5AMD and Christine VK5CTY, but so far all the other assessors are OMs. How about you ladies, make some enquires and get involved.

From Gwen VK3DYL

Icebergs Ahoy!

Mid-January my son David and I boarded a QANTAS Boeing 747 filled with lots of excited passengers (all loaded down with cameras) and headed south to Antarctica for the day. This turned out to be the quickest 12-hour flight I have ever been on - nearly the equivalent of flying non-stop Sydney to Los Angeles but much more fun! Strangers spoke to other strangers, swapped seats, elbowed each other out of the way to get better photographic angles through the windows and rushed from one side of the aircraft to the other as another magical view unfolded.

We flew over the South Magnetic Pole where I watched my compass do whirlies, then headed to the French base, Dumont d'Urville but that was covered with cloud which extended inland so, for safety's sake, we took one of the other 17 alternative routes and followed the coastline to the Australian base at Casey. It was fascinating looking down at the ice

floes, the deep crevasses, the pack ice and the huge icebergs drifting out to sea.

As we neared Casey base our Captain contacted the station and patched the ensuing conversation into the aircraft's PA system. We were asked to keep an eye out for the Norwegian ice ship, the M. V. Polar Bird which was on its way to deliver personnel and supplies to Casey but which had got stuck in the ice 2 weeks previously and was waiting for an ice breaker to come and get it out. Visual and voice contact was then made with the ship, which relieved the monotony for a short while for those on board. (A couple of days later a news flash reported that there had been "good storms ' in the area which had freed the ship from the ice and the voyage leader remarked that it was "one of the few times when a storm was welcomed at sea!")

Reluctantly our 4 hours of flying over the Antarctic Continent came to an end and we had to head back to Melbourne. A camera in the cockpit transmitted pictures onto the cabin video screens and various lecturers in Antarctic life gave excellent commentaries so there was rarely a dull moment. I know that 2 other ALARA members, Christine, VK5CTY, and Mary, VK3FMC. have done similar trips and I'm sure the 3 of us can heartily recommend it as a very unique experience.

My trip was almost 20 years ago but I still remember every moment of it. If anyone has the chance of a flight like this, my advise would be "go for it"!!

Change Is In The Air

Keep your ears peeled for some possible changes to the classes of radio licence in the UK. Both the RSGB and the RA are concerned about the falling numbers of licence holders, particularly of young license holders and are suggesting some ways in which people can be encouraged into our hobby.

Remember what happens in one country often happens in others, later.

ar

...Propagation and the Great Australian Bight

continued from page 7

References

Kerr F J, "Radio Super-refraction in the Coastal Regions of Australia", *Australian Journal of Scientific Research (Physical Sciences)*, Dec 1948, pp 443-463

Everingham R J, Log Book (in custody of the author) 1952

Galle R V, QSL card to VK6BO (in custody of the author) 1952

McAllister L G, "Radio Ducting at 135 MHz and 1769 MHz between Albany (WA) and Salisbury (SA) - Technical Note CPD(T)173", Department of Supply, Australian Defence Scientific Service, Weapons Research Establishment, May 1969

West Australian VHF Group Bulletin, May 1969, p 3

Jamieson E, "Propagation on the Bands 50 MHz to 1296 MHz", unpublished paper presented to South Australian Technical Symposium, South Coast Amateur Radio Club, Saturday 24 July 1993

Baker P W, "WRE Technical Note A220 (AP) - Ray Tracing in the Troposphere", Department of Supply, Australian Defence Scientific Service, Weapons Research Establishment, Sept 1972

Hurst C J, "Project ASERT: VHF Propagation between Albany and Adelaide 1979-80", *Amateur Radio*, Dec 1980, pp 11-12

Overbeck W, "California to Hawaii on 2 metres - 1976 Edition", *QST*, Sept 1976, pp 46-48

Tynan Bill, "The World above 50 MHz: The Trans-Pacific Duct: Its History and Future", *QST*, Apr 1986 pp 55-56

ar

The Way It Is

Russ White VK3MWR

I, as a "know little novice", like to think that this is the way it is in Amateur Radio. In other words, what Amateur Radio is all about?

I called into a fellow club member's place of business on what was primarily a social call. He had customers and as a retired businessman I understood and tried to stay out of the way. He went about the business giving each customer due care and attention and made sure each was satisfied. After the last customer had left we got to socialising and compared notes so to speak - family, holidays, club equipment and our own equipment. On our own gear I complained about chores I had been doing and still had to do to get the 2 metre rig up and running again. There was nothing wrong with the rig itself, only the antenna or the coax. Birds kept landing on the antenna and bending it at right angles to the vertical. I knew I could manage the coax without too much trouble but the antenna was the problem.

"Here, look in this box. There are some odd bits that might do," my friend said.

I picked up one item that was a plain short heavy rod with screw-on mounting nut.

"That's what you need but you need a ground plane with it." he said.

He proceeded to explain what he was talking about and then proceeded to take a large flat steel washer and soldered 4 rods equally spaced around the washer and all bent to about 45 degrees to the flat side of the washer. He then explained how to position this device (It had advanced to the device stage now).

"Give it a try," he said.

Keep in mind; I had called in as a friend and a fellow ham not looking for anything. I was treated as a friend and a fellow ham in the spirit of Amateur Radio. I want to thank him and to say that Graham Brennan, VK3KCS is a mild unassuming fellow not looking for the limelight. He typifies what I believe Amateur Radio is all about. I hope he won't blush and if he does he can always say its windburn from riding his new Harley. Thanks Graham

(Submitted by Russ White, VK3MWR who also indicated he was happy that when originally published, his name was not credited. Russ is also a member of the WIA.)

ar

Club News

News from the Moorabbin & District Radio Club

What's happening down at the Club?

Members at the January MDRC meeting got an inside look at how APC News is produced each week. Keith VK3JNB, Peter VK3YE and Tony VK3JED gave a detailed presentation on how the news is produced and distributed. The MDRC's new amateur radio and club promotion brochure was also launched. Copies have already been distributed to local libraries and will be used at hobby show displays.

The MDRC's regular weekly and monthly meetings include the following:

- Tuesday morning group, 10am at the Clubrooms
- Tuesday evening hobby group, 7:30pm at the Clubrooms
- Social meeting, 8pm, first Friday of the month at the Clubrooms (ie March 2, April 6, May 4)
- General meeting, 8pm, third Friday of the month at the Clubrooms (ie March 16, April 20, May 18)

We usually have a guest speaker at our general meetings. Because *Amateur Radio* usually now reaches readers late in the month, it is seldom possible to provide timely advice on presentation topics through this column. Instead, keep listening to *APC News* for this information.

Hear *APC News* on-line, any time

Melbourne's *APC News* has had a busy start to 2001, with several improvements being introduced. These include:

Availability of sound recordings via the web

If you missed the live transmission, log on to http://quest.apana.org.au/~tl/vk3jed/apcnews and hear the week's bulletin in MP3 format. Recordings are normally available shortly after the live bulletin goes to air on Wednesday evenings. This service is kindly provided by Tony VK3JED has become very popular with individual listeners and interstate news services alike.

APC News on ATV

Thanks to the assistance of David VK3JDA, local amateurs can now watch APC News live via the VK3RTV Melbourne ATV repeater. VK3RTV's output is on 444.250 MHz – receivable as Channel 16 on many UHF TV sets. Keep listening for further details of these ATV experiments.

New look for APC News website

With the theme 'Getting APC News is as easy as 1, 2, 3, 4, 5, 6', the improvements make it easier to find out about the six ways to receive APC News each week.

A significant milestone was passed earlier this year, with our 100th bulletin going to air. The best way to show your support for APC News is to call back each week and submit items to the addresses given in the news.

MDRC member co-ordinates Australia Day repeater link

Dozens of VK3s enjoyed chatting to amateurs interstate and overseas during the Australia Day internet hook-up of repeaters around the nation. The event went smoothly, thanks to the efforts of national co-ordinator Pete VK2YX and link stations in most capital cities. Melbourne's link station was Tony VK3JED operating through the VK3RSR repeater on 146.975 MHz. Tony's station operated faultlessly, with very few link drop-outs. This aspect of amateur radio is progressing very rapidly, and we hope to bring news of further developments via APC News.

Radio on Rails next month

Yes, it's on again! Two metres and seventy centimetres will again be full of signals from tram and train mobile stations during this year's Radio on Rails Fun Day on April 8.

Radio on Rails encourages amateurs to operate from trains and trams around Melbourne. Participants get to experiment with VHF/UHF portable equipment and antennas and demonstrate amateur radio to the general public. Entrants also meet other contestants, thanks to the unique 'eyeball contact' rule. Sections exist for both radio amateurs and listeners.

The rules for *Radio on Rails* appear below. There are a few minor changes from last time, mainly relating to scoring for contacts involving crossband repeaters. Both home and train/tram mobile stations may enter. Participants are invited to meet for lunch afterwards at a city venue to be arranged on the day.

MDRC Radio on Rails Fun Day Rules

Object: To make amateur radio contacts from trains and trams around Melbourne.

Date: Sunday, April 8, 2001

Time: 9am - 1pm

Bands: 433.000 – 440.000 and 145.225 – 148.000 MHz only

Mode: FM voice

Sections:

A. Transmitting Mobile (in train or tram, also includes waiting at railway stations or tram stops)

B. Transmitting Home (includes operators at home or in a car)

C. Listening Mobile (in train or tram, also includes waiting at railway stations or tram stops)

D. Listening Home (includes listeners at home or in a car)

Contacts: Train or tram mobile stations may work (or hear) any station for points. Home station entrants may work (or hear) train or tram mobile stations only for points.

Repeat contacts: Repeat contacts are valid for scoring purposes provided at least one hour has elapsed between them. In most cases, stations may be worked *once per hour per band.* The exception is for contacts via crossband 2m/70cm systems, such as the VK3RMN repeater, or satellites operating in full duplex. In these cases, repeat contacts are permitted, but stations may only work each other *once per hour, irrespective of band.*

Use of repeaters and satellites: Contacts on repeaters and satellites count for scoring purposes.

Exchange: Train or tram mobile stations give their nearest railway station, tram route number or tram stop location (if waiting). Home stations give their suburb. No serial numbers are required.

Eyeball contacts: Stations in Sections A and C may claim extra points for 'eyeball contacts'. An eyeball contact is defined as one where participants can shake hands with one another on a train, tram, railway station or tram stop.

Prearrangement of eyeball contacts before the contest start time is **not** allowed. However, eyeball contacts may be arranged during the contest period on two metres or seventy centimetres FM only. Unlike with radio contacts, entrants cannot claim extra points for repeat eyeball contacts with the same person. Amateurs or SWLs not active in the contest cannot be claimed as eyeball contacts.

Scoring: Score 1 point per station worked (or heard) on each band. Total score is the number of radio contacts made (or stations heard) on all bands plus the number of valid eyeball contacts made.

Logs: Logs should show time, frequency, callsign and exchanges for each contact. Eyeball contacts should also be logged. Train or tram mobile entrants should staple their used Met ticket to their log. Where this is not practical (eg ticket remains current after the contest), a signed photocopy of the ticket will be accepted in lieu.

Logs should be posted to *Radio on Rails*, MDRC, PO Box 58, Highett, Vic, 3190. Logs should be received by 30 April, 2001.

Certificates: These will be awarded to the first three placegetters in each section. Other entrants will receive participation certificates.

Results: Results will be announced in the WIA's *Amateur Radio* magazine and on APC News.

Peter Parker VK3YE
Publicity Officer
Moorabbin & District Radio Club
parkerp@alphalink.com.au
(03) 9569 6751

Riverland Radio Club

Riverland Radio Club shows its appreciation to Frank Brandon (formerly VK5FB)

The Secretary of the Riverland Radio Club Doug Tamblyn VK5GA is seen here presenting Frank Brandon of Waikerie (formerly VK5FB) with a 807 valve mounted on a block which has been suitably inscribed in appreciation of his collection of Radio equipment (some collectors items and other amateur equipment) donated to raise funds for the club.

Frank still treasures to this day the valve he used in his first transceiver in 1933.

Frank Brandon first obtained his amateur licence VK5FB in 1933 and soon after a commercial licence with the Department of Civil Aviation. Frank also held a VK4 licence for a few months until the licencing Department told him he was off air due to the commencement of World War II.

Being in charge of the Radio and Communications for the Department of Civil Aviation Frank was stationed at Karumba in the Gulf of Carpentaria in 1939. His next post was in Salamaua in New Guinea in 1940. On his return of duty to Australia, Frank was posted back to Parafield just out of Adelaide which was his home base for a short period only before being posted to Rockhampton in Queensland. From Rockhampton, Frank was stationed in many places throughout Australia including Daly Waters in the NT, Cloncurry in Qld, Forest in WA, Perth, Halls Creek and then to Oodnadatta in SA. Frank retired from the Department of Civil Aviation on the 21st of August 1967.

After World War II Frank was again active on Amateur Radio bands until he gave up his licence at the age of 90 in 1997 due to the fact he moved into a retirement village in Waikerie in the Riverland of SA where antennas were not permitted. Now at the age of 93 Frank still enjoys reasonable health and enjoys talking about his past experiences.

Silent Keys

The WIA regrets to announce the recent passing of:-

T O (Tom) RYMES VK1BUD
W B (Brian) WEILEY VK2AZW
E C M (Edgar) OLDS VK2BY
A C (Allan) WILLIAMS VK2FH
H D HOWE VK2QH
A L (Les) OSBORNE VK3AAO
A (Arthur) LOCK VK3AUL

Adelaide Hills Amateur Radio Society

In February the AHARS members visited the Elizabeth Amateur Radio Club / SA UHF Group at the water tower that is their headquarters. Most VK5 amateurs have heard of the "famous" water tower but not many have visited it before. Since the loss of the Burley Griffin Building the water tower has become the place of origin of the Sunday broadcasts, the aerials for which are only a very few among the many aerials that decorate the water tower.

A few people were permitted to climb to the top (fourth) floor 100 feet up but for safety reasons the number was limited. However, everyone enjoyed a sausage sizzle and the illustrated talk given by Murray Taylor, (harmonic of Geoff VK5TY) about the technical side of lighting the opening and closing ceremonies of the Olympics and Parolympics. The numbers of lights and wattage involved were rather mind-boggling.

As well as members of AHARS and EARS there were representatives from South Coast, Barossa and Riverland clubs.

The normal meetings of the AHARS are on the third Thursday of each month in the Blackwood High School. Visiting amateurs are always welcome. Please contact the Alby VK5TAW or Geoff VK5TY.

WAZ Award Applications

Attention All DXers

Please do not send WAZ applications to K1MEM's address.

Jim has been deceased for over a year now. WAZ applications continue to arrive at his QTH nearly every week.

Please help us spread the word. We at CQ have tried very hard to make sure that the revised WAZ rules received a very wide audience since last January. The WAZ rules can be found on several national radio society web pages, in several amateur radio magazines and on CQ's own web page (in 7 languages even!).

The URL for the CQ web site is www.cq-amateur-radio.com

Once again, please help get the word out to the DX Community at large. Jim's widow should not have to be bothered with having to forward WAZ applications after this long a period.

73 Paul K5RT,
CQ WAZ Awards Manager

VK3EK in VK7

Records are all about being in the right place at the right time plus a bit of research and planning. VK3EK went to Tasmania with his UHF gear and did very well. His holiday included working Russell VK3ZQB on 10GHz a distance of 524km with 1 watt and a 600mm dish and then 7 minutes later Trevor VK5NC was worked a distance of 667km. He was also able to work Trevor VK5NC on 3.5GHz with 40mW and a 600mm dish over the same path. The attached photo shows Rob VK3EK his transport and the antennae used for the above UHF contacts together with some lower frequency yagi. Rob says 'Check my web site at www.qsl.net/vk3ek/ and you will see what happens in the east'.

ar

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Skeleton Sleeve Fed Monopole

This is a relative of the J pole. The J pole is a half wave end fed by a quarter wave matching section. The half wave could be end fed using a quarter wave cylindrical coaxial matching section. The cylindrical section can be replaced with a skeleton sleeve made out of rods. In CQ October 2000 Dan Richardson K6MHE describes a skeleton sleeve end fed monopole. This is shown in Fig 1.

The antenna is made out of 3/8 inch aluminium rods. The four shorter rods form a skeleton quarter wave sleeve which with the lower quarter wave of the longer rod forms a matching section between the 50 ohm coax feed and the half wave end fed element. The longer element comprising the inner of the matching section and the half wave radiator is three quarters of a wave long approximately. The skeleton sleeve fed monopole assembly is shown in Fig 2. the bottom plate drilling is shown in Fig 3. A right angle mounting bracket and SO239 adaptor and base are used which are CB antenna parts obtained from Radio Shack. Radio Shack is known locally as Tandy and the part number Cat No 21-9378 may well be the same. Alternatively there are often suitable equivalent CB radio antenna base parts and mountings available from other suppliers.

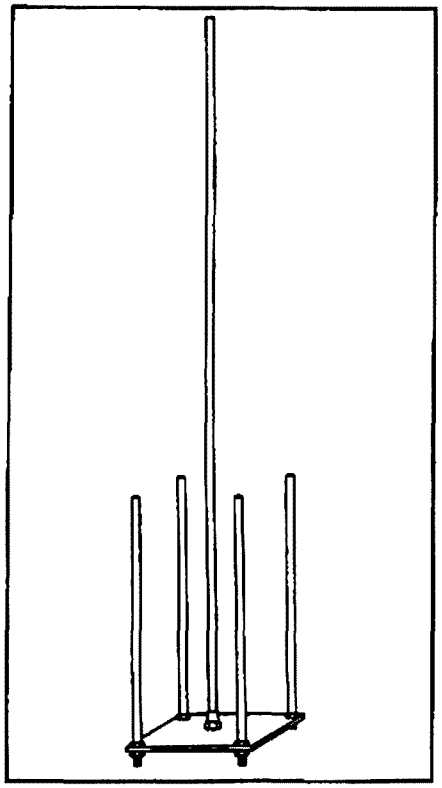


Fig 1. Skeleton Sleeve Fed Monopole.

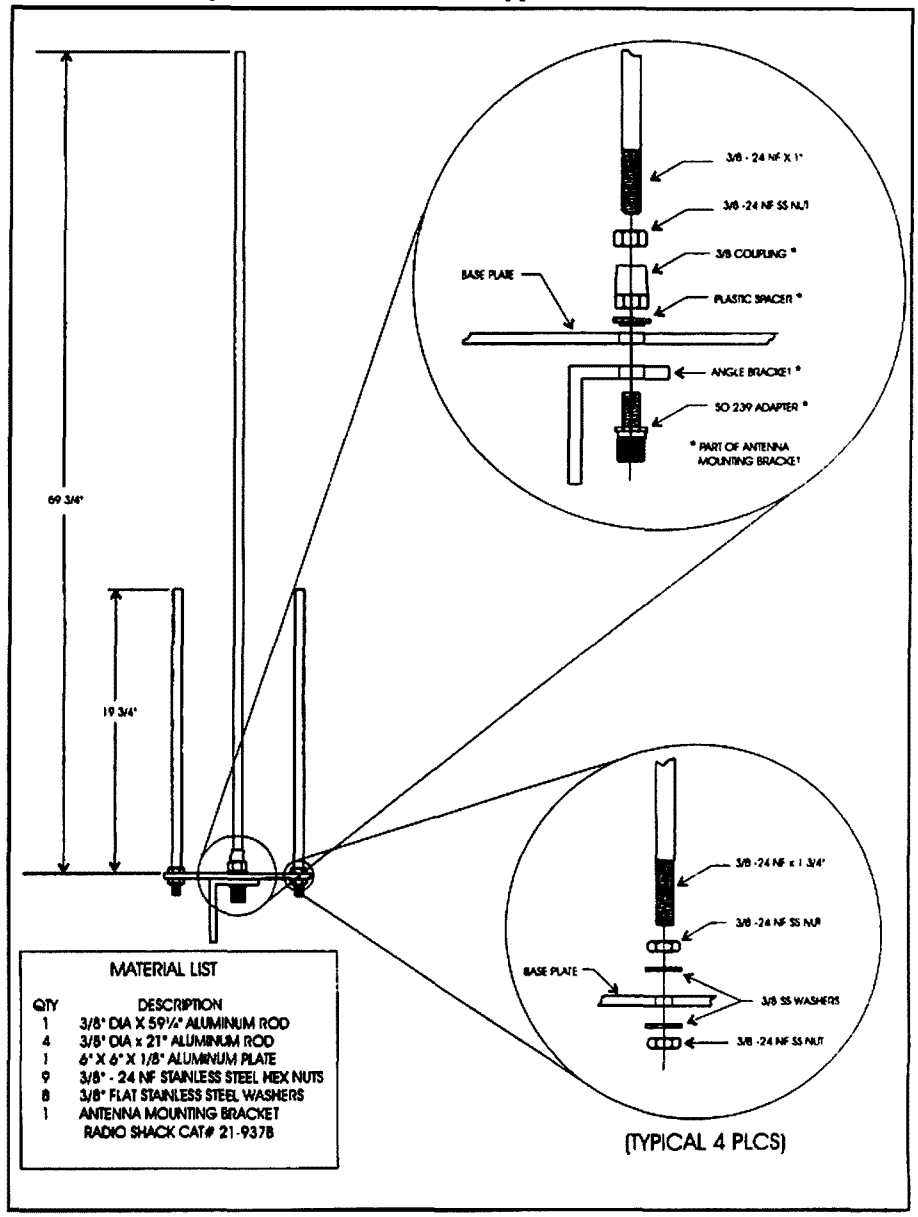


Fig 2. Assembly Drawing of Skeleton Sleeve Fed Monopole.

The antenna does not require a ground plane but the use of a decoupling choke near the feed point will discourage RF current on the outer of the coaxial cable feedline. This could be a ferrite choke but simply coiling up a few feet of cable into a choke would be a suitable decoupling. A quarter wave of coax coiled into a small coil should work.

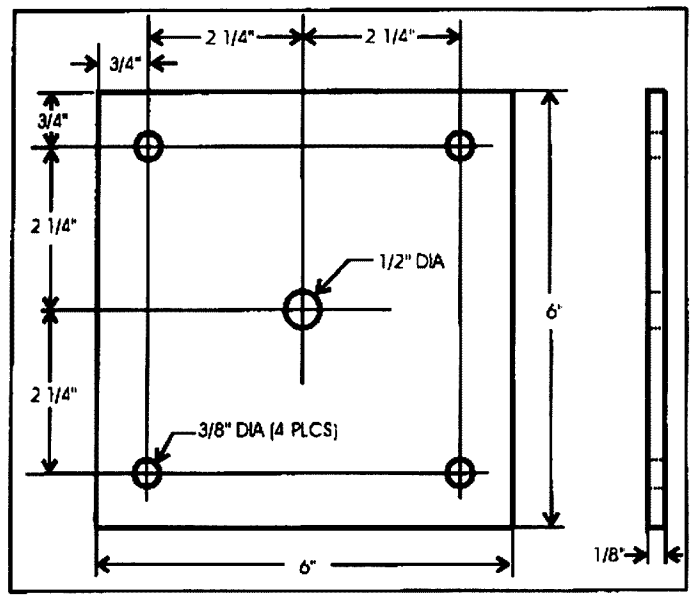


Fig 3. Base Mounting Plate Layout.

A Better PL259

The In Practice column of Ian White G3SEK in Rad Comm Juy 2000 featured a form of PL259 which has a compression clamping arrangement for the braid. These are available locally.

The conventional PL259 is shown in Fig 4. The problem is soldering the braid effectively without melting the cable or the connector insulation. This has got worse with the prevalence of connectors aimed at the cheap end of the market which use plating which can be difficult to tin. The use of soldering irons designed for small modern components is another factor. To successfully solder the braid to the connector you need to have the connector well prepared and use a soldering iron which has a bit which is sufficiently large to act as a reservoir of heat for the soldering process. A soldering iron designed for soldering large objects works well. You should also avoid connectors with insulation which melts readily.

Ian found connectors which are sold by Farnell which use a pressure sleeve cable clamp to secure the braid. This is superior to the traditional PL259. The connection of the inner to the pin is the only solder joint. The connection to the braid and the clamping is accomplished using a ferrule and a rubber compression sleeve. This is similar to the arrangement used in BNC and Type N connectors. Separate connector types are used for large and small coax.

The assembly of a pressure clamp UHF connector is shown in Fig 5. There are two types of this connector for large and small coaxial cables. The Farnell stock code is 724-816 for the UHF plug for large cable. For small cable the Farnell stock code is 724-804. The price

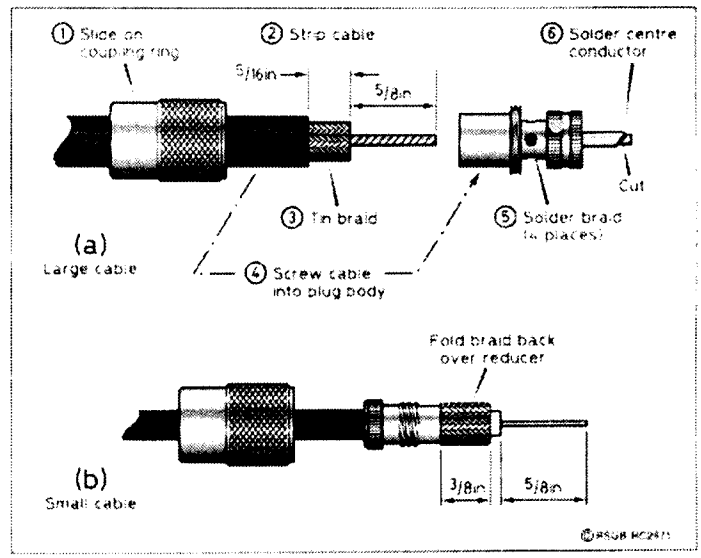


Fig 4. PL259 UHF Connector Assembly. Small cable needs a reducer.

is greater than for the old solder types but they are an improved design.

Farnell is present in Australia. Remember that you are dealing with a supplier who is used to dealing with the trade rather than retail customers. The web site for Farnell is www.farnell.com/australia/. You should be able to find the items you want and order them via the web site. The catalogue is quite large and it helps to know what you want.

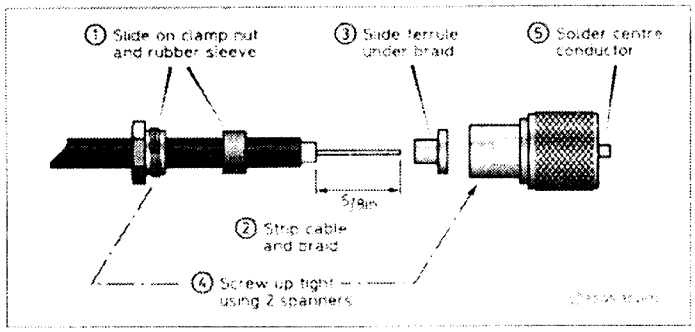


Fig 5. Improved UHF Connector with pressure sleeve cable clamp. Different type connectors are used for large and small cable.

Inrush Timer

A timer is desirable to reduce the inrush current when switching on the filaments of many valve types used in linear amplifiers. The large inrush current when they are switched on from cold can result in a shortened life. This can be avoided by limiting the current for a short time after switch on.

In JA CQ September 2000 Gordon Kiefer K6PT and Kiyoshi Endo K4ST described a simple timer to limit the inrush current in a Drake L4B which uses a 3-500Z valve. The timer contols a relay which shorts out a resistor in the AC mains supply to the amplifier after an initial time delay. The resistor value may need to be adjusted both for our mains supply and for the individual use.

The circuit is given in Fig 6.. The FET used should be available but substitution should not be difficult. The aim is to get a suitable time delay. The relay needs good isolation between the coil and the contacts if you are switching in the AC mains input circuit. The alternative would be to switch a resistor in the secondary side however the current switched would be considerable.

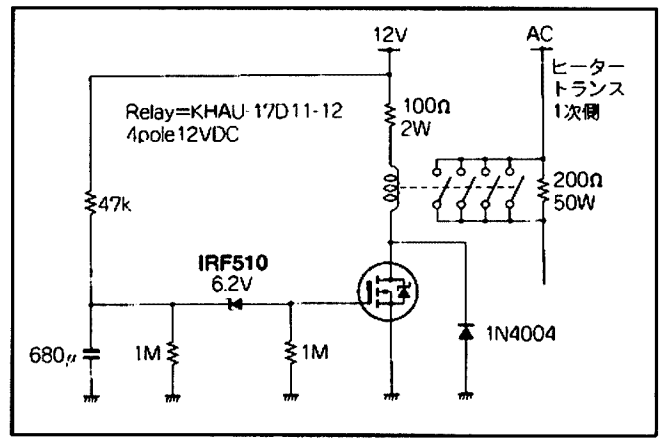


Fig 6. Inrush Timer.

ar

Advance Notice

AR Special Events

International Lighthouse/Lightship Weekend

18-19 August 2001

How about joining in?

The International coordinator for this event is Mike Dalrymple,GM4SUC, USA coordinator, Jim Weidner K2JKW, VK coordinator, Kevin VK2CE.

On-line entry form for stations operating from lighthouses/lightships, the official entrants list and last year's list can all be found at: http://www.vk2ce.com/illw or mailto: kevin@vk2ce.com

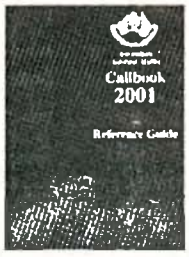
This event is not a contest, each station decides how it will operate regarding modes and bands. Participants are not committed to being on the air during the entire period - only as much as they can.

Activity does not have to take place INSIDE the lighthouse, a field-day-type set-up at the light or other building next to the light is acceptable, but permission must be obtained from the owner or any parties with vested interests in the land.

(Audio Grab courtesy RSGB)

DON'T MISS THE ACTION!

WIA Amateur Callbook 2001



Features a wide range of information about amateur radio, and includes an updated listing of call signs, names, and postal addresses of all radio operators licensed by the Australian Communications Authority.

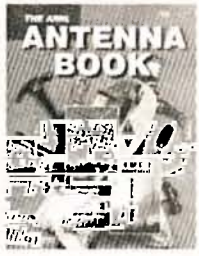
B 2345

NEW

$24.80

ARRL Antenna Handbook

19th Edition



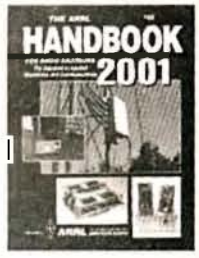
Learn how to design and build your own antenna. This book covers broadband antennas, gain and size comparisons for multi-element arrays, log periodic, quad, long-wire and travelling wave antennas. Includes a CD-ROM with two new Windows programs, detailed propagation forcasts, and more.

B 2214

NEW

$69.70

ARRL Ham Radio Handbook 2001



This is the 78th edition of the standard reference book for radio amateurs, electronics technicians and professional engineers. 1200 pages translate theory into practice through a large variety of hands-on-projects.

B 2218

NEW

$69.70

SB-15 6m/2m/70cm Mobile Antenna

A compact tri-band mobile whip that covers the Australian 6m, 2m, and 70cm amateur bands. It has centre frequencies of 52.5MHz, 146.5MHz, and 435MHz, with good bandwidth on each band. The antenna is approximately 1.5m long, weighs just 420g and includes a fold-over adaptor built into the base section.

D 4818

$149

CFX-514N Antenna Triplexer

Allows connection of a multi-band transceiver such as the FT-847 to a common coax cable. Inputs cover 1.3 to 90MHz, 130-200MHz, and 300-500MHz, with 500W PEP power rating. Insertion loss is <0.3dB, and isolation between ports is more than 55dB. Uses an N-connector on UHF input, and PL-259 connectors on other inputs.

D 3305

$168

AS-510 6m/2m/70cm Handheld Antenna

A high-efficiency flexible antenna with fitted male SMA connector that suits 6m/2m/70cm Amateur band transceivers such as the Yaesu VX-5R. Provides improved performance compared to the antenna normally supplied with the VX-5R, particularly on the 6m band.

D 4339

$69.95

DICK SMITH ELECTRONICS POWER HOUSE

PowerHouse stores

A shopping experience like no other!

Dick Smith PowerHouse stores not only offer an expanded range of those original electronics products that have made our stores famous, but now you can experience the fun of using a wide range of communication equipment in our hands-on demonstration area. Called the "Ham Shack", each PowerHouse store has a dedicated area where licensed staff can show you the latest Yaesu, Uniden, or Magellan communications and GPS products, as well as an expanded range of accessory lines that may not be available in other stores. Not involved in Ham Radio? Staff can also advise on the installation of a CB radio for your four-wheel drive vehicle, how to get involved in listening to Shortwave radio stations from around the world, or assist you in the selection of a suitable accessory for an existing piece of equipment. For bushwalking or boating users, you can also find out about the latest in inexpensive satellite based navigation receivers or emergency beacons, or just browse through an extensive selection of communications related books. The PowerHouse is also the place to go if you simply need a component to finish that weekend project, to buy tools, or just to while away a few hours while checking out our in-store technical books, library CD-ROMs, or our dedicated customer use Internet terminals. With over 20,000 product lines in the electrical, computer, and communications areas, our new PowerHouse stores get the wavelength right!

To find your closest PowerHouse store, phone 1300 366 644.

2266DPSspot col.

DON'T MISS THE ACTION!

Uniden 245XLT Trunk-Tracker™ Scanner

Now you too can follow the activity on the "trunked" radio networks used by many Government, business, and emergency services organisations. The new Uniden 245XLT Trunk-Tracker is a specially designed scanner that can read the control channel data on a number of trunked radio systems, allowing the receiver to follow specific users, or groups of users, as their transmissions automatically change frequency through a trunked network. Compatible with many Motorola and EDACS analogue trunking systems, the 245XLT is also supplied with a PC interface cable for use with third-party software. The 245XLT covers 66-88, 108-174, 406-512, and 806-956MHz and provides 300 memories in 10 banks for storing favourite frequencies, 5 pre-programmed Search-bands, Multi-Track scanning that allows you to scan a mix of conventional and trunked systems, and 10 Priority channels (one per memory bank). Super-fast Scanning and Search facilities are also provided (Scan at 100 channels per second for non-trunked services, and Search at either 100 or 300 steps per second), as well as battery-free memory back-up, Data skip to limit reception of data transmissions, an Attenuator to reduce overload from very strong signals, and a Battery Save facility to extend battery life. Each 245XLT is supplied with a NiCad battery pack, AC charger, flexible antenna, PC interface cable, and detailed instructions.

D 2735

Uniden **$499** SAVE $30

Yaesu VR-500 Multi-mode Scanner

The new VR-500 is more than just a scanning receiver, it's more like a miniature high performance monitoring station! Providing almost continuous coverage of the 100kHz to 1300MHz range, the VR-500 includes reception of narrowband FM, wideband FM (for FM and TV broadcast audio), SSB (for Amateur, CB, and HF reception), CW, and AM (for shortwave and broadcast station) signals. A large backlit LCD screen not only displays the receiver operating frequency, but also displays channel steps and reception mode. For monitoring band activity above and below your current listening frequency, the VR-500 even provides a 60 channel Bandscope to display local activity (within a range of 6MHz max when used with 100kHz steps). A total of 1091 memory channels are provided, with 1000 of these being "regular" memories with alpha-numeric tagging, and the balance being for special features (such as Search band memories, Preset channel memories, Dual Watch memories, and a Priority memory channel). A Smart Search™ function, which sweeps a band and finds in-use channels, allows you to allocate up to 41 memories that can automatically note these active frequencies. The VR-500 operates from just 2 x "AA" size alkaline batteries, and can be connected to an external 12V DC source (such as a vehicle cigarette lighter) using the optional E-DC-3 adaptor. For easier operation, the VR-500 can also be connected to your PC using the optional ADMS-3 interface/software package.

D 2799

YAESU **$699**

Yaesu FT-90R 2m/70cm micro mobile

Another engineering breakthrough from Yaesu – a tiny-dual band mobile rig with high power output, a remoteable front panel, and a rugged receiver front-end. The FT-90R provides 50W RF output on the 2m band as well as 35W output on the 70cm band, a solid die-cast casing with microprocessor controlled cooling fan for reliable operation, and a large back-lit LCD screen, all in a package measuring just 100mm x 30mm x 138mm.

Also includes:

- Wide dynamic range receiver for greatly reduced pager breakthrough.
- Huge receiver coverage – 100-230, 300-530, 810-999.975MHz (Cellular blocked).
- 180 memories and a variety of scanning functions.
- Built-in CTCSS encode/decode, battery voltage metering.
- Designed for 1200 and 9600 baud packet operation.
- Tiny remoteable front panel (requires optional YSK-90 separation kit)
- Includes MH-42 hand mic, DC power lead, and easy to follow instructions.

D 3312

AMAZING VALUE!

YAESU **$599**

SAVE $100

2 YEAR WARRANTY

YSK-90 Front Panel Separation Kit **$144**

D 3317

PHONE FAX AND MAIL ORDERS

direct link

PHONE: Within Australia: 1300 366 644 (Local call charge)

FAX: (02) 9395 1155 within Australia and (+612) 9395 1155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 160, PO Box 321, North Ryde NSW 1670 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected stores only. Other stores can place orders on a deposit-paid basis. Offers expire 31/3/2001. All prices shown are inclusive of GST.

2266DPSspotcol.

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK2 Division News South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.30 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Colin Gladstone	VK4ACG
Secretary	David Jones	VK4OF
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*

President	Jim McLachlan	VK5NB
Secretary	David Minchin	VK5KK
Treasurer	John Butler	VK5NX

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.iinet.net.au/~vk6wia/*
e-mail: *vk6wia@iinet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.30pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday of the month at 8.00pm. Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $56.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Calaby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $69.00 Pensioner or student $59.00. Without *Amateur Radio* $38.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $88.00 Pensioner or student $75.00. Without *Amateur Radio* $55.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

VK4 Notes - Qnews

By Alistair Elrick VK4MV

The visit by the Gladstone Club to Tannum Sands early in November was such a "hit" with the members, that the club has decided to make it a regular event on the VK4 Amateur scene. The first weekend in November will henceforth be known as "The Tannum Sands Ham Get-together". So watch out for this new event if you are living in this area or visiting around that time of the year.

So while speaking of events in the North. We have advance warning of the regular events from further north, by the Townsville Club the TARC Inc. The very popular Far North Queensland Amateur Radio Get-Together or FNNQARGG! (Funny name - must be something in the water up there!) This will be held from Friday PM June 9th to Monday AM June 11th 2001 inclusive. All this to be conducted at the Beachcomber Coconut Village, South Mission Beach.

Also the Bi-annual "biggie", which is the North Queensland Amateur Radio Convention. This will be, as was the 1999 event, at the University Hall, James Cook University, plus other venues in Townsville. The date is the weekend of September 21st to 23rd, 2001. From the Friday night welcome with nibbles and drinks to the 'formal' dinner and talent search on Saturday night, then the monster auction on Sunday, this is one not to be missed. An all-inclusive registration for the weekend will cover entry to the event for the weekend with several meals provided. More details to follow closer to the event date.

The report from the WIAQ General Meeting that was held in Rockhampton has been extremely positive. Some 30 attendees were able to witness the workings of their Divisional Council first hand and take direct part in the proceedings. A very sociable weekend brought the faces of the Council to the members and visitors. Many thanks go to the Rockhampton Rugby Leagues Club for the facilities and the dining venue, plus the RADARS Club and Clive Sait VK4ACC for the hospitality and organisation of the weekend.

The final part of the Business Meeting at Rockhampton was an address on LIPD's and their impact on the Amateur Radio Service. This address was delivered by Jack Chomley, VK4JRC, who had just returned from the world LIPD conference at Birmingham in England. Jack is a serious participant in the industry, with international and national contracts throughout the Asia Pacific region. He certainly knows his subject and commented that the general thrust of the WIA's focus as it is now being developed is in fact the correct course. That is, to learn to live with them, because commercial forces will not want a band that is full of class licensed LIPD's. There is more to come on this subject, and a few Amateurs including IARU Liaison Officer Grant VK5ZWI, Nev VK4TX and Ken VK4KWM are currently developing a proposal for the Federal WIA in concert with the Federal TAC chairman, John Martin. Jack went on to demonstrate several LIPD's in a room full of amateurs, many of whom had 70-cm handhelds with them. No one suffered any interference, and while there will no doubt be complications, the ACA has offered to facilitate a reworking of our band plan to accommodate these changes.

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

One of our inveterate DXers, Michael Jenkins (VK1MJ), was the guest speaker at the General Meeting of the WIA-ACT Division on January 22, 2001. The theme of Mike's speech was Phase-Shift-Keying 31 (PSK 31). This new mode of communication on the HF bands is making a similar impact as Single Side Band (SSB) did in the early fifties. Mike said that: crowded bands in the USA and Europe called for narrow bandwidth signals of which several could fit within a three kHz slot. He added that almost all radio amateurs had the use of a computer in the hamshack which could easily be hooked up to the transceiver, and, when loaded with communications software, allowed keyboard type communications with other equally equipped rigs. Mike used block diagrams on a white-board to explain the signal flow to and from the setup. As it is only recently that computers can be fitted with a soundcard, an opportunity presented itself to communications designers to use digitisation and processing power to modulate and demodulate RF signals passing through the transceiver of an extremely narrow bandwidth. This bandwidth is 31 hertz. Some of the PSK 31 details he quoted were surprising and impressive. He said that PSK 31 started in about 1999, has a 100% duty mode, uses Upper Side Band (USB), and a maximum RF output power of 40 watts. Use is made of the Simplex mode that benefits from a very high Signal-to-Noise ratio. However, the mode is affected by Doppler shifts due to magnetic disturbances, and multipath propagation on long paths. Old-fashioned transceivers can be used for PSK 31, as no ALC is used, no compression, and no DSP. Frequencies in use are: 3.580, 7.035 or 7.070, 14.070, 21.070, 24.970, 28.120 MHz. One of the attractive features of PSK 31 is the spectrum analyser type display on the

computer screen. This shows a Niagara Falls type of waterfall in colour, with frequency on the X-axis and time on the Y-axis. Because of the narrow bandwidth occupied by individual signals, several vertical lines representing them can be seen at once on a three kHz-wide display. Although Mike did not demonstrate a life performance of this new mode, he quoted several sources of information regarding setups, such as how to connect everything, where to get the software, what frequencies are in use, and other modes which are similar to PSK31 but use different software and protocols. Mike referred to issues of Amateur Radio (AR) in which the new mode is described in more detail. These are: QEX July/August 1999 page 3, AR March 2000, page 36, and May issues of 2000, and January 2001. A Website is also available at: www.buckcommco.com for how to make connections to your favourite transceiver.

On a different note: For those of us who had their Certificates of Proficiency issued before 1 September 2000, and, want to apply for a local callsign in a foreign CEPT country, your AOCP or Novice Certificate must now be endorsed with HAREC to enable you to apply for a callsign in a foreign country. Submit your Certificate, a passport photo in colour, plus $32 to your local ACA area office. Once endorsed, your certificate is recognised by the authorities in the CEPT country of your choice, and a callsign is issued as per local custom. HAREC (Harmonised Amateur Radio Examination Certificate). For more details go to: http://www.aca.gov.au/publications/info/aocp.htm

Flash-Flash: Our Federal Councillor (FC), Glenn Dunstan, has resigned from his position. Glenn and his family are moving to Cairns, Queensland for work related activities. Our new FC is Gilbert Hughes (VK1GH), who accepted the nomination on 12 February, 2001.

The next General Meeting will be held on 26 March 2001, in Room 1, Griffin Centre, Civic, Canberra City, at 8.00 pm.

VK2 Notes

By Pat Leeper VK2JPA

Firstly, a reminder about the Annual General Meeting to be held on Saturday 21 April 2001, at Amateur Radio House 109 Wigram Street Parramatta, commencing at 11.00 am.

This is your chance to have a say in the running of this Division. New blood is needed on the Council to pursue aims to the betterment of Amateur radio - to protect our frequencies, and draw younger people to the hobby. The old guard is fading fast, it's time for the new generation to take a hand.

Remember to make your ballot count, by reading the instructions carefully and marking your choices for nine councillors.

John Turner VK2WRT was elected to take over the vacant place on Council that occurred when Michael Corbin VK2YC resigned. A big welcome to John who is a willing worker, already taking part in the running of the divisional office.

By the time you read this, the AX2GAMES QSL cards will have been processed and mailed. They were received at the office early in February and handed over to our Special Projects Officer Stephen Pall VK2PS. It is a folded card with lots of information about Sydney, etc.

VK2 has a new webmaster in Geoff McGrorey-Clark VK2EO. Richard Murnane VK2SKY, who set up the web page some years back has resigned and has our thanks for the great job he did for the Council.

That's it for this month - see you next time.

VK7 Notes

"QRM"

As is the case around Australia February is the month for the infamous Annual Meetings and as at the 10th day when this report should be in two of our W.I.A. branches the Southern and Northwestern, have had theirs.

In the South, for the ensuing year we have as the main officers: -

President – Scott, VK7HSE
Secretary — Dale, VK7DG
Treasurer — Richard VK7RO
Broadcast Officer – Mike, VK7FB.

In the Northwest these places are filled by: -

President – Bob , VK7MGW
Secretary – Ron, VK7RN
Treasurer — Terry, VK7ZTI

And as Education Officer – Tony, VK7AX

This year, in the Northwest, we hope to have a lot of work for our education officer - we are making a big push into every Rotary, Lions, Soroptomist, Seniors and any other club to interest people to join classes and come into our hobby as the ideal hobby for the older person, bearing in mind this could bring in a lot of people with executive experience. Wish us success – we'll be really trying.

"Rally Tasmania 2001" – it's 21st year, was on the 17th – 18th. February in the Northwest and 21 operators from all three branches joined to do the communications. all very ably organized by Phil, VK7PU. Due to the mountainous terrain three remote split frequency repeaters were used from high level sites and covered the area well. Tasmania is not an easy place to work this sort of communications. The organizers are lavish in their praise for the efficiency of our W.I.A. This year official CAMS observers from the island up north were present.

Cheers for now Ron, VK7RN

Contests

Contest Calendar March – May 2001

Mar	—	ARRL DX Contest	(SSB)	
Mar	10/11	RSGB Commonwealth Contest	(CW)	
Mar	10/11	World-Wide Locator Contest	(CW/SSB)	
Mar	17/18	John Moyle Field Day Contest	(All modes)	(Feb 01)
Mar	17/18	Russian DX Contest	(CW/SSB)	
Mar	17/18	Bermuda WW Contest	(CW/SSB)	
Mar	17/18	DARC HF SSTV Contest		
Mar	24/25	CQ WW WPX Contest	(SSB)	
Apr	7/8	SP DX Contest	(CW/SSB)	
Apr	7/8	EA RTTY Contest		
Apr	7/8	King of Spain Contest	(CW/SSB)	
Apr	13-15	Japan Int. DX Contest 20-10 m	(CW)	(Mar 01)
Apr	14	Holyland DX Contest	(CW/SSB)	(Mar 01)
Apr	21/22	YU DX Contest	(CW/SSB)	
Apr	25	Harry Angel Sprint	(CW/SSB)	
Apr	28/29	SP DX RTTY Contest		(Mar 01)
Apr	28/29	Helvetia DX Contest	(CW/SSB)	(Mar 01)
May	5	VK/Trans-Tasman 80m Contest	(CW/SSB)	
May	5/6	Ten-Ten Intl. Spring QSO Party	(CW/RTTY)	
May	5/6	ARI Intl. DX Contest	(CW/SSB/RTTY)	
May	12/13	VOLTA WW RTTY Contest		
May	12/13	CQ-M Intl. DX Contest	(CW/SSB/SSTV)	
May	26/27	Anatolian RTTY WW Contest		
May	26/27	CQ WW WPX Contest	(CW)	

The following has been received from Bruce Renn VK3JWZ Please make this new event widely known and support it with your participation.

A new 80m Contest:

The inaugural "VK/trans-Tasman Contest" will be run on 80 metres, on the 1st SAT in May.

The inspiration for this Contest came from the NZ Memorial Contest, which is held in July, on 80m. It runs for 6 hours, in 1 hour stages, and has a points system based on call-areas worked. It is long enough to be interesting, without being arduous, and provides constant activity with stations being reworked each hour.

The intention with the VK/trans-Tasman Contest is to have a similar 6 hour duration that will not impinge too much on family life or sleeping time. The main emphasis will be on contacts made between VK and ZL stations, with the scoring structured to give all stations an equal chance, regardless of their geographical location.

Bonus points can also be earned each hour, and they are awarded so as to encourage trans-Tasman contacts and participation by VK5s/8s and VK6s.

Phone and CW Categories will be catered for, as well as separate Categories to encourage QRP and Mobile operators.

An engraved trophy will be awarded to the outright winner, with certificates for winners and placegetters in the other Categories.

This Contest is not a sprint or a marathon. It will provide 6 hours of non-stop evening entertainment, in which no station should be advantaged by location or equipment.

So, make a note of the details, and give it a go!

The only thing we ask is that you take the time to submit your log (even if you don't think you will win). This is essential to make it all worthwhile, and to ensure the on-going success of the Contest.

Rules will be published in the WIA and NZART magazines, and are available on the Contest website, <http://home.iprimus.com.au/vktasman > - that is: http://home.iprimus.com.au/vktasman

Queries and comment can be emailed to the Contest Manager on: vktasman@hotmail.com .

Japan International DX Contest 2001

LF CW: 2200z 12 Jan - 2200z 14 Jan 2001
HF CW: 2300z 13 Apr - 2300z 15 Apr 2001
PHONE: 2300z 9 Nov - 2300z 11 Nov 2001

Object is to work as many JA stations + JD1 islands as possible.

Bands: LF CW 160/80/40; HF CW 20/15/10; Phone 80 - 10 (no WARC).

Categories: Single operator single/multi-band high power (more than 100W o/p); single operator single/multi-band low power (less than 100W o/p); multi-operator; maritime mobile.

General: Operate for maximum of 30 hours only and show rest periods in log; single op must perform all tasks himself; multi-op must remain on band for at least 10 minutes and during this time multi-op may transmit on another band only if new station is multiplier; ops may use spotting networks.

Exchange: RST plus CQ Zone number. JAs will send RST plus Prefecture number (01 - 50).

Score on 160m four points; 80m two points; 40/20/15m one point; 10m two points.

Multiplier is total JA prefectures + JD1 islands worked (possible 50 per band).

Final Score: multiply total points by total multipliers.

Logs (one per callsign) must show times in UTC; exchanges; multiplier first time worked; duplicate QSOs shown as no points; rest periods clearly marked; use separate sheet for each band.

Send Logs and summary sheet to: JIDX Contest, c/o Five-Nine Magazine, PO Box 59, Kamata, Tokyo 144, Japan, by 28 Feb, 31 May or 31 Dec. Logs may be submitted on 3.5 inch disk in ASCII with summary sheet, or by e-mail. For instructions send e-mail to <jidx-info@ne.nal.go.jp> with command #get jidxlog.eng or #get jidxlog.jpn

Holyland DX Contest

1800z Sat - 1800z Sun, 14/15 April

Object is to work as many Israeli stations as possible.

Bands: 160 - 10 m (no WARC).

Categories: single and multi-operator multi-bands; SWL.

Send RS(T) plus serial number. Israeli stations will send RS(T) plus area code. The same stations may be contacted on both CW and SSB on each band.

Score two points per QSO on 160/80/40 and one point on 20/15/10.

Final score is total points X total areas, with areas counted separately for each band. SWLs should report Israeli stations only, and include time, callsign, station worked, RS(T) plus area code and points.

Send summary sheet and separate logs for each band, postmarked by 27 May 2001 to: Contest Manager, Israel Amateur Radio Club, Box 17600, Tel Aviv, Israel 61176.

Helvetia DX Contest

1300z Sat - 1300z Sun, 28/29 April

Work only Swiss stations, CW on 160 - 10 m and SSB on 80 - 10 m (no WARC). Each station may be worked only once per band regardless of mode.

Score three points per QSO.

Multiplier is total number of Swiss cantons worked (max 26 per band).

Send log to be received by 15 June to: Niklaus Zinsstag HB9DDZ, Salmendorfli 568, CH-4338 Rheinsulz, Switzerland.

Cantons are: AG AI AR BE BL BS FR GE GL GR JU LU NE NW OW SG SH SO SZ TG TI UR VD VS ZG ZH.

SP DX RTTY Contest

1200z Sat - 1200z Sun, 28/29 April

Categories: single operator all bands; multi-operator all bands; SWL.

Use Baudot mode on **bands** 80 - 10 m (no WARC).

Call CQ SP RVG TEST.

Exchange RST plus serial number.

Score two points per QSO with own country, five points with other countries in same continent and ten points with other continents.

Multipliers are the sum of DXCC countries and Polish provinces (max 49).

Send logs postmarked by 23 May to: SPDX RTTY Contest Manager, Box 253, 81-963 Gdynia 1, Poland.

ar

How You Can Make The WIA Work For *You*

Much has been said of our loss of a considerably portion of our bands and how the WIA should be doing this or that.

It is all very well to lobby the President (I assume of the WIA federal) and also the ACA liaison committee. The fact of the matter is that these people already know that any loss of amateur frequencies is unwelcome. Their ability to be able to do something about it rests on a number of things. By far the most powerful argument that people representing amateurs gan give to government is the fact that they represent "X" number of amateurs.

At the moment about 25% of amateurs are WIA members.

If the ACA liaison or the WIA President could demonstrate the support of 75% of amateurs then their power is treble.

There is no talent that can substitute for the numbers. The "push" you need comes from the number of amateurs represented.

Joining your local WIA division is the best push you can give.

(VK4 Federal Councillor (Alt.) VK4EHT Bruce).

How much do you know about the WIA?

Test yourself with the WIA QUIZ next month. You may be surprised!

ACARS

Aircraft Communications And Reporting System

Steve Blanche, VK2KFJ,
vk2kfj@qsl.net

This is a system for reporting information from aircraft, both when on the ground and whilst flying, I heard about this system from amateurs using it for VHF propagation studies and general SWL activities.

In Australia and New Zealand this is done on 131.550 MHz, and with the right decoder software, you can monitor this frequency with just a simple scanning receiver and track aircraft movements, using your personal computer, to display the information decoded. ACARS has been discussed in magazines before, so I will not go into details, but thought for those with access to the internet, that they can easily download some ACARS decoder software from the web and try it themselves. Some sites recently found are listed below:

This site just shows real time ACARS messages being received on 131.450 MHz over Thailand, a good example of what the decoded messages look like.
http://sky.air.com.hk/acars/

This site has decoding software for ACARS (and other digital modes) that runs on a Apple Macintosh computer.
http://www.blackcatsystems.com/software/multimode.html

This web page lists some information about the use and frequencies for HF ACARS.
http://www.blackcatsystems.com/radio/hfACARS.html

This site is provided by Bob Bruninga, WB4APR, who is also known for his APRS activities. This page shows a real time map over the USA, listing aircraft and their positions, based on APRS and ACARS information.
http://web.usna.navy.mil/~bruninga/acar.html

This site provides some software for decoding ACARS, the software runs on a DOS or Windows based PC, using a sound card, called the Kracars Freeware ACARS decoder, presently version 1.2, the downloadable file is krcrs12.zip and it is approximately 33 kbytes.
http://www.tardis.ed.ac.uk/~kr/kracars/index.html

This is another ACARS decoder software, for a Windows based PC, using a sound card, presently version 0.7, the downloadable file is wacars07.zip and is approximately 359 kbytes. Now this software can go as far as providing real time maps of aircraft movements, unfortunately, the mapping information really only covers UK and Europe, however, I expect as more people become involved in this form of SWL activity, that people will create the mapping information for this part of the world.
http://www.geocities.com/CapeCanaveral/Cockpit/9870/wacars/intro.html

This site is another good source of practical information and links to download sites
http://members.tripod.co.uk/blackcat001/acars.html

Another site for learning about ACARS is on the ACARS-Link web site, which has FAQ's and email contact addresses to ask questions, links to other ACARS sites, a good place for the beginner. It has regular news reports of the latest in ACARS activities.
http://patriot.net/~acars/index.htm

The AirNav web site, these people provide a commercial software package and are heavily involved with all aspects of ACARS and aircraft monitoring, reading around, I think these people, or some of them are amateur radio operators, who have probably started this as a hobby and went commercial with it. Again this site appears to be UK based and oriented at UK and Europe, but worth browsing the site and if you are really keen at monitoring ACARS, I would expect you would probably buy a copy of this software. In fact these packages also allow to extract data from over the internet, so you can track aircraft worldwide, without a scanning receiver.
http://www.airnavsystems.com/

As for me, I have not used any of these ACARS decoders yet, so I can not comment on how to install or use them, I have so far only gone looking for this decoder software for a friend who enjoys monitoring aircraft. I thought this might be useful information for some of you, as I was quite impressed with what I found.

73's and have fun., Steve Blanche, VK2KFJ, vk2kfj@qsl.net

Beyond Our Shores

David Pilley VK2AYD
Davpil@midcoast.com.au

My second attempt! I hope members found last month's of interest. Please feel free to e-mail me if you have any information concerning an overseas Society or Amateur Radio Club that would interest our members. The following is a review of some of the happenings during the month of February that were obtained from other Society journals.

Free Licences

The Radiocommunications Agency in the U.K. says that Amateur Radio Licence applications received on or after 1 April will be issued *free of charge* to any person aged 75 or over at the time of issue, or renewal. (ACA please note)

RSGB New Direction

The RSGB is undergoing new development formation with the creation of new Regional Managers throughout the U.K. Twelve managers have been appointed to provide members with local access to their Committee and to promote the RSGB in their local area through visiting clubs.

Earthquake in India

When the big earthquake struck the State of Gujarat in western India in January, amateurs from ARSI and from the National Institute of Amateur Radio were quickly on the scene providing communication support and information on victims, etc. VU2DVO reported amateurs were working round the clock as the telephone service was down. Traffic was handled on both 40 and 20 metres as well as VHF. (We had a similar disaster here in north N.S.W. where the floods caused havoc and power was out. Local amateurs came to the rescue).

Promotional Movie

NZART advise an Amateur Radio promotional movie has been developed by Fred Johnson, ZL2AMJ. Details can be found on their Internet web site. http://www.nzart.org.nz/nzart/promo/promoting/promoting.html

Field Days

The NZART held their Field Day in February. We held ours in March. Wouldn't it be great if they could all be co-ordinated around the world for 2 days of the year? One Field Day for the Northern Hemisphere during their summer and one for the south during our summer.

Morse Test Speed Reduced

And you thought we were the last country to reduce our speed to 5 wpm! Germany claim to be the last to lower their Morse code test speed for a HF licence coming into effect from 22 December 2000.

Birthdays

Both New Zealand NZART and the Austrian radio society, OEVSV will be celebrating their 75th anniversary this year. Austrian amateurs have been given special permission to use the special prefix OE75 during the year 2001.

QTI

QTI, the audiocassette magazine for blind radio enthusiasts, is back in production in the U.K. QTI stands for "Quotations of Technical Interest". The cassettes include readings from a wide range of scientific, technological, engineering, computer and radio publications. Information can be obtained from Alan Lovegreen, GM4FLX, 16 Grahams Ave., Lochwinnoch PA12 4EG, Scotland or by email alangm4flx@aol.com

CQ Hall of Fame

CQ has announced the establishment of the "CQ Amateur Radio Hall of Fame." The new hall of honour joins the "DX Hall of Fame" and "CQ Contest Hall of Fame." CQ say the dual goals of the new programme are to recognise individuals who have made significant contributions and to focus public attention on the far-reaching and long standing value of Amateur Radio to society.

Big Brother Project

The President of the ARRL, Jim Haynie, W5JBP, had advised that his project, which will be known at "The ARRL Amateur Radio Education Project" is now off the ground. Jim says "The goal is to improve the quality of education for kids by providing educationally valid techniques involving Amateur Radio for teaching all sorts of subjects – science, geography, languages, speech, etc.". This project is aimed at providing a turnkey Amateur Radio curriculum at the middle school level plus resources and equipment to bring it to life for youngsters. It was also reported in "QST" that "FAR" (Foundation for Amateur Radio Inc.), a non- profit organisation, plan to administer 67 scholarships for the year 2001-2002. The awards range from $US500 to $US2500. What do we do in Australia?

Non Society Members

David Sumner, K1TZ, who is the Executive Vice President and Secretary of the ARRL, writes some extremely sound editorials each month in "QST". In the February issue of "QST" he made an interesting comment about Amateurs who were not members of the Society and I quote. "Alas, writing QST editorials is a bit like preaching to the choir: the ones most in need of the message aren't there to hear it. ARRL members shoulder the entire burden of representing Amateur Radio in the United States, but share their operating privileges with all licencees, members or not". This could of course be our very own Society. Membership of our Society is so important to the future of Amateur Radio.

Comoros

Over the past few months both the RSGB and ARRL have been giving a lot of publicity to the big DXpedition that operated from the Cosmos Islands with the call sign D68C. Where is Comoros? It's a group of islands located in the North Mozambique Channel between Mozambique and Madagascar. A multinational group of Amateurs from

Europe, North and South America, Russia and Japan came together to make this expedition possible. Over 3.5 tones of equipment that included 10 transceivers, 9 amplifiers, 4 km of co-ax, 9 beams and 11 laptops were shipped in a container. Hopefully you were able to enjoy a short "59" or "599" QSO with D68C. QSL to G3SWH via the RSGB QSL Bureau.

A Trip Around the World

76 year old David Clark, KB6ATM, made an attempt to be the oldest person to sail solo around the world. Unfortunately vessel, the 44ft "Mollie Milar" sank two days out of Cape Town, South Africa. He started the attempt in late 1999 and kept in touch with his family via ham radio. When David became aware he was in trouble he used his ham radio to call for help. This was picked up in Cape Town and relayed to maritime rescue authorities. David was rescued by a container ship that was in the area where he sank. It is understood he is returning to Cape Town to continue his objective. We wish him well.

ar

AR Awards

John Kelleher VK3DP, Federal Awards Officer
4 Brock Crescent, Box Hill South Vic 3128, (03) 9889 8393

There is gathering speculation as to the continued viability of QSLs and measures in obtaining them. The most used methods are via the QSL bureaus, the QSL managers, or direct to the operator of the station worked. These have come under attack from a number of organizations, chiefly in regard to the postal rates for the legal exchange of QSL cards.

Looking through the Web information, (sent to me by David VK3EW), I find a growing number of organizations clearly stating that 'one green stamp' is not enough to exchange for return airmail. Because of this, we become subject to a long wait through the bureaus or by surface mail. This is also reflected in the processing of awards, where postal rates have literally 'gone through the roof'.

The ARL have introduced a " 17 metre single band award" which began on Jan 2 2001. Further information can be obtained at dxcc@arl.org

RUSSIA : The CIS Award.

The Radio Amateur's Diploma of the Commonwealth of Independent States is sponsored by the "Funkner DX Family" Amateur Radio Club (RZ3DZZ), and is available to all licensed amateurs and SWLs for contacting/hearing 12 stations located in the 12 CIS countries. QSL cards NOT required.

The 12 CIS countries are : 4K – Azerbaijan, 4L – Georgia, EK – Armenia, ER – Moldova, EU – Belarus, EX – Kirghizstan, EY – Tajikistan, EZ – Turkmenistan, UK – Uzbekistan, UN – Kazakhistan, UR – Ukraine, and R – Russia.

No dates or fees were mentioned as of this date. The address for the Funkner DX Family is : PO Box 50, Moscow 109439, Russia.

The long-awaited information on VK0MM has arived. QSL is now via Alan VK4AAR

Check with Alan on vk0mm@yahoo.com if there is any doubt as to your entry in the log.

In a recent survey, the DXCC "Top Ten" were :-

1. P5
2. VU4
3. BS7
4. 3Y – Bouvet
5. VU7
6. KH5K
7. YA
8. VP8 _ S.Sand
9. 3Y – P1
10. 7O

Pratas Island (BQ9P) will be active again between 6 aand 15 March, on CW & SSB. QSL via either BV4YB, BV4FH or JI6KVR.

Easter Island (3G0Y) can be contacted between 4 and 19 March.

Kaliningrad : In a short note, Victor , UA2FM, says that some obscure persons in the mail service absolutely love "green stamps", and may possibly destroy your letters and card requests in the process. Also, addresses of amateur stations must contain the name of the operator, so requests for cards for Victor UA2FM must go to :-

Victor Loginov at PO Box 73, Kaliningrad 236000 Russia.

Requests for RK2FWA and RW2F go via DK4VW.

New Zealand : The IARU Region 3 Award.

Contact stations in member countries after 5 Apr 82. The basic award requires 7 countries and Silver Star and Gold Star endorsements are available for 15 and 20 respectively.

Eligible countries list : Australia, Brunei, Bangladesh, China (PRC) Fiji, French Polynesia (only FO8 stations) Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Pakistan, Papua New Guinea, Philippines, Singapore, Solomon Isls, Sri Lanka, Thailand, Tonga, and Vanuatu. Plus 1 credit from US Teritories in the Pacific, from Guam, Northern Marianas, American Samoa, Wake Island, Baker Howland Group, as represented by ARL.

1 country credit from Pitcairn Island, or Chagos, represented by RSGB.

General requirements: GCR list accepted under usual conditions. Fees for DX applicants is US$2.00 . For overseas airmail add US$1.00. Send all applications to

NZART Awards Manager, ZL3GX
P.O. Box 1733
Christchurch 8015
New Zealand.

Yugoslavia : Worked All Yugoslavia Award.

Contact all call areas in the Federal Republic of Yugoslavia since 9 May 1992. These are – YU1, YU6, YU7, YU8, YU9 and YU0. Other prefixes allocated are YT, YZ,

4N and 4O. DX applicants need 3 – YU1, 3 – YU7, 1 – YU6, and 1 – YU8. SRJ Headquarters station YU0, may substitute for any one missing contact. All bands and modes. GCR list and fee of 10 Irc's to :-

Savez Radio-Amatera Jugoslavia
Awards Manager, YU1KO
P.O. Box 48
YU-11001 Beograd, Yugoslavia.

Best Regards es 73 de John, VK3DP.

ar

AMSAT

Bill Magnusson VK3JT

AO-40 Recovery Update

To quote from the AMSAT-DL web site:

"AO-40 is curently like a ship on a sandbank at low-tide and in the fog. In the fog because of the high solar-angle (maximum of 77 degrees) where the onboard sun sensor(s) temporarily cannot see. At low-tide because the increasing solar-angle leads to less illumination (minimum of 23 percent), thus less energy is produced. AO-40 is stuck on a sandbank because the satellite cannot be maneuvered out of this situation very easily. The 'de-spinning' software routine may help. This program should work without sun sensor data and will use on-going measurements from the solar panels as an attitude indicator. Intensive work on this software is taking place. Even if this routine doesn't work immediately, there is no reason to panic. The 'fog and low-tide' orbit will disappear with further seasonal Sun movements around the spacecraft. By April the sensors will see the Sun again and active attitude control can be restarted. After lowering the curent spin rate, improving the Sun angle and repositioning AO-40's antennas, all further tests can be done. Command stations G3RUH and W4SM have completed a long-term prediction of AO-40's new orbit. Even after last year's accident and the resulting decrease of perigee, AO-40's orbit will be fairly stable through this period. The attitude of AO-40 is curently listed as ALON 248 and ALAT –7". AO-40 is transmitting telemetry data on "S" band but the attitude is such that signals are only strong during the period immediately after perigee, between MA – 0 and MA – 20. Spin modulation has made it difficult to capture the telemetry.

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA. 5001.
Graham's email address is:
vk5agr@amsat.org

ISS Operations.

Many operators will have been disappointed by the lack of amateur radio activity from the International Space Station since the first crew arived. There has been much speculation. Here is a recent summing-up of the situation regarding amateur radio operations on the International Space Station. It was compiled by Frank Bauer KA3HDO, Chairman of ARISS. I have left out one or two small items of concern to USA amateurs only.

Frank begins, "I have had several inquiries as to "what's up" with Amateur Radio operations on the ISS. I hope to provide you as much information as we have at this point in time. Miles Mann recently defined some of the mechanics of communicating with ISS. This represented a good run down for each of you to prepare for amateur radio operations. The following, while long, will give each of you a good understanding of where we are and where we are going with ARISS ops. I would suggest that you save this information for the future".

"Before I get into what is happening today on ISS, I would like to cycle back a few years ago. In 1996 an international group of radio amateurs got together with a common vision—to develop a single amateur radio station on ISS. In September 2000, this international team, called Amateur Radio on the International Space Station (or ARISS), realised this dream with the launch of the first complement of amateur radio hardware on ISS. I want everyone to know that this event represented the culmination of a very formidable task. If you could have seen, day to day, how difficult it was to develop and qualify hardware for ISS (remember there were no precedents before us) you would understand that this international team did something that was near impossible. Actually we blazed a trail for NASA, Energia and all the other ISS countries by being the FIRST to get our "payload" hardware qualified. During this formidable process, some areas associated with ARISS were not completed as rigorously as others. In particular, the on-board procedures for the hardware need to be improved and the U.S. team would like to better educate the U.S. crew on operations in the context of the three primary goals of ARISS ops, School Group Contacts, General QSOs and Family Contacts. Let's walk through some of the operational concerns the ARISS team have received from you:

General QSO Operations

One thing we all need to keep in mind—the crew members really define whether they want to use the equipment or not. Depending on their interest and the crew workload, various facets of the hobby will be engaged or not. My past work in SAREX made me acutely aware.

Voice Operations

There are some things we do know regarding general voice QSOs. Those that have been involved in Amateur Radio on Human Spaceflight vehicles know that Sergei, U5MIR enjoys amateur radio operation. He was extremely active on Mir and was the same on Shuttle Missions that caried amateur radio. Many of you have noticed the absence of Sergei. It is our belief that he is quite busy with the 143.625 communications. Based on what we have learned from operations over the past 2 months, the ARISS team would be surprised if this first crew will do a substantial number of general voice QSO's. Shep did not get instruction on general QSO operations from the US team and discussions with him have recently led us to believe that he wants to concentrate on School Group contacts and autonomous packet radio operations.

Packet Operations

I made an announcement a couple of weeks ago that the packet system was going to be turned on. Well, it was turned on and I am sure each of you along with my team listened intently for the packet beacon to no avail. Over the past few weeks we have been working with Shep to understand what happened. Let me explain to you what we know and the steps we are taking to get the packet operating. First, we do know that the packet was operational after launch because we heard the beacon on one of the first engineering passes over the US. Based on the discussions we have had with Shep and some of the characteristics of the ground system we think we have a handle on the problem. We have generated some in-flight maintenance procedures to help resolve and potentially corect the problem. We believe that one of two things have happened, either the ram backup battery died in the TNC or the TNC experienced a single event upset. In either case, we believe that the RAM parameters were either corupted or set to the default. We believe that the most likely scenario is a dead battery since we recently saw one of the batteries in a training unit die. If we are able to fully check out the system, this problem can be easily corected and the packet system will again be fully operational. I must remind everyone that these early stages of ISS introduce complications that we hope to not see in the later portions of the ISS operations. We are pioneering the use of the ISS hand-in-hand with NASA, Energia and the other international space agencies. As stated before, we don't have a good set of in-flight procedures on-board to recover from this problem. The ARISS team has tapped a team to work on a full set of on-board procedures for the operations of the whole ARISS system, including failure recovery procedures. This is a long term process, but will reap good dividends in the future. Also, there are too few Station Support Computers (SSCs) on ISS and there are none in the FGB where the amateur radio station resides. To do the full checkout and recovery will require the crew to disconnect one of the SSC computers from another area and use it to perform the checkout and recovery procedure. We are not sure when this will happen, probably in the next 2-3 weeks. We will keep you informed on this. We expect to fix this problem and move into autonomous packet operations soon.

School Group Contacts

As you know, we have had 3 successful school group contacts. We are rapidly converging on a program that will allow us to conduct 6 school group contacts per month. The ARISS team will provide updates on these contact times. Stay tuned.

Family Contacts

The lack of TDRSS coverage has resulted in a stronger need for the increment 1 crew to rely on the ARISS equipment to talk with their family. The ARISS team understands that this is impacting the general QSOs for now. I must tell you all how proud I am that amateur radio is playing such a big part of the psychological well being of the ISS Crew. I am certain that Shep will put in a very big plug for amateur radio when he does his post flight debriefings.

The Future

We are working with the team in Russia to train the follow-on ISS crews. The increment 2 & 3 crews have had sufficient training in Russia. We are working with the JSC team in Houston to get a bit of time with these crews to complement the great training that our Russian colleagues have given the crew. If the packet battery is dead, we will either develop an in-flight maintenance procedure to replace the battery or will swap the TNC with the flight spare. Please remember that a dead battery does not kill the packet system. We either need to keep it powered up or have an SSC on-hand to upload parameters right after power-up. We have additional equipment, such as the SSTV equipment and new antennas for the Service Module, that we hope to launch this year. (Actually the Russian team have already conducted a series of EVA training sessions in the Hyrdolab watertank in preparation for our antenna installation). We will continue to improve the hardware and operations. Just like the pioneers of the 1800's, the amateur radio community is blazing a new trail for human spaceflight. Trailblazing is not for the faint of heart. Let's all be patient and persistent. The ARISS team did just that with the hardware and we were ultimately successful. We are well respected and admired by our colleagues in the space agencies. If we continue to be patient and persistent as a team, we will all guide this program into a fantastic future with exciting opportunities for school students, the general ham community and the on-board crews".

Stellenbosch lose contact with SunSat Satellite SO-35

A statement regarding SO-35 was released by the controllers on 3rd February 2001. An extract from that statement appears below.

"We regret to announce that the last communication with SUNSAT from our ground station at the Electronic Systems Laboratory at Stellenbosch University took place on Friday, 19 January 2001 at 15:22:37 UTC. We are certain, after having performed several tests since the last contact, that an ireversible, probably physical, failure has occured on the satellite. It is therefore unlikely that we will have any further contact with SUNSAT, apart from the occasional visual sighting by telescope!

We are nevertheless very satisfied with SUNSAT's achievements in orbit during the period of nearly 2 years since launch. The programme has exceeded all its original goals, namely:

- to co-operate as OSCAR-35 with the amateur radio and amateur satellite

communities worldwide, contributing new standards in the field,

- to demonstrate high-resolution imaging not before considered possible with a satellite this size and cost,
- to stimulate challenging research and technology development at graduate student level,
- to foster valued international ties in the science and engineering community and
- to promote science, engineering and technology among the school children of South Africa.

Statistics from SUNSAT's operational life to underscore this statement:

- 696 days between launch at 10:29:55 UTC on 23 February 1999 and the last contact at 15:22:37 UTC on 19 January 2001, giving 10027 orbits, or nearly 500 million kilometers
- 51 high-resolution images captured all over the globe, in 3 spectral bands and 15 m pixel sizes on ground
- 937 command dairies uploaded in operating SUNSAT
- 241700 telecommands executed successfully
- 161144 kB of whole orbit data (WOD) downloaded
- 94868 kB of GPS-data downloaded in support of JPL
- 7052 kB of data for the star camera experiment
- 3144 kB of APRS digilogs, renewing interest in APRS via satellite
- 1656 kB of Magnetometer data
- 888 kB of international school experimental data
- Several hours of PAL videotape data of Southern Africa

It was indeed a privilege to be part of this successful post-graduate student satellite research programme! The SUNSAT management team wants to use this opportunity to thank everyone the world over for all the enthusiasm and the long extra hours they have invested in the design, building and operation of SUNSAT. The pride of having participated therein shall be treasured by all.

The statement was signed by:

Prof. Jan du Plessis and Prof. Arnold Schoonwinkel

You can find all the details of the SUNSAT mission on the web site:

http://sunsat.ee.sun.ac.za/.

ar

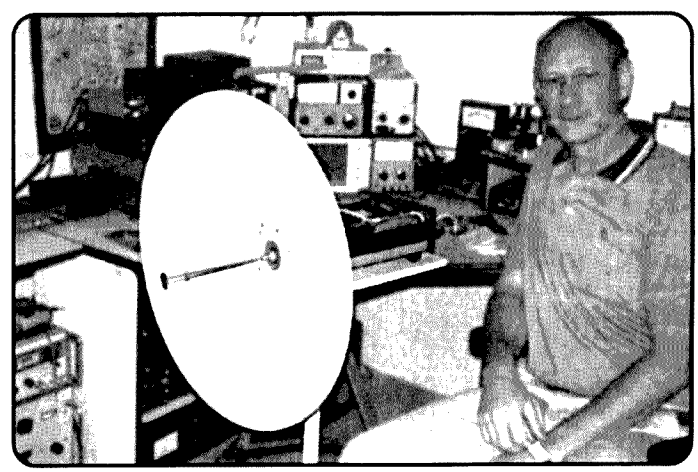
AR Cover Story

The installation of the West Australian VHF Group Inc beacons on 5.7 and 10 GHz at Wireless Hill Applecross (Perth)

5.7 GHz beacon on way up, 10 GHz beacon at top. From left: Cec Andrew VK6AO, Alan Woods VK6ZWZ and Luigi Iemi VK6YEH

These beacons are part of the Statewide network that the Group has established. Starting at the "left hand north west corner" of the State and running south to the "bottom left hand corner" and around to Esperance, this network includes beacons on 50 and 144 MHz at Exmouth (North West Cape), beacons on 50, 144, 432 and 1296 MHz in Perth, 50 and 144 MHz at Bunbury (pointed at South Africa, planned 1296 MHz and 10 GHz beacons at Busselton, 144, 432 and 1296 MHz beacons at Augusta (Cape Leeuwin) and a 144 MHz beacon at Esperance.

The Group established the first VHF beacons in Australia as part of the International Geophysical Year in 1957 to enable technical investigations of propagation and to assist amateur radio operators improve the performance of their receivers



Al Edgar VK6ZAY with record breaking 4.7 GHz gear in his shack, April 2000

DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

This month's DX Notes are a little shorter than normal. With commitments at work, to family and maintenance work on the QTH I find there is just not enough hours in the day to do all the things that have to be done. Unfortunately, DX Notes must take a place well down the list of priorities. I have had very little time available for getting on the air and working DX on the bands these past few weeks but I did find some spare time to fiddle around with PSK31 on 20 metres. Just listening on or around 14070kHz you can hear the peculiar 'warble' of PSK31. There seems to be quite a few stations on air using PSK and it seems to be rapidly gaining popularity as a reliable digital mode on HF.

I will try to spend some time on the air in the coming few weeks and do some serious DX working. Hope to hear you on the bands and in the pile-ups.

The DX

A5, Bhutan. Dimitri, RA9CO, is planning a trip to Bhutan. He plans to be active from the 15th to 21st of March as A52CO. QSL via UA9DD, P.O. Box 69, Ekaterinburg, 620073, Russia. [TNX RA9CO and The Daily DX]

C93, Mozambique. JG6BKB, JJ6VOV and JR6XIW have obtained their airline tickets for their trip to Mozambique. They plan to be on the air beginning on the 16th of March. They will use C93/ home calls on 6 - 80 metres, mainly on CW but some SSB, RTTY and PSK-31 is expected. Yuki, C93AN, may join the group if he is in the country. Equipment includes a FT-100, an IC-706 and a 2-element HB9CV antenna for the HF bands and dipole antennas will be used on the low bands. The group plans to be active until March 30 or April 4. QSL is via JG6BKB either direct to Mizuho Tanaka, P.O. Box 7, Hayato 899-5191, Kagoshima, Japan or via the JARL QSL bureau. [TNX JG6BKB and The Daily DX]

OH0, ALAND ISLANDS. The Aland Islands contest station OH0Z will be active on both modes in the ARL DX Contest as a single-op/all bands entry. Pasi, OH1MM, will operate the station on CW and Ari, OH1EH, on SSB. QSLs via OH1EH: Ari Korhonen, Kreetalank. 9 A 1, FIN29200 Harjavalta, Finland. For more info on the OH0Z station, check the Web page: http://www.qsl.net/oh0z

IOTA Activity

PJ8/FS, St Maarten, NA-105. Bob/ AA1M, Mike/W1USN and Jim/W1HL will be operating PJ8/homecall from Saint Maarten (NA-105) between the 27th of February until the 6th of March. They plan to be active on all bands from 80 – 6 metres on CW, SSB and PSK31. They also hope to do some operating mobile from the French side as FS/homecall during this time. QSL PJ8/W1HL and PJ8/AA1M via AA1M (direct or bureau), QSL PJ8/W1USN via W1USN (direct or bureau). [TNX W1USN and 425 DX News]

Special Events

3E500, PANAMA (Attention Prefix Hunters!). Cam, HP1AC, has let the OPDX that the "Radio Club de Panama" has obtained a special permit from the Panama Government Radio Dept Office so any amateur radio operator in Panama during the month of March 2001 will be able to use the special prefix 3E500 (Three Echo Five Zero Zero). This special prefix is to commemorate the 500th anniversary of the Discovery of the "Isthmus of Panama" in March 1501 by Don Rodrigo de Bastidas. An example is Cam's callsign (HP1AC); he will be using 3E500AC (Three Echo Five hundred Alfa Charlie). A special QSL will be issued to confirm all QSOs during the month of March 2001. QSL Manager will be HP1RCP, Radio Club de Panama, P.O.Box 10745, Panama 4, PANAMA. [TNX OPDX and The Daily DX]

EZ21, TURKMENISTAN (Attention Prefix Hunters!). Start looking for amateurs in this country to use the special prefix EZ21 to commemorate the new Millennium. EZ21BO was spotted on 10112 kHz around 2100Z and EZ21A around 14242 and 14266 kHz after 0230Z. [TNX OPDX]

Dxpeditions

3G0, EASTER ISLAND. Norbert, DL9NEI, informs OPDX that a joint Chilean and German DXPedition will activate Easter Island from the 4th to the 19th of March. Operations will take place on all HF bands. CW/RTTY will be the predominant modes on the lower bands and the WARC bands. The callsign to be used is 3G0Y. QSL via DK7YY. [TNX DL9NEI and OPDX]

Round up

17 Metre DXCC Award. DXCC has announced the addition of a 17 Metre Single Band DXCC award. Applications will be accepted beginning from the 2nd of January 2001. For further information, please contact DXCC at dxcc@arl.org [TNX N4AA, QRZ-DX and 425 DX News]

And while we are on awards, CQ MAGAZINE has introduced "The CQ Millennium Award". CQ magazine is offering a special operating award for the year 2001 to mark the start of the new millennium. "The CQ Millennium Award" recognizes anyone who meets the minimum requirements for any of CQ's magazines four permanent operating awards, minus the QSL cards, during calendar year 2001. Hams and short wave listeners may qualify for "The CQ Millennium Award" in one of the following four ways during the calendar year 2001,

1) Work stations in 500 U.S. counties — The basic level for the USA-CA Award
2) Work 100 countries — The basic criterion for the CQ DX Award
3) Work one station in each of the 40 CQ zones — The Worked All Zones basic qualification.
4) Work either 400 prefixes mixed-mode or 300 prefixes single mode (CW or SSB only), as required for the CQ WPX Award.

Applications should include log extracts showing the information required by the standard award rules, in the format required by the standard award rules, plus a 6 US Dollar processing fee (the fee will be 12 US Dollars for amateurs who reside outside of the USA. ADDED NOTE: There will be special recognition for those who qualify on the basis of more than one award program's requirements. Full details are published on page 15 in the January 2001, issue of CQ magazine. For a full description of the rules and forms go to the CQ website: http://www.cq-amateur-radio.com/ [TNX OPDX]

Here is one for all prospective Dxpeditioners. DX HOLIDAY WEB SITE (The Ultimate Dxpediton Resource!). The following Web site offers a starting point for people looking for a QTH for a DXpedition, Contest Expedition or IOTA Expedition! The site lists Renta-a-QTH, Ham Friendly Villas, Radio Clubs, etc. There is information on places to operate from over 100 countries, with additional DXpedition resource information on: picking your DX destination, licensing, travel documentation and money matters, health, emergency, weather issues, announcing your DXpedition, equipment packing tips and many other topics. This should be a veritable mine of information for prospective Dxpeditioners and those who would like to organise one but had no idea where to start. The website is http://pages.prodigy.net/k2kw/qthlist/ [TNX OPDX]

Sources

DX Notes are a little short this month for reasons already stated, but our kind regards go to the following for the information above. OPDX, 425 DX News, The Daily DX, N4AA. DL9NEI, W1USN, RA9CO and JG6BKB.

ar

AR **Club News**

Urunga Radio Convention April 2001

The Urunga Radio Convention will be held over the Easter weekend of 13th - 15th April. This is where it all happens for young and old new and well seasoned. Interests from LF to UHF. Packet and Internet. A full range of Amateur Radio activities and interests.

This convention was the birth place of many of the fox hunting and hiding techniques widely used today. In the early days the only equipment on two metres was home brew, mostly mod osc txs and super regen receivers. If the rx had a rf stage it assisted in isolating the super regen emission on the frequency of the fox but also made the emissions from rxs without a rf stage stronger. The trick was to be able to differenciate between receiver emissions and the hidden tx, no small feat in those early days of equipment. A far cry from the sensative and sharp equipment of today.

The top photo shows two early participants. Were they foundation members of the temperance society, just off the water wagon or what?? Also who are they. Answer in the report on Urunga Convention later this year.

Make Urunga your venue for this Easter.

73s Brian Slarke VK2ZCQ.

Foxhunting 1950

Foxhunting 2000

ARDF

VK3WWW Jack Bramham
Email: vk3www@alphalink.com.au
Phone: +61 3 9873 2459 Fax: +61 3 94281589 Mobile: +61 0408037065

International events

During 2001 there will be quite a bit of ARDF activity, mostly International events.

US Championships

Starting off the year will be the US Championships, conducted in Albuquerque New Mexico from July 1 until August 4 presently there are two, Region 2 competing societies made up from the (ARRL) American Radio Relay League and (RAC) Radio Amateurs Canada. It has been mentioned that the US Championships will probably become the Region 2 Championships. More information regarding this event can be found at: www.egroups.com/files/abqardf/web/index.html

Friendly Radio Games

Following on from the USA championships will be the first Friendly Radio Games (FRG) these games commence on August 6th through until the 10th. ARDF is only one component of this event, amateur teams from different countries try their skills in HF phone and CW contests followed by an ARDF style foxhunt. Hosting.this event is the Canadian branch of the Friendship Amateur Radio Society, more information regarding this event can be found at: www.islandnet.com/~jyoung/FRG01

Region 3 in Mongolia

Later in the year we hope to have an Australian team heading to Mongolia for the Region 3 ARDF Championships. The MRSF have agreed to hold this event but at this stage the WIA have not yet received an official invitation.

If you would like some more information regarding ARDF in Australia or would like to have a presentation at one of your club meetings, please send me some mail either QTHR or vk3www@alphalink.com.au.

ar

10th World ARDF championships in Nanjing, China, in October 2000

Opening Ceremony

Future Chinese champions

VK3TJN in China

WICEN Activation

— a recent incident

Flood Lismore January February 2001

In late January a flood situation developed over Northern NSW.

At 1807L on 1 Feb. 2001 a STANDBY request was received from the Aust. Red Cross, Lismore. The request for STANDBY was only in the event of evacuations. 12 oprs/pers reported in on a radio call around and offered their services. Several of these would not be immediately available due to flood effects on themselves.

Many minor roads cut and Summerland Way had water over but not cut. Road cuts were mostly by local rain which can fall equally quickly.

River height at Lismore 5m at 2000L, a rise of 400mm per hour. No problem.

Callout

Call out was received from Red Cross at 02 Feb 1100L.

River peaked at 10.4m 1700 L. This height persisted for some hours. Some evacuations commenced from caravan parks and isolated travellers. Evacuation Centre was set up at Southern Cross University. Major flooding of the CBD and N, S Lismore and basin areas continued. Although peaked, water was still filling basin, much lower than river.(1-2m).

We were not required for radio tasks as there were no urgent mass occurrences. We were asked to assist with Disaster Victim Registration at the Evac Centre. We only have three persons who have done the Red Cross DVR training. J. Toland VK2XKX, J. Alcorn VK2JWA, L. Martin VK2EA. They were on rostered duty at Evac Centre to 03Feb2200L. Total Time to date by all WICEN persons is 138 hrs.

Activation ceased 04 Feb 0800L.

Thanks to all who participated and all who offered to. Thanks to the SCU staff who assisted well beyond their normal duties. State WICEN responded to our SITREPS and offered all possible assistance if required. Thank you. As well as this callout a couple of members were recceing about the town reporting gauge heights and water locations back to the net. This was of assistance to us and others at the Evac Centre as the media info was very inadequate and out of date. People at the Evac Centre were very interested in this info.

A WICEN(NR) debrief was held at 1300 today. Details TBA.

NOTE: This flood height was about 2m less than 1954 or 1974.

For future events, as many members as possible are asked to do the Red Cross DVR training.

This is a one day course / exercise. This is a secondary role performed by WICEN in many regions. It is a way of making a worthwhile contribution when radio duties are not required. It does mean joining Red Cross for the huge fee of $2 per year.

Monitor radio

It cannot be emphasised too much how important it is to monitor VK2RIC when activation situations appear imminent. We are a radio organisation. It is time- and effort-wasting to need to ring around people we know to be in easy radio contact.

If it is not practical to continuously monitor, periodically call in and ask for info. Do not make your call to a specific station. It may not be there.

Procedure is that a call to a specific station is not replied to by any other station.

- There would be a monitoring station with the current info available.
- In your general call, make your request for update info. Do call several times and wait long enough for some reply.

John Alcorn, VK2JWA. LCO Lismore. WICEN (Northern Rivers)
Ph 02 66215217 jalcorn@nor.com.au

Roundabout at Magellan & Molesworth Sts, Lismore, 9.9m at 2 Feb 0930

Leith Martin VK2EA, Ian Gray VK2IGS standing, John Alcorn VK2JWA taking registrations at the Evac Centre, Southern Cross Uni.

Spotlight on SWLing

Robin L. Harwood
5 Helen Street, Newstead Tas 7250
61-3 63 44 2324 (International) (03) 63 442324 (domestic)
New FAX number 1-775-923-1855
e-mail : rharwood@iprimus.com.au

A Cat and Mouse game

One of my regular monitoring activities is to tune across the Utility allocations. On 28th January at 21.45, I heard a carrier on 8850 kHz, which is within the HF aeronautical allocation. I did not think much about it until I heard speech. It was a male talking and the modulation was well down, yet it quickly became apparent that it was not related to aeronautical communications, because some music came up, improving the audio.

I immediately thought it either could be an image on my receiver or a harmonic. Using another model with a different IF quickly dispelled that and a harmonic seemed the answer. Before I could calculate that a bubble jammer appeared on the channel almost wiping out the audio. So the signal must have been on that channel.

The signal level was barely breaking the noise threshold and rapidly fading.

However I did hear the speaker mention Iran and the language sounded very similar to Farsi so I thought it must be a clandestine because of the presence of the jammer. Initial indications from my Internet contacts seem to veer to the "Voice of the Mujahaddin" which does operate on odd channels. So I kept an ear on that channel over the next week and was surprised to find that they had moved up to 8870. As most of you would be aware, this is close to the main South Pacific aeronautical frequency and unfortunately there was considerable QRM from the Llandilo (NSW) senders and aircraft.

Switching over to USB did not help, as the level was too low. However the bubble jammer was absent, indicative of a cat and mouse frequency hopping game.

Also the times of the broadcast seemed to be irregular and programming also in slots from 10 to 15 minutes. The Choruses are very similar to what I have previously heard from Teheran on 15084 when they relayed their domestic service. Teheran is also on 9022 kHz and perhaps this explained the frequency selection. The next day the station was again on 8850 but 30 minutes earlier. It must be on a different channel each day because I could not trace it in the second week of February.

Monitors in the West may have a better chance of hearing it as propagation here in Tasmania drops off to Europe by 2200 on the lower frequencies.

I do wonder where they are located and who is backing them. I think it is not Iraq but as the sender must be low-powered, perhaps they are not using a regular transmitting location with higher power.

Usually clandestine broadcasters adhere to a fairly regular pattern and frequency choice so they can be easily found but the presence of bubble jammers makes it imperative that they shift to minimize QRM. Another clandestine monitored in the Northern Hemisphere around 2300 is supporting the Falun Gong movement which is banned in China. This also keeps jumping about in frequency to avoid jamming by broadcasting in 10 minute slots. They have been heard around 9.3 MHz or 9.9 MHz from an unknown site within the CIS.

JJY, the Japanese Time and Frequency Standard station will be permanently closing on 31st.March at either 1359 or 2359, depending on whether they are Japanese LT or UTC. They operate on 5, 10 and 15 MHz and are masked by WWV, WWVH and other Time stations but they have been on 8 MHz for quite a while and it is well heard here in our local evening hours.

There has been talk of a possible LF station to replace JJY.

Radio Australia began broadcasting from 29th January via various relay sites in SE Asia. Tinian and Saipan were added to Taiwan and Singapore.

However if you heard the Saipan relay at 0800 on 17805 in Indonesian on that date, consider yourself lucky as it turned out to be a one-off. Also if you hear Radio Australia on 15240 at 2200 UTC, it is not from Shepparton but from Taiwan!!. I have the full schedule but it is too long to include here.

The use of the Darwin relay has not yet materialized as there have been technical difficulties establishing the link between Melbourne and the site. This is rather ironic, as the site was formerly part of Radio Australia. The curent lessee, Christian Voice, has also not indicated when they intend to commence from Darwin. Apart from some initial test broadcasts at the end of last year, very little has been monitored here.

Dont forget that the next major broadcasting period commences at 0100 on the 25th of March, corresponding to the implementation of Daylight saving in Europe and the CIS. This period is known as A01. Very few broadcasters now use the first Sunday of March to alter frequencies preferring instead to make these alterations on the last Sunday in March and October.

Coincidentally we will be going off Daylight Saving also on the 25th of March, which for many of us has been unusually long this time around. Remember NSW, Victoria and Tasmania put the clock forward for the Olympics at the end of last August. The Crow-eaters changed over two months later.

Well that is all for this month. Until next time, the very best of listening and 73

Robin L. Harwood.

ar

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
VK6UU@VK6BBR
will2@iinet.net.au

Just For Fun!

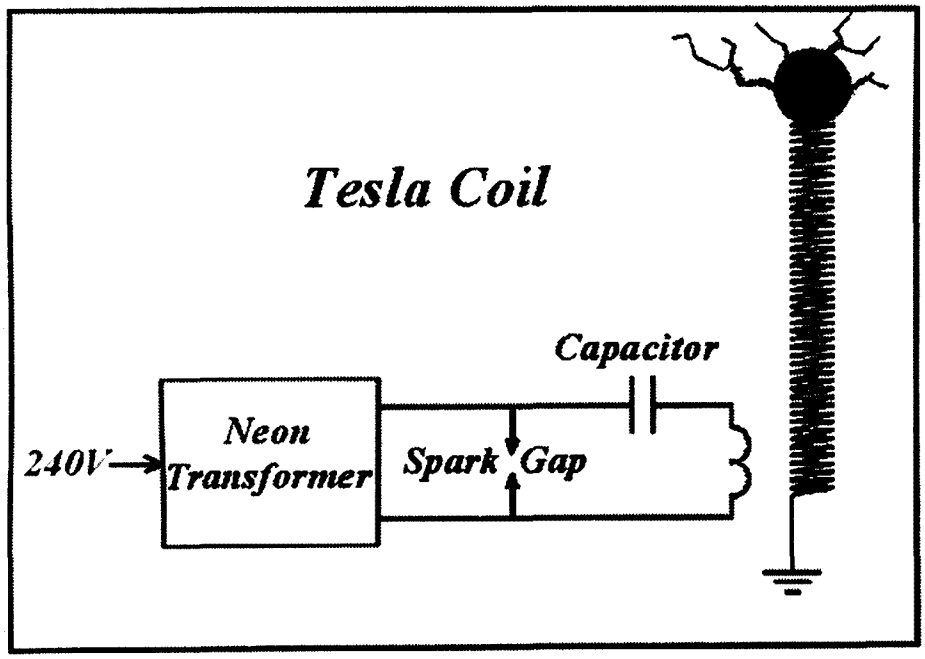
Have you ever had a project that you have been meaning to get around to it (the round tuart) for the past few years or so? One such project has been re-building a Tesla Coil. My first coil was made some 40 years ago, but due to the lack of knowledge (I was 12) and money, it never worked very well. A Tesla coil is an air cored RF step up voltage transformer. And I do mean step up. The sole purpose of a Tesla Coil is to produce very high voltages above 100,000 Volts. And what do you do with 100,000 volts plus? Just have fun with it.

The Young Experimenter

As a kid I always had a fascination with science and technology. At first it was chemistry, with a 44 gallon drum of pure hydrogen produced on site, by mixing aluminium and caustic soda (NaOH) together and using water pressure into the 44 gallon drum to blow up balloons. These balloons were set free, complete with notes to contact me if found. I never received any replies. Chemistry gave way to electricity experiments and running wires to friends places to make up a telephone system. We even began to learn Morse code way back then. Then an interest in radio and with it came Amateur Radio. One of the never quite finished experiments was a Tesla Coil. The Tesla Coil was an off chute of an Induction coil (car ignition coil) which can be used to drive the Tesla Coil. An Induction coil is what early radio transmissions used to generate a crude radio frequency wave. Several Induction coils were made in my early teenage years, but like the Tesla Coils never really produced the sort of sparks I knew could be produced. The years rolled on by and most of my high voltage coils went to the dump.

The Old Experimenter and the Internet

A few years ago I had another go at making a Tesla Coil after reading an article in an experimenters magazine. Like my earlier attempt it did not work too well and ended up in the back shed. Then came the Internet. Sitting in front of a search engine wondering what to look up, I typed in Tesla Coil. Back came thousands of references, so I started clicking on a few. What I saw left me gob smacked. People (usually American) had taken to making Tesla Coils in a big way and putting detailed information and photographs on the net. Now I had always know Tesla Coils, named after Nikola Tesla who invented them, could produce very high voltages in excess of 1 million volts. But to achieve such high voltages required considerable effort and expertise. However your "ordinary" man on the street was making Tesla Coils that produced voltages over one million volts, just like putting up a pergola on the house. These monsters varied in height from a metre (3') to 10 metres (33') in coil height and the pictures of the resulting lightning discharges of 1 (3') to 12 (40') metres in length just left me stunned. Photographs of one of these menacing looking devices parked out by the family pool and garage, throwing sparks into the pool and guttering of the garage, just could not be believed. But it was real and I just read and looked at photographs of Tesla Coil after Tesla Coil. The detailed plans and different ideas of how to make a Tesla Coil was all there on the Internet. What was more important to me was I now understood how Tesla Coils worked in terms of how to work out component values and what I had been doing wrong. Amateur radio aside I had to get back into good old fun of making something just for the shear excitement of it. The young experimenter was back with a new source of knowledge, the Internet.



What is a Tesla Coil

As I have said, a Tesla Coil is a radio frequency step up transformer. The frequency of operation is between 50kHz and 2000kHz depending on size. The

bigger the Tesla Coil the lower the frequency. The end result is the same however, very high voltages.

The operation is as follows. A high voltage capacitor of around 15nF (0.015uF) and 20kV and higher AC working voltage is charged up from a high voltage neon transformer and then connected across a few turns of wire, the Primary. Inside the primary is a secondary of between 700 and 1,000 turns. This large amount of energy from the high voltage capacitor is dumped into the primary, resulting in a very high voltage being produced in the secondary. Even basic low powered Tesla Coils poorly constructed and tuned produce 50 to 100 thousand volts. With the design working properly, a 200 watt neon transformer can produce voltages on the Tesla Coil secondary of 200,000 volts plus. This produces a very impressive and loud corona display.

So What?

So what, big sparks what next, and what is the point anyway? As I have said fun, at least for me, but what really took my interest was the diversity and detail that Tesla Coil builders had gone to. Known as coilers, these amateur experimenters, often with little knowledge of electricity, launched themselves into building very large Tesla Coils. And the resulting voltages incredible, with 1,000,000 volts being a good target. Voltages of this magnitude can jump about 2 metres, with the most mesmerizing corona discharges. Added to this is the loud crackle of the discharged, mingled with the sweet smell of Ozone and one is hooked.

Components

Without going into great detail, the components that make up a Tesla Coil do require considerable thought and this took me back to the fundamentals of electrical components. The primary driving force for a Tesla Coil is usually a Neon transformer of between 6 to 15kV. This AC voltage charges a capacitor, that once charged, discharges through a spark gap into the primary of the Tesla Coil. The charge capacitor is a fascinating adventure into basic electricity. This capacitor is subjected to between 6kV and 15kV (much higher in the really big Tesla Coils) AC in a charge discharge cycle 100 times a second. The AC voltage applied to this capacitor charges it up on the first half cycle until it discharges through a spark gap into a very low resistance coil. The next half cycle charges the capacitor in the opposite direction. To say the least a very demanding requirement for a capacitor. As a rule of thumb the capacitor should have a DC ratting of twice the applied AC, and preferably 3 times. So for a 10kV Neon transformer the capacitor should have a DC rating of 20 to 30kV, and be able to be charged and discharged 100 times a second without getting hot due to losses in the capacitor. The value of the capacitor is calculated to match the source impedance of the Neon transformer. This results in a capacitor value in the range of 50nF to 5nF for most Neon transformers. Just where do you obtain such a capacitor at a price you can afford?

Several ingenious solutions have been found to manufacturing the primary charge capacitor. The simplest is glass bottles partly filled with salt water and immersed in a bath of salt water. The two separate salt-water solutions are the plates of the capacitor and the glass bottle the dielectric. Simple but lossy, large and messy. Other home made types are aluminium foil and polyethylene sheeting (kitchen cutting board material), rolled up and immersed in oil. Difficult to make and if punctured a lot of work to rebuild. The current solution is a MMC, multi mini capacitor, made up of many seriesed capacitors. Capacitors with good dv/dt ratings (fast charge discharge low loss types) and as high a voltage rating as can be found and afforded. If one capacitor fails it is easy to replace.

Learnt

I found the research process into Tesla Coil design on the Internet fascinating. I learnt a lot about high voltage components and requirements. As an off chute, many Tesla Coil pages have links to experimenters that are on the odd and dangerous leaning. One such page showed what happens when a fully charged 30kV 10uF capacitor is discharged into a coil of 5 turns, inside of which is a coin! Apart from the coil vaporizing, the coin shrinks to about half of its size all round. It appears the crystal structure of the metal in the coin changes to a more compact form. I don't know if this really is for real but several web sites have many photographs of the process of discharging a stunning amount of energy into the coil and the resulting coin, looking wrinkled and smaller.

Voltages of this magnitude can jump about 2 metres, with the most mesmerizing corona discharges....the loud crackle of the discharged, mingled with the sweet smell of Ozone and one is hooked.

More Experiments

It is early days for my return to Tesla Coil making. Now that I understand the detail in how to make very large voltages, bigger and better coils will be the result. The existing coil stands just over a metre tall and produces corona discharges into the air of about a third of a metre. There is a real knack in optimizing the design to achieve the longest electrical discharge. For example Tesla Coils have a large (third to one metre in diameter) discharge ball on the top. The size of this metal ball effects the resonant frequency of the secondary and must be part of the design calculations, but equally as important is the part it plays in producing the biggest spark. If the secondary coil just ended as a piece of wire the voltage differential is very great between the wire and the surrounding air. This sharp differential allows a corona discharge at a much lower voltage and hence a smaller spark. However a gradual charge difference is created around the ball, as the voltage is spread over a larger area and this prevents corona discharge and allows the voltage to rise to as high as possible. Placing any protrusion on the ball then produces a large corona discharge.

Observations

One interesting observation is that the corona discharge into the air is only slightly shorter than a direct discharge to an earthed object. Direct discharges to earth also produce a brighter spark slightly off set over a few centimetres from the center. The rest of the spark is

Colour original inserted

15 metre Electrum tower strike at near full power;
E Orr is sitting inside electrode.
(Photo by J Decker)

at a lower visual intensity. I don't know why the spark is brighter over this short length just off center.

Subjecting different materials to very high voltages is an interesting way to spend some time. With no breakout point on the discharge ball so there is no corona, various materials are then placed on top to see how they behave. All metals of course produce a corona display into the air. But what about insulators? I tried black reticulation pipe and there was no corona, as did all plastics I tried. A wine cork also did not produce a corona discharge. The surprise was glass and ignious rock. These both produced a corona discharge but not by conducting the voltage through the material but around it. What a strange phenomena, the discharge into the air was not through the glass or rock but arced around the material and then into the air. Placing flat materials like glass and plastics on the top of the discharge ball, and then a metal object on top of this, would produce a discharge into the air straight through the insulating material as if the insulating material was not even there. No damage is done to the insulating material despite the high voltage arcing through it.

One strange, even frightening observation late one night was two 100W tungsten filament light globes 2 metres above the Tesla coil shinning to half brightness while the Tesla coil was running. Yes the filaments glowing, not the gas inside the globe. How could a 150W input to the Tesla coil radiate enough energy into two 100W electric light globes? I switched the Tesla coil off and went to bed to think it over. Just what else might the Tesla coil be capable of getting into in the house? My computers came to mind. Morning gave me the answer. The Tesla coil induces a voltage into the house 240V wiring, and as the wiring to the globes came down to an on-off switch which was within a metre of the Tesla coil, this induced voltage was enough to intermittently arc across the on-off 240V switch. It was the household 240 volts that were lighting the globes not the Tesla coil on its own. The Tesla coil was the trigger not the actual source of the power to the light globes. But a little scary at the time.

Colour original inserted

My coil: about one meter high

Photographs

So lets see some photos I hear you say. Well photographing a working Tesla coil often does not do it justice. The photograph does not capture the discharge crackle and the smell of the Ozone.

Included is one photo taken with my digital camera but the results don't look all that good, particularly in black and white. My coil is about 1 metre high.

Also included is a photo of the Electrum coil I found on the Internet. The coil is about 15m high and requires 40kW for full power. There is a person sitting in the ball on top! Have a look on the net, as there are many photographs. I will dig up my film camera and endeavor to capture some better photographs.

ar

Correction

2000 RD Contest results

Please note the following correction:

VK2BO was the top scoring station in the HF Open/Single Operator section in Australia and should have had a # to indicate this in the results published in AR magazine, Feb 2001.

In the published results, VK4LT was indicated being the top scorer. This was an error and I apologise to both stations for the mistake.

Please amend your copy of the results and be aware that this will not affect the issuing of certificates.

73, Alek Petkovic, VK6APK
RD Contest Coordinator

David K Minchin VK5KK
Postal: PO Box 789 Salisbury South Australia 5108
E-mail: tecknolt@arcom.com.au
Web page: http://www.ozemail.com.au/~tecknolt
Fax +61 8 82346396
Phone 0403368066
All times are in UTC

Good Old Two Metres!

With six metres spluttering, especially down south, its good to see 2 Metres happening. Sadly VK6 seems to be conspicuous by all reports. Ray VK4BLK, Yeppoon reports on stations worked on 24/12/2000 on three propagation modes. " 0312Z VK3DUT 55/55 on 144.1 MHz via Sporadic Es, 0936Z ZL1IU 55/55 on 144.1 MHz via Tropo and 2026Z Vk2ZAB 51/51 on 144.1 MHz via Meteor Scatter, VK4TZL & VK4AJS also worked VK3DUT & ZL1IU" Ray VK4BLK

Gordon VK2ZAB reports ... "9/2/01 Another duct to ZL today. My impression is that we have seen more ducts across the Tasman over the past six weeks or so than ever before. Well at least over the past 20 years that I have been here. The catch is that there have been few stations on. Contacts have been made on 2m SSB to Nick ZL1IU umpteen times and to the stations in New Plymouth and Greymouth on 2m and 70cm a few times. There have been no contacts to the Auckland area until today. ZL2WSP at New Plymouth has been in and out all day on 2m and was heard on 70cm this morning although no contact was made due to QRM his end.

Then this evening Brian ZL1AVZ came up from his location on the coast west of Auckland on 2m and 23cm SSB. He worked Ross VK2DVZ on 2m. Ross alerted me that Brian was going to try 23cm and ROSS VK2DVZ, GUY VK2KU and myself made later contacts on that band as well as 2m. ZL1AVZ was 5/5 here on 23cm and gave me 5/6." ... Gordon VK2ZAB.

Ross VK2DVZ reports .. "Thanks to Rex VK7MO portable at Mt. Wellington for adding a new grid square to my 2m and 70cm tallies together with the new grid provided by Warren, VK3BWT on 70 cm as well. Rex was over 1300 km from me, while Warren is about 682km from me. His 2m signals varied from s1 to s7 during the time I was in the shack until 2300 UTC, 17-2 2001. Rex's 70cm signals varied from s1 to s6, tending to drop out at times. Lots of QSB on both bands. 23cm was tried:- I heard the carrier from Rex's end & he heard my cw beacon. No contact was made. All the more reason to try again! Rex and I initially exchanged 5/3 reports both ways on 144.18MHz and 5/4 reports both ways on 70cm. Warren and I exchanged 4/1 reports both ways on 70cm, whilst 2m reports were 5/3 sent and 5/4 received. Rex is able to claim a new VK7 distance record with our 70cm contact, unless he managed to work further afield after I left the shack around 2300 UTC." ... Ross VK2DVZ

24th of February Es and Tropo on 2m!

Ron Vk3AFW reports ... "On Saturday there was an extensive E's opening on 2m in the eastern states. Brisbane and Adelaide stations worked each other. At 0218 hrs UTC I worked John, VK4FNQ, at Charters Towers, 5x6/8, rec'd report of 5x7. Apart from being a long way North for 2m, this contact was unusual because John had no mains power and was running from a battery. (Probably lost the mains due to the cyclone on the coast.) Due to no mains he had his beam stuck on Sydney, nearly 30 degrees off axis! Apart from Trevor, Doug and myself, John worked several other VK3's plus Les, VK1BUC and Eddie, VK1VP. I was also able to work at 0239 VK4BRG, Sarina, 3x1 5x3 0312 VK4BLK, Yeppoon, 5x2 5x7" .. Ron VK3AFW.

VK5KK reports!! For some reason the 24th was going to be an interesting day. I had been talking to Charlie VK3FMD who had been watching William Hepburn's Tropo maps closely for microwave openings. A quick moving system was heading east over the land between VK5 & VK3 (a bit rare) over 23/24th of February. It looked good for Microwaves so I headed out around 2200Z with about 1/2 of the usual field day equipment (144, 2403, 5760 & 10368 MHz). My usual spot is about 3km North of Mt Lofty PF95ib about 600metres ASL with a good path to Melbourne and points further SE. A different world for working to the East compared to Adelaide!

On 144.1 MHz, from 2257Z, worked Alan VK3XPD, VK3WRE Ralph at Traralgon about 820km 52 both ways, Charlie VK3FMD, Jim VK3AEF at Nhill and Bob VK3AJN at Wangaratta. Trevor Vk5NC/P3 at Pt Fairy popped up regularly for a chat over the short 500km path from 2240 Z till about 0200Z! Shame it was a Saturday morning otherwise activity may have been higher. Alan VK3XPD and Charlie VK3FMD went out portable, at 0020Z to try 2 & 5 GHz but no signals heard in either direction. It was later felt that the peak may have been as early as 1830Z(5am!). Jim VK3AEF was still 59 at 0140Z. Jim reported hearing the VK5VF beacon on 23cm's up to S5 that morning. Mistake Number one and two was not taking out a 432 & 1296 MHz Yagi. It seems it would have been quite possible to work into Melbourne on both around 2230Z. 144 MHz equipment 25 Watts into a 6 element beam.

Mistake number two was packing up and leaving the site by 0210Z. At 0220Z the 900 MHz emergency hotline reported Es on 2 metres! Another 40 minutes arrived home to find the band still open. At 0318Z worked VK4EKA

Dougall 55/59, 0322Z VK4JSR Scott 52/52, 0328Z VK2EI Neil at Pt Macquarie 56 and at 0332Z VK2DVZ Ross at Taree 55/55. The band stayed open to northern VK2 till atleast 0400Z with both Ross and Neil QSBing to 59 at different stages. VK5ZBK also worked VK4JSR, VK2EI & VK2DVZ. VK5RO also worked atleast one VK2 on 1 Watt! An interesting day for late February, now if I had only stayed on the mountain for another 10 minutes...

Gippsland Technical Conference for 2001

The Eastern Zone ARC will be holding the fourth Annual Gippsland Technical Conference in Churchill, Victoria, on the weekend of July 8 & 9, 2001. This event has rapidly become the premier VHF/UHF/microwave technical conference in Australia and has attracted amateurs (and their partners!) from every State and even overseas.

The Organising Committee hereby calls for papers for the Conference. Any topic related to VHF, UHF or microwave operation, equipment, construction, or related material will be considered. A printed Proceedings volume will be prepared following the Conference, making a handy resource for your Library. It is hoped to have the Proceedings from the 2000 event available shortly. Copies of the 1998 and 1999 Proceedings are still available at a cost of $15 each, including P&P.

For further details see the Club web site at http://www.qsl.net/vk3bez/ contact the Club via email to vk3bez@qsl.net or at Eastern Zone Amateur Radio Club Inc., PO Box 459, Moe 3825, Victoria, Australia" ...Peter VK3KAI/1

New VK3 5.7 GHz record claim

Charlie VK3FMD reports ... "On 16/02/2001 at 2130 UTC I worked Trevor 5NC on 5760.1 MHz.

After a VERY early phone call to Trevor (I hope he's forgiven me by now) I went portable to QF21VV a spot just out of Drouin and Trevor went to Mt Benson at PF92VX which is just out of Robe SA. We managed to work at 2130UTC with signal reports 5 by 5 both ways. We had a ragchew for a while and contemplated extending this distance. Trevor however had some car trouble and we decided against this. The distance covered was 542.7 km which after verification with John Martin (WIA record claims) is a new VK3 / VK5 record on 5760 MHz. Equipment my end is a homebrew N1BWT design transverter with my own amplifier chain of an ERA5 followed by an MGF1302 followed by 2 cascaded IMFETs (5964-3) for a total of approx. 3W. Antenna is a 2-ft centre fed dish with a WA3RMX triband dish feed. " ...73 de VK3FMD

Microwave Primer Part Ten: 24 GHz & 47 GHz

I have included 47 GHz in this part with 24 GHz. We do have higher allocations than 47 GHz but techniques used are similar to 47 GHz. Everything is small .. a dipole on 47 GHz is just 1/8" (3mm)! JE1AAH said in one of his many articles that the degree of difficulty, above 10 GHz, increases as the square of the difference in frequency. So is 24 GHz nearly 6 times as hard to get going as 10 GHz. Read On!

24 GHz has one big disadvantage that makes it a challenge. Somewhere nearby (23 GHz) lies the first line of water molecule resonance. Simply put water becomes a significant attentuator, 30 times more than at say 10 GHz. Losses up to 1 db per km are possible in rain. Commercially links rarely go over 10 – 16km in most parts of the world. And propagation that works below 10 GHz only has mild effect at 24 GHz and above. Evaporation ducts seem to be the main operative. The world record on 10 GHz is currently claimed at 2079km, 24 GHz is 461km. A rule of thumb that has come up a few times here and overseas is that signals have to be atleast 40 db over the noise before anything is heard on 24 GHz over 150 plus paths. 24 GHz is good for short-range working and hence its use for "Speed radars".

Interest, in Australia, is probably restricted to half a dozen of so Amateurs in VK2, 3,4,5&6. Narrowband activity is at 24048 MHz in VK, by "gentleman's" agreement. This is the satellite segment, killing two birds with one stone rather than having operators on either 24192 MHz or 24048 MHz. If you have conquered 10 GHz and a few other bands on the way, 24 GHz is next. To just get operational with simple mixer type systems, it is not much harder than 10 GHz. If you want power and better receive performance then there are few short cuts.

So what do you start with? Almost all "Successful" 24 GHz systems I have seen are based on DB6NT Mk2 or Mk3 transverters. Parts of other systems like JE1AAH's have been reproduced but there have been disappointments. 24 GHz challenges reproducibility, unfortunately few things tune the same and change one part and the whole circuit may just act as an attenuator! All designs use Teflon PCB usually Rogers 5880 or equal 0.01" or 0.32mm thick!

The DB6NT transverters use a simple diode mixer arrangement with onboard LO doubling. To get about 150uW of 24 GHz SSB the transverter module is driven with about 1watt of 144 MHz and about 40mW of 11952 MHz local oscillator. Generating the Local Oscillator signal can be done one of many ways using surplus modules or etc. The noise figure, without Bandpass filter is probably 11- 12 db SSB. Still a pair of these will work with a 1 foot dish over 30 – 40km LOS paths. A good start to wet the appetite!

To improve the system from 12-db-noise figure and 150uW's gets a little bit more involved. Invariably you will need to add both Receive and/or transmit gain. Up to 20 or 30mW's the same amplifier for receive will also produce RF for transmit. Several systems have been built where the one amplifier does both duties successfully.

But before you add any significant amplification one other area has to be attended to. The original transverter has no Bandpass selectivity so the image (-288MHz) is produced or received without any attenuation. A direct 3 db loss either way. Now you can place a Bandpass filter at this port to remove the unwanted image (16 db is enough, anymore will not improve performance but will keep out of band products down!). The filter will introduce a loss however, probably in the order of 1-4db for the wanted frequency. All up you need 11 – 14 db of gain just to overcome the mixer and filter. Typical 3 stage Rx Preamps are capable of 20 db or more gain so receive is not too difficult. The same 20-db gain will give you 10 – 20mW's. With some switching (the biggest challenge see further) you then would have a very usable transverter now capable of better than 50km range.

The next quantum step in Output

power seems to be 80 – 100 mW's with parallel Gasfets. A popular group of amplifier designs comes from G8ACE who uses up to 8 hybrided HEMT's (NE32584C's) to get up to 500mW. Mind you that is three stages of 2 driving 4 driving 8 to get that! Shades of what we did in the late 80's with BFR91's on 2 GHz with 3-db gain per stage! Phase 3D runs (will run hopefully) about 500mW's on 24 GHz using specially developed Fujitsu FET's that are worth $1,000's. It is also possible to employ some 18 – 20 GHz TWT's on 24 GHz. 4 Watts seems to be the state of the Art for a TWT.

Antennas are just scaled down version of lower GHz antennas. A 1-foot dish has about 32-dbd gain when properly fed. A 2-foot dish is getting decidedly sharp! The biggest challenge with any system except for the basic transverter is how you perform Rx/Tx changeovers. Ideally a waveguide switch in WR42 is the best option but they are not common and cost many hundred's of dollars. At a pinch you can use a WR62 switch but you have to adapt from WR42 to WR62 and back again introducing matching and loss problems.

The alternative is perhaps Coax at first thought but another problem occurs. Popular SMA connectors resonate near 24 GHz .. they are too big! SMA's are usually only rated to 18 – 20GHz, the Socket is the real problem as you need a special type with a 0.7mm dia centre pin to match the 50 ohm trackwidth on 0.01" teflon PCB. Semi rigid coax losses run into dB's per short run. Coax relays rated at 24 GHz are rare. I have read descriptions where losses of using 18 GHz specification coax SMA's and relays have been accepted as a compromise but losses amount to 4 –5 db on both Rx and Tx paths. The old saying, better to have tried than not .. still much better than a basic transverter!

On 47 GHz (and 76GHz!) operation is almost entirely by harmonic mixers similar to the 24 GHz DB6NT one. Activity is almost entirely from VK6. Terry VK6TRG has been working on both 47 & 76 GHz for sometime. The challenge is not only to get equipment working but to have test gear that gives meaningful results!

Next Month we digress totally and talk about some specific applications .. using commercially available 2.4 & 5.7 GHz LAN cards on our bands!

New 76 GHz Record in the US

Will W0EOM reports ... "Feb. 1 2001 at 12.20 local, Will. W0EOM/6 worked Bob, KF6KVG/6 on 76 GHz. Bob was near Loma Prieta Mountain, at the QTH of Dave, W6NL, grid sq CM97BC. Will was on Mt. Vaca, grid CM88WJ, accompanied by Gary, AD6FP. mid - grid to mid-grid distance is 145 km. Weather was calm, mild, and hazy. margins were 1 to two S units with fades. Bob had a 12 in dish with 1 mw. Will had an 18 in dish, 5 mw. power."

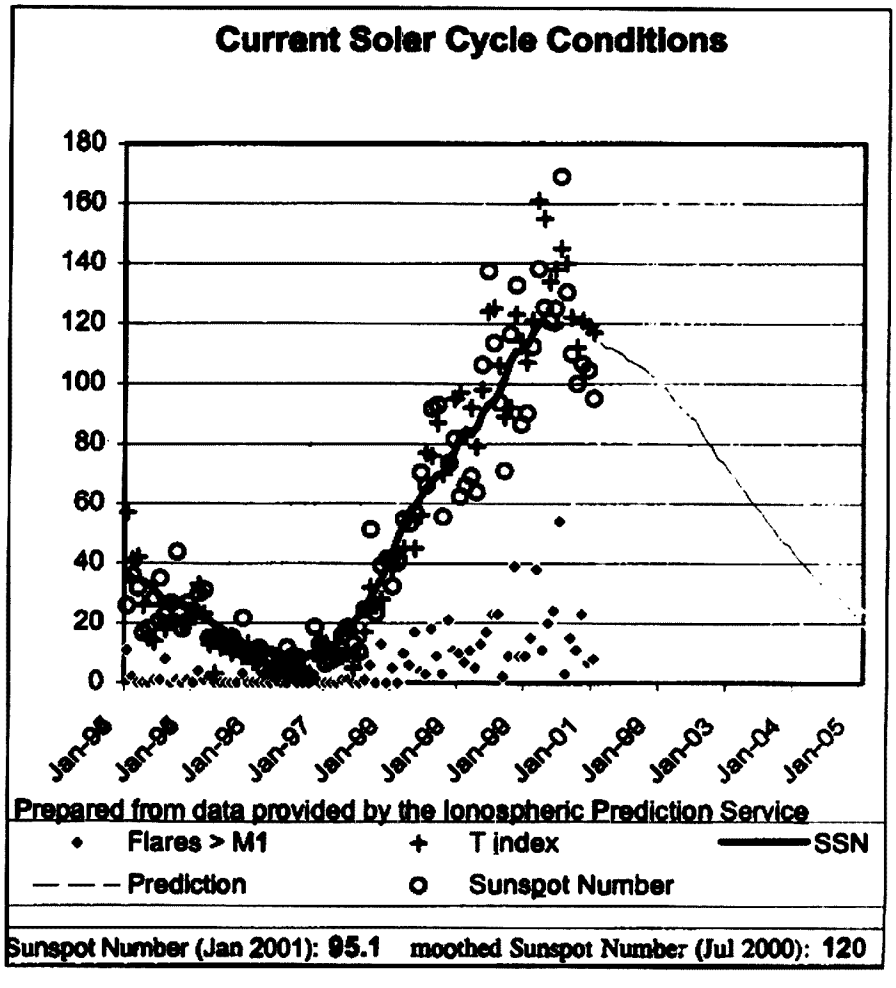
In closing

Six-metre news has been slow of late. Someone coined the phrase "Sicks Metres" but I will let that one sit as read! Late February some JA Openings into VK3 & VK5 with Es extension. Scientist's recon that the solar peak is now here. On February 15, 2001 the Sun has underwent an important change with the magnetic field inverting. The Sun's magnetic north pole now points south! "This always happens around the time of solar maximum," says David Hathaway, a solar physicist at the Marshall Space Flight Center. "The magnetic poles exchange places at the peak of the sunspot cycle. In fact, it's a good indication that Solar Max is really here." More information can be found at http://science.nasa.gov/headlines/y2001/ast15feb_1.htm?list134139

I'll leave you with the following thought "Sometimes we treat this world of ours as though we had a spare in the boot" Till next month

73's David VK5KK

ar



HF Predictions

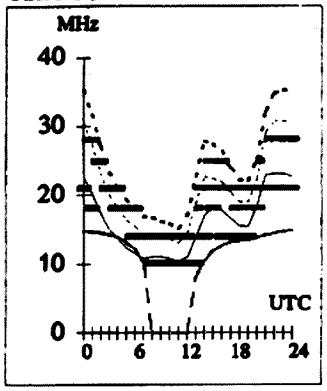
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

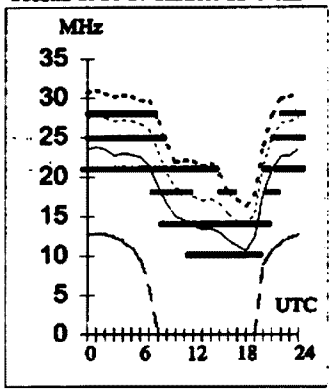
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

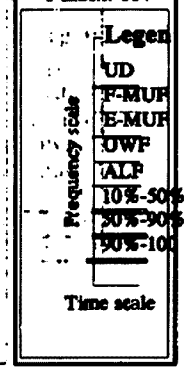
Adelaide-Ottawa 58
First F 0-5 Short 6901 km



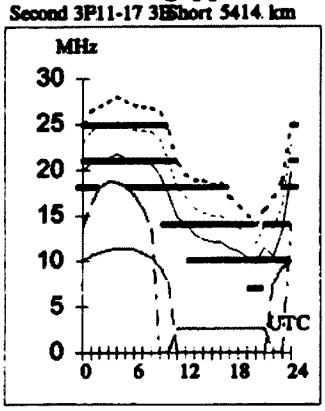
Brisbane-Aackland 123
Second 2F21-27 2E Short 2269 km



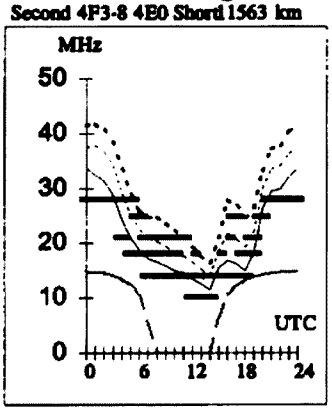
March 2001
T index: 114



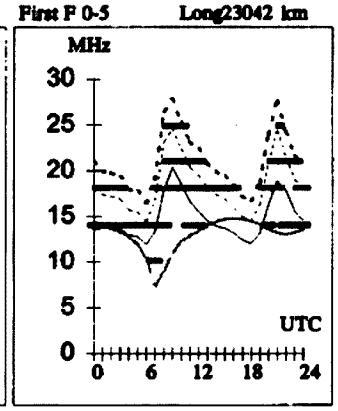
Adelaide-Singappore 311
Second 3F11-17 3E Short 5414 km



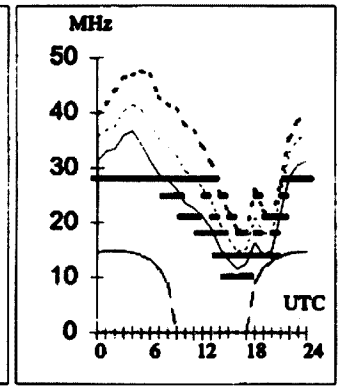
Brisbane-Los Angeles 59
Second 4F3-8 4E0 Short 1563 km



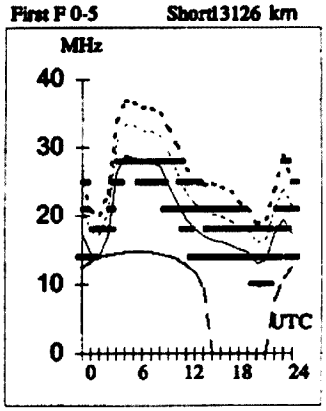
Canberra-London 136
First F 0-5 Long 23042 km



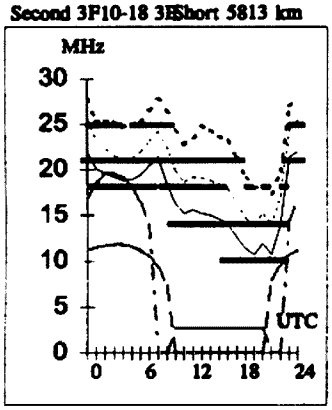
Darwin-Honolaln 65
First 3F3-9 3E0 Short 8636 km



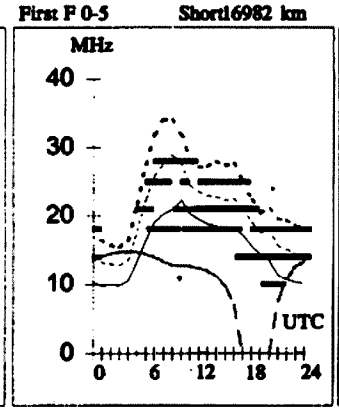
Adelaide-Tel Aviv 291
First F 0-5 Short 13126 km



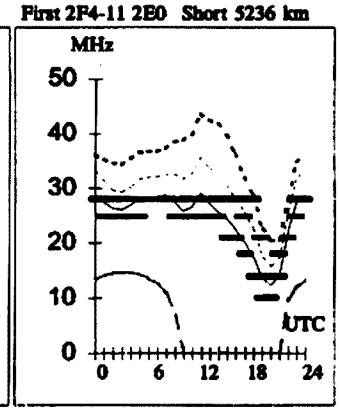
Brisbane-Manila 320
Second 3F10-18 3E Short 5813 km



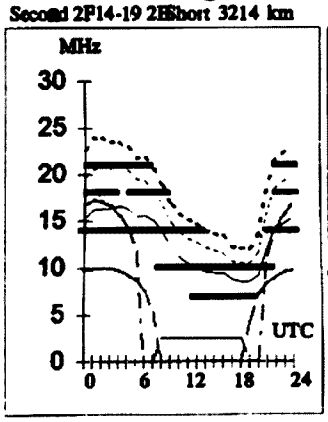
Canberra-London 316
First F 0-5 Short 16982 km



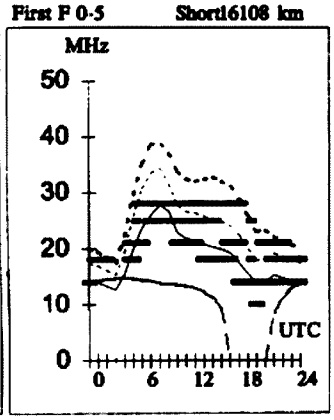
Darwin-Osaka 5
First 2F4-11 2E0 Short 5236 km



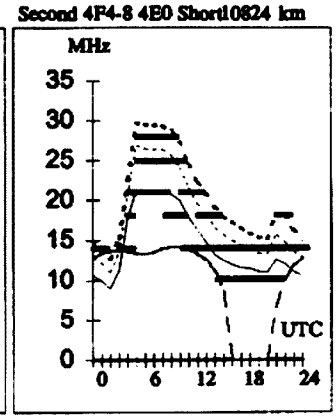
Adelaide-Wellington 114
Second 2F14-19 2E Short 3214 km



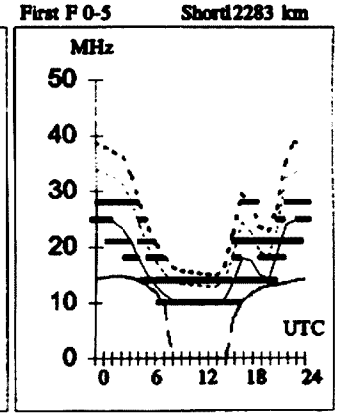
Brisbane-Rome 305
First F 0-5 Short 16108 km



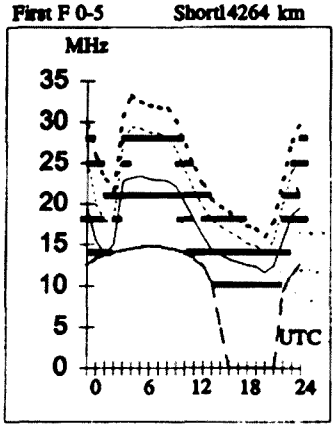
Canberra-Pretoria 231
Second 4F4-8 4E0 Short 10824 km



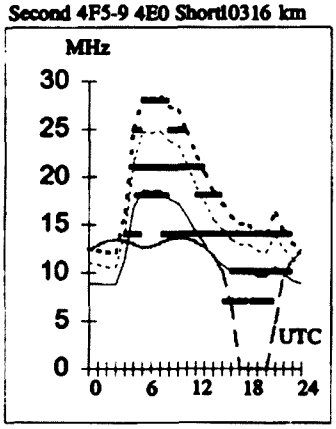
Darwin-Seattle 44
First F 0-5 Short 12283 km



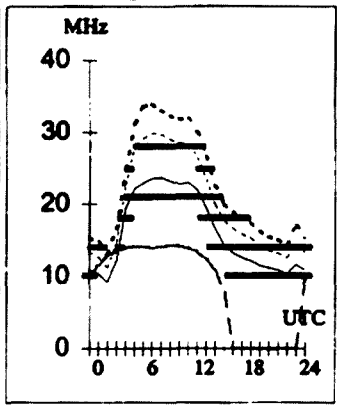
Hobart-Cairo 278
First F 0-5 Short 4264 km



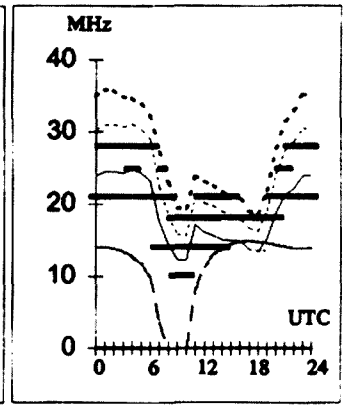
Melbourne-Capetown 222
Second 4F5-9 4E0 Short 10316 km



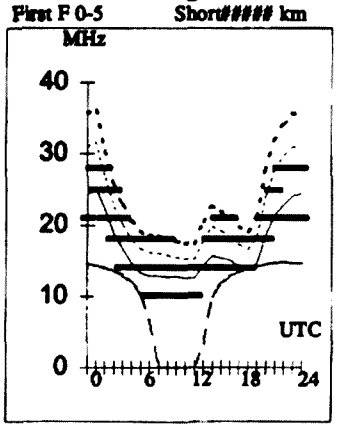
Perth-Johannesburg 248
First 3F4-7 3E0 Short 8315 km



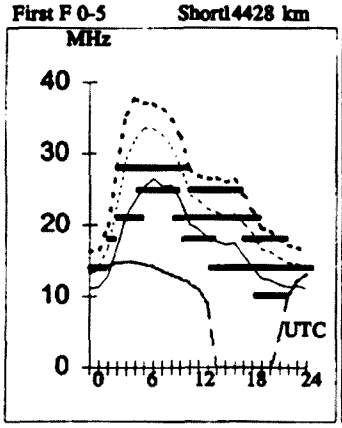
Sydney-Barbados 119
First F 0-5 Short 16155 km



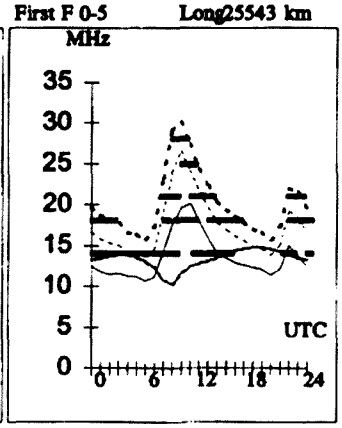
Hobart-Chicago 72
First F 0-5 Short##### km



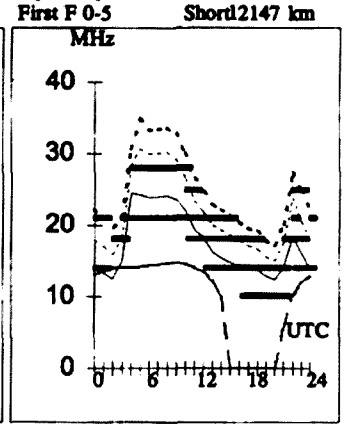
Melbourne-Moscow 316
First F 0-5 Short 14428 km



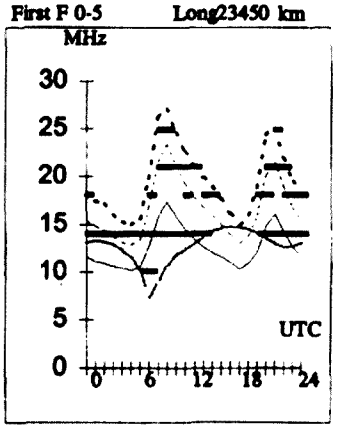
Perth-London 133
First F 0-5 Long 25543 km



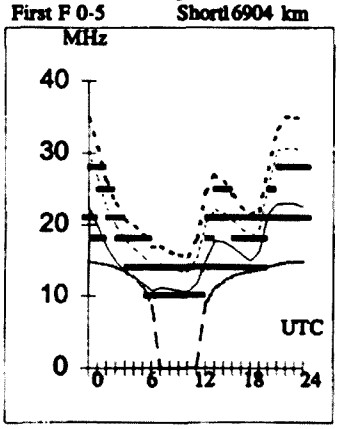
Sydney-Nairobi 255
First F 0-5 Short 12147 km



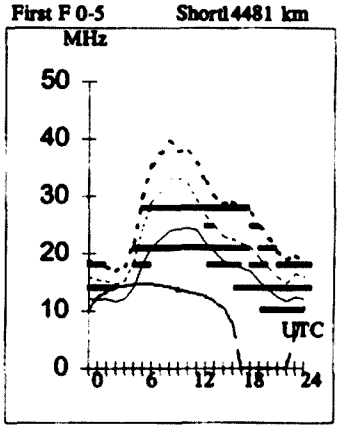
Hobart-Oslo 138
First F 0-5 Long 23450 km



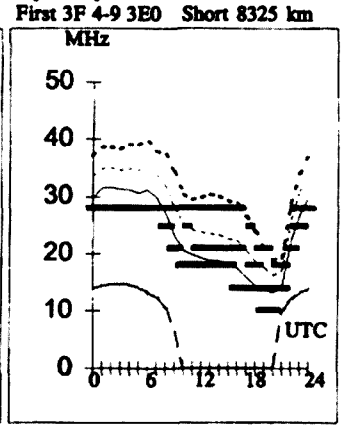
Melbourne-Quebec 60
First F 0-5 Short 16904 km



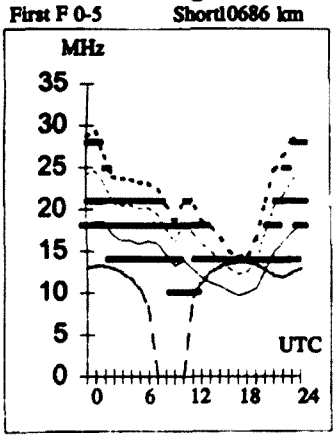
Perth-London 313
First F 0-5 Short 14481 km



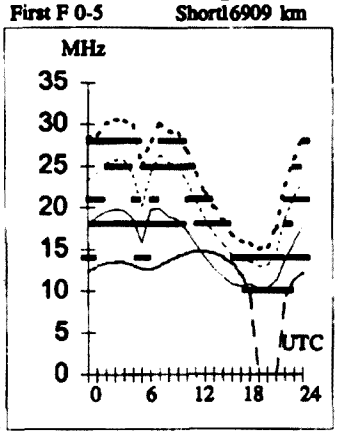
Sydney-Seoul 340
First 3F 4-9 3E0 Short 8325 km



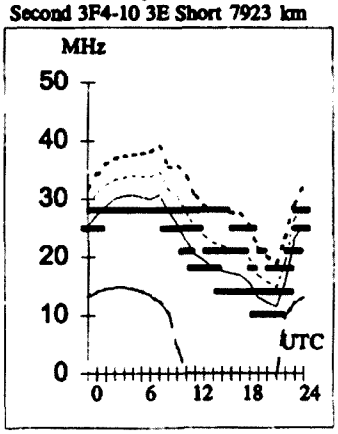
Hobart-Santiago 149
First F 0-5 Short 10686 km



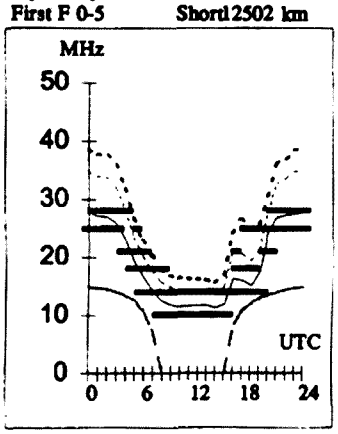
Melbourne-Senegal 219
First F 0-5 Short 16909 km



Perth-Tokyo 20
Second 3F4-10 3E Short 7923 km



Sydney-Vancouver 45
First F 0-5 Short 12502 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsl@webtime.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE NSW

• Yaesu FT 107M S/N OH060302, owner's manual, Yaesu YM-38 mic, Emotator 1102 MXX, Chirnside CE-35LX Tri-bander 5 element antenna, Skytrim telescopic tilting mast 10.5m, all leads and plugs, world globe map flat. $1500 one lot. Lyle VK2IG QTHR (02) 9878 3380

• Yaesu FT7 Transceiver and Yaesu FL110 Solid State 100W amplifier combination complete with mobile mounts $300. N Chivers QTHR (02) 6674 2095

• Meters 2 1/4 Square 1940 Vintage 0-3 amp thermocouple; 0 to 0.5 amp thermocouple. 0 to 5 mA moving coil. New. Ted VK2BTB (02) 9644 4071

• Kenwood transceiver, model 440S-AT. Good condition, recently serviced by Kenwood. $800. Doug VK2DDR (02) 9949 3426

• Clean AR7 receiver with original pwr supply and five coil boxes. Ph (02) 9791 0366 Fax 02 9796 1658 Email: tonymui@pip.com.au. VK2ACV QTHR

• Eddystone communications receiver Type 640, antique, working with instruction book and spare valves $175 ; - Yaesu FT90R 2 m/70 cm s/n 9K120118, purchased Dec 99, used less than a dozen times.perfect condition $625 ; Diamond Model X200A 2m/70 cm stacked colinear base antenna $150. all plus freight Ph. 02 4751 1975 John VK2VJD, QTHR.

WANTED NSW

• Norm needs that unused HF SSB Transceiver, or unfinished HF Linear amplifier, 2 metre FM transceiver, working or not. Swap something, or donate so I can get back on air. Anything considered! Clean out the garage, see what you have! Phone Norm VK2ZG (02) 4965 7923 QTHR

FOR SALE VIC

• Panasonic Commications receiver DR49 #RKV2877A 0.53 - 30 MHz FM 88- 108 BFO digital readout. Excellent condition. $240. Kevin VK3CKL QTHR

• Q meter Marconi TF1245 with matching oscillator 50 kHz to 50 MHz with manual and some spare valves. $200. Hewlett Packard 5245L electronic counter, late model with 5261A plug in. Excellent condition $100. Morris VK3DOC QTHR (03) 9824 8988

• Heathkit HA14 linear amplifier and 1500v supply +3 x 527B tubes with handbook $400. Allen VK3SM (03) 9386 4406 QTHR

• Icom receiver R8500 SN 04058, tuning range 100kHz - 2 GHz all mode. 6 months old, pristine cond., deceased estate, $2000. VK3ZQ QTHR (03) 9598 7019

• Cushcraft R7000 Vertical Antenna $600. Kenwood TS-520S Transceiver, $200, AT-200 Antenna tuner $180, VFO520 Remote VFO $180, SP520 Remote speaker with vol. control $100, MC60 Desktop Mic, $100. Mizuho SX9 Pre-selector 3-30MHz $120. Hansen SF5 SWR meter $30. Daiwa DK210 Electronic keyer $60. HamKey morse paddle $50. Hustler Commander 400 Rotator $200. Shinwa #1005 RF filter low pass 30MHz cutoff $25. Contact David: Mobile 0410 404 512 Email davec@eisa.net.au

• (1.) CRT ex Radar Test Set . Tube type 4MP1 w/ shield and socket $20 (2) BC- 348-M, no mods, original wiring but new caps as appropriate, and resistors. Has original dynamotor and refinished front panel., but less ID plate $380 (3) MN-26 C radio compass complete with cables, loop antenna, tuning control and service manual $400 (4) BC - 433 G radio compass complete with all cables, controls loop, as used in Liberator bomber et al. $450 (5) Wrecked ARB receiver.. parts only e.g. tuning capacitor, coilboxes, IF's, output transformer. take it all $35 (6) Crystal calibrator # 10. as described HRSA July 2000 . $25 each. 3 available. (7). Navy Oscilloscope (new) OS-4B/AP, 2 available with manual and cables $60 each. (8) .BC - 733 D VHF nav . receiver with dyno. no mods $55. (9) Collins 678P-1 test/control box for use with 618T-( ) xcvrs. Complete with 714E-3 control box. Ideal for hook up to these xcvrs apart from forming part of test sequence. $350. P Williams VK3IZ 03 5156 2053 email jupeter@datafast.net.au

• Heathkit DX60B AM/CW TX $200 Kantronics KPC9612 Plus TNC $200 Kenwood MC-50 base mike $50 Combitech "Multiscan" SSTV modem (see their webstie for specs) $150 Trio 9R59DS RX $100 Damien VK3RX (03) 5427 3121

WANTED VIC

• Circuit & manual for Sanwa TV-FM sweep marker generator Model SM-109. Instrument handbook for BWD 502. Circuit & manual for KW-77. Valve Velocitron 2V1011 or ZV1011 for Polarad Sig-Gen. Brian VK3WYN QTHR (03) 5664 1251

• Weather Satellite Receiver e g Timestep Proscan, Hamtronics R139 or Rigsat RX2. Manual and alignment tools necessary. Phone Ken (03) 9592 9957. Email kea@ozemail.com

• Hewlett Packard model 524 electronic counter. This is the large vacuum tube behemoth. Prefer Victoria for pick-up. Morris VK3DOC QTHR (03) 9824 8988

• Hallicrafters HT-37 Transmitter Manual and/or Circuits, plus any other data or components that compliment this unit. Will pay costs. Don VK3 KDT, (03) 9439 1102

FOR SALE QLD

• Bird power meter 5 - 500 MHz and dummy load 5/15/50/150 watts $275. Also B & W power meter oil filled load 10/100/300/1000 watts $250. Ray (07) 3299 3819, fax (07) 3299 3821

• Kenwood TS570SG HF transceiver 1.8 - 54 MHz latest model includes 6 metres; all mode; as new, 12 month warranty. $2100. Hy-Gain Ham 3 antenna rotator, as new, owners manual etc. $600. Hy-Gain TH3MK3 Yagi 10-15-20m, all stainless steel hardware complete. $790. Kenwood TL-922 owners & service manuals, mint. $2500. John VK4SKY 0419 410 503, PO Box 1166, Coolangatta Qld 4225

WANTED QLD

• Headphones 2000 ohms in good order. Bill VK4WHS (07) 4123 4459 QTHR

• Plug in coil boxes for National HRO Rx also power supply for same, and HRO Rx for parts. Pay top money. Ray VK4FH PO Box 5263 Daisy Hill Qld 4127 ph (07) 3299 3819, fax (07) 3299 3821

• Specifications and installation details for Hills 15.8m wind-up tower. Keith VK4ZV QTHR Phone/Fax (07) 5465 6156 email: djak@uq.net.au

FOR SALE SA

• Large home brew transmitter 30" X 16" X 14" AM 130 watt PEP complete with BFO unit. Ideal for the real enthusiast. 80 40 20 15 10 metres coax or ladder line connection. VK5ZLC QTHR

WANTED SA

• Outbacker Classic OB8SP HF mobile antenna. John VK5ARL QTHR. (08) 8255 0617

NEW ADDRESS
for HAMADS
Newsletters Unlimited
PO Box 431, Monbulk Vic 3793
email: *newsl@webtime.com.au*
Fax: 03 9756 7031

MISCELLANEOUS

- If you got your licence before 1975, you are invited to join the Radio Amateurs Old Timers Club. A $2.50 joining fee plus $8.00 for one year or $15.00 for two years gets you two interesting Journals a year plus good fellowship. Arthur Evans VK3VQ or Allan Doble VK3AMD can supply application forms. Both are QTHR in any Call Book

- The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

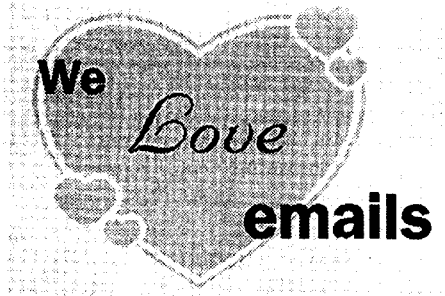
TRADE ADS

- **AMIDON FERROMAGNETIC CORES:**

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra

- WEATHER FAX programs for IBM XT/ATs *** "RADFAXZ" $35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M. Delahunty, 42 Villers St, New Farm QLD 4005. Ph 07 358 2785.



If you are emailing your Hamad, the method MUCH preferred by our typesetters, could you please assist by following these two guidelines:

1) **Please use upper and lower case in normal text (not caps please)**

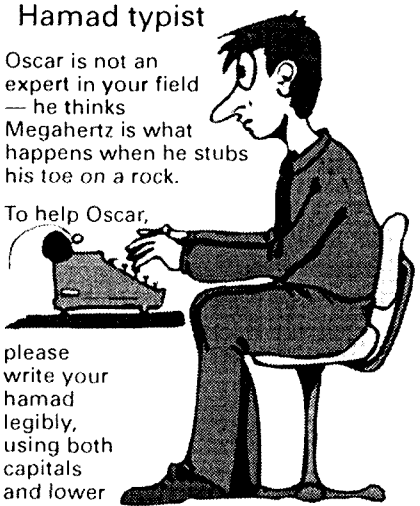
2) **Please enter the words directly into the body of the email**

Have you heard this week's Divisional Broadcast?

See page 30 for times and frequencies.

PLEASE BE KIND TO OSCAR

Meet Mr Oscar Goldenboy, our Hamad typist



Oscar is not an expert in your field — he thinks Megahertz is what happens when he stubs his toe on a rock.

To help Oscar, please write your hamad legibly, using both capitals and lower case, and use legitimate abbreviations.

This will reduce the chance of errors being published, which incoveniences everyone.

ADVERTISERS INDEX

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

Expert On Tripe

Apart from some publicity the letter from the vice president of the Fremantle Tripe.

Club (AR December 2000) was [for me] unimpressive. However it did strengthen the theory; we are what we eat.

But let's get back to the pros and cons of Amateur Radio communication modes, in particular Morse code (CW) and SSB. I am not opposed to SSB or to HAMs who communicate by SSB, and I have NEVER objected to it. Comparisons perhaps but objections, never. Personally I prefer CW - it is a challenge.

But CW and SSB are as different as chalk and cheese.

Bugger! There I go again. I sincerely hope Ray Peterson is not the vice president of the Fremantle Cheese Club or a school-teacher, or we might finish back atsquare one.

VIVA CW. With gusto, please.

Allan Madigan VK2OA

Re: To Morse or not to Morse? Is that the question?

I, like many others, have been reading with interest the ongoing Morse code debate, deciding to remain silent. I adopted this attitude, as I have not pursued the challenge of sitting for any Morse exams, so I felt that I was not qualified to add my two cents worth. I passed my Regs and all the theory exams with a moderate amount of study, then purchased the obligatory Morse Tapes, and began listening to the nightly broadcasts. I also read every article I could find to learn the secret tips and shortcuts to make the job easier. As a professional percussionist for over twenty years, I felt quite at ease with the timing skills required to tap a little key, but for some reason, I did not have the dedication that I had when studying for the already passed requirements. Then I raised why. I was not prepared to put in the time and effort needed to learn a new language that I found uninteresting, had no interest in, or would ever use again. I still stand by that decision.

With all the surveys recently published, I've had the chance to voice my opinion, which I did, and it seems that the majority of amateurs share the same opinion as I do. I do not believe that Morse code should still be a compulsory part of the Full Call Licence requirements. This does not mean that I have an intense and absolute dislike of it as William McCarthy, VK4WMC in his AR December 2000 article would have you believe.

William writes of anachronisms and the Olympics, and cites Archery, Javelin, Shot put Rowing and Fencing as being akin to CW in our hobby. Would he then have competitors in the new Olympic sport Women's Water Polo, qualify by proving themselves at one of his anachronistic sports first? I think not, yet he is insisting that I, and others like me, do just that with CW. As for his Fishing Club being more interested in CW than other activities in his shack, I wonder if he was able to show them a live SSTV image from MR a fast scan image from another amateur, or a packet contact with the Shuttle?

Forcing people to learn Morse will not guarantee its survival, as the majority of full call or novice amateurs I have spoken with have not used a key since their exams. Those interested in Morse will learn it and use it whether it is mandatory or not, just as those with interests in packet, SSTV, ATV satellite, DX, EME etc seek information and learn the specifics required to accomplish their desired interest.

It seems to me that the "I had to do it, so you should too" is still the main logic being used to keep Morse as a requirement, instead of looking at the overall picture of our ever changing hobby and asking "what is the best for amateur radio to ensure we have a continued supply of new people to keep our hobby alive"?

Times change, so should we.

Ian Coots VK3YIC

Editor's note: Did you know that Archery was not an Olympic sport at Melbourne in 1956? It is one of the sports deleted as anachronistic in the 1948; it was reinstated in 1972.

The other side of the coin

Over the last few months we have read discourses from supporters and denigrators of the CW requirement for AOCP licences. Worthy of note is a particularly vitriolic par from Ian Gray VK21GS [Amateur Radio September 2000 page 50]. Whilst I don't oppose his right to complain, I will point out that a coin has two sides. I am just a CW operator (note that AOCP signifies amateur operator, not technician), with very little technical ability or aptitude. I joined the ranks of the Amateur Radio fraternity purely to "rag chew" with old friends, ex telegraphists like myself.

So, while I think I too, had it tough having to study radio theory for 12 months to operate a purchased transceiver, I did not complain about the rules. I just hopped in and had a go. But it took me twelve lousy months to get the theory exam passed. (I would have heaved the books in the river, but they probably would have floated). In due course, on returning home with my upgraded licence from NAOCP to AOCP, and with my head buzzing with all my new found knowledge, it really only allowed me to push in the 7 MHz. tuning button instead of the 305 one. A really 'top technical achievement.

Finally Ian, come have a look at my shack some time. My keys are not stuffed away in the cupboard, but are on my operating table ready for action. I have three of them - a hand key, a Vibroplex bug and a left-handed Automorse. Don't let the latter name fool you. This bug does not produce computerized Morse code. It is 80 years old and belonged to my father. I taught myself to operate it left-handed up to 25 WPM just with dedicated practice. You could do it too if you would accept a challenge. The bottom line is that it is all great fun.

A hobby Ian, a hobby!

Harry Gifford VK2GIF

Address Letters to:
The Editor
Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

YAESU'S DONE IT AGAIN

THE YAESU FT-1500M HEAVY DUTY 2M FM MOBILE

Yaesu's new FT-1500M represents a breakthrough in 2m mobile transceiver design, blending an extremely efficient transmitter with an almost bullet-proof receiver front end, and all packaged in a super-rugged die-cast aluminium casing that measures just 127 x 35 x 126mm. You get a powerful 50W RF output transmitter, direct keypad frequency entry, Alpha-numeric memory labelling, easy data interfacing, and much, much more.

- Transceiver coverage of the 2m Amateur band (144-148MHz), with extended receiver coverage of the 137-174MHz range.
- 50W RF output, with selectable 5, 10, or 25W lower power levels. The efficient PA stage only draws 8A at 13.8V DC for full RF power output.
- High-performance receiver front-end circuitry using Yaesu's renowned Advanced Track Tuning (ATT) tracking bandpass filter design for greatly reduced interference from strong out-of-band signals.
- Includes MH-48B6J DTMF microphone for direct keypad frequency entry. Includes rear panel mini-DIN socket for easy 1200/9600 baud connection to your TNC for Packet operation.
- A total of 149 memories are provided, with 130 regular memories, 9 pairs of sub-band memories, and an instant recall "Home" memory. Regular memories can store either a frequency or an alpha-numeric based name.
- Convenient programming Menu with 35 "set and forget" functions.
- Smart Search™ feature uses a bank of 31 special memories to store active channels as the FT-1500M searches a portion or the whole of the 2m band.
- Additional features: Supply Voltage Display, transmit Time-Out Timer, Auto Power Off, and S-meter RF Squelch.
- Can be connected to a PC for easier memory programming using the optional ADMS-2F Interface/software package.

2 YEAR WARRANTY

YAESU

D 3638

$399

SAVE $37

Offer expires 30/4/2001.

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

DICK SMITH ELECTRONICS

That's where you go!

2266 IBC4 col.

MORE GREAT GEAR FROM ICOM

IC-T82A NEW!

A remarkably compact tri bander.

- VHF/UHF Multiband FM transceiver
- 2M, 6M, 70CM with wideband receiver
- 5MHz - 1300MHz
- 555 alphanumeric memory channels
- Lithium-ion battery
- DTCS, CTCSS tone squelch
- 13 scanning modes

IC-910H NEW!

The new dimension in the VHF/UHF World!

Tri band multimode transceiver • 2M, 75W, 70CM, (optional 23CM, 10W) • 9600GPS packet operation • Satelite communication • Reverse/normal tracking doppler shift compensation • CIV capability for PC control

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional AF DSP capabilities, including noise reduction and auto notch function. It's versatile, compact and loaded with features.

IC-756PRO The HF & 6mm multimode professional performer.

100 watts of power, newly designed 32 bit floating DSP for noise reduction and auto notch function, and AGC loop operation for wider dynamic range. Plus digital IF filter, built-in RTTY Demodulator/Dual Peak APF, and a whole lot more.

IC-706MKIIG

The amazing evolution of the legendary 706.

Frequency coverage is expanded to the 70cm band and output power is increased for the 2m band. You get base station performance and features in a mobile rig-sized package.

ICOM
Clearly Ahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

2 YR WARRANTY

April 2001
Volume 69 No 4

Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

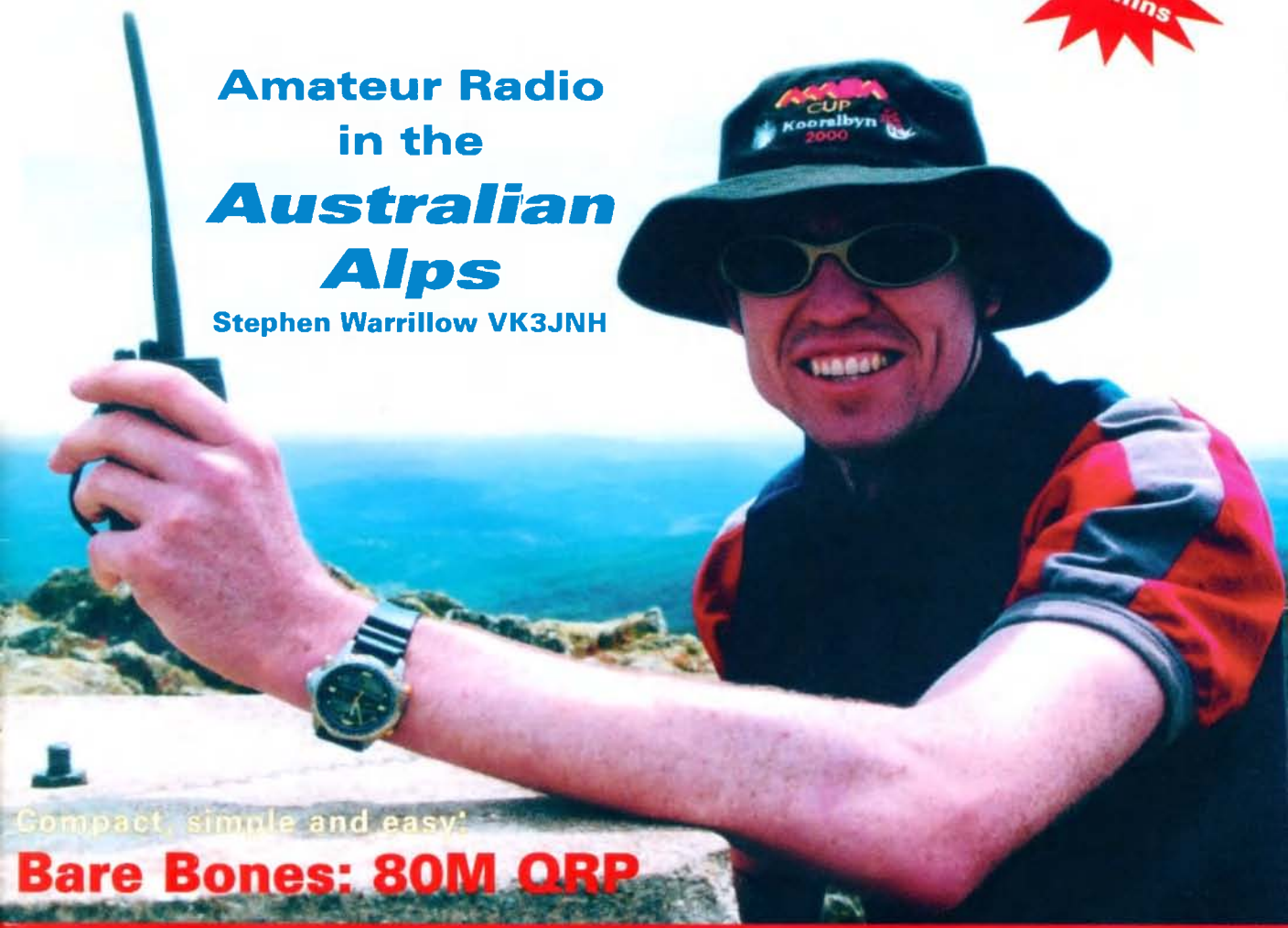
QUIZ

How much do you know about your WIA ?

Regular Columns

Amateur Radio in the Australian Alps

Stephen Warrillow VK3JNH



Compact, simple and easy:

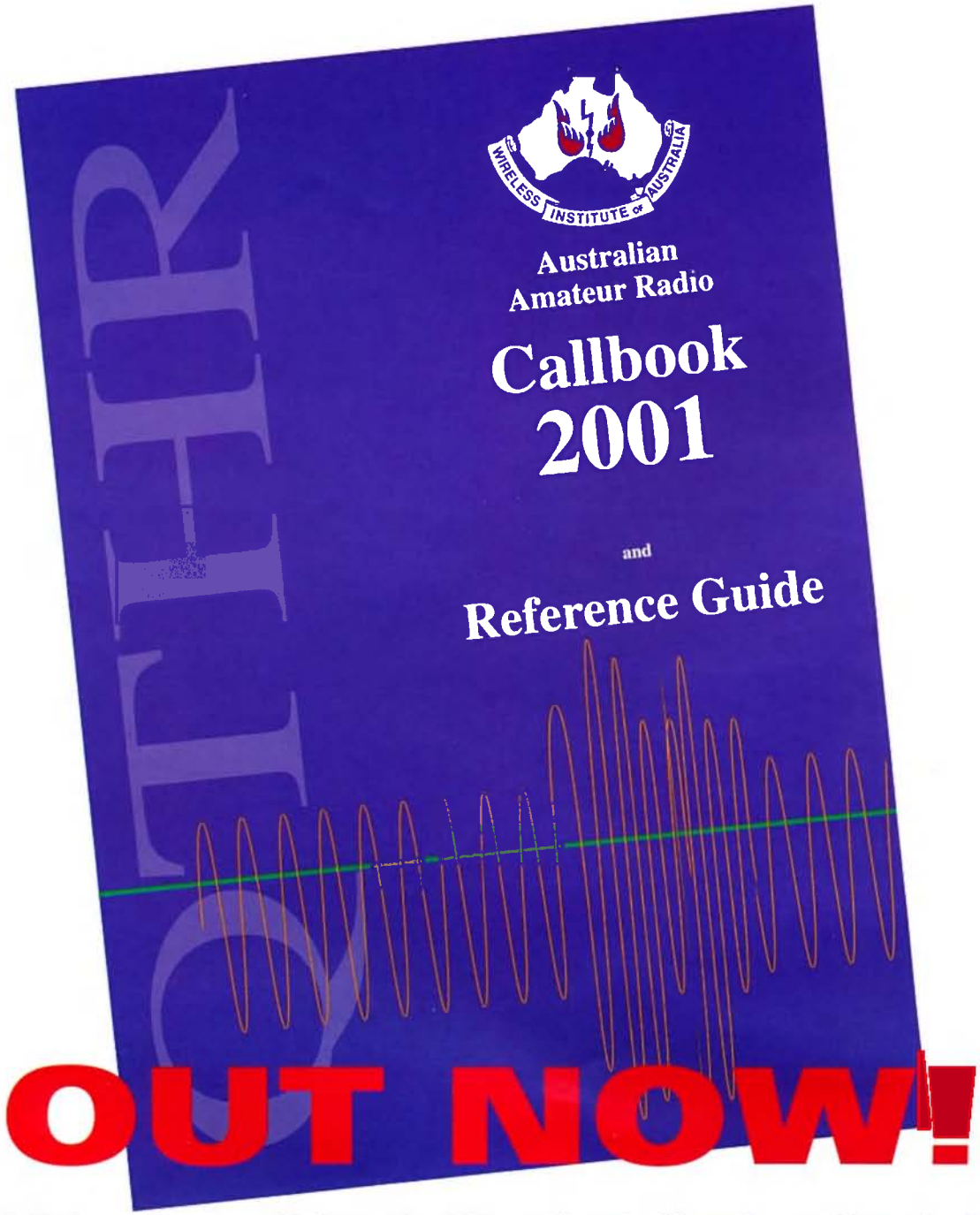
Bare Bones: 80M QRP

- Invisible Antennas
- Making Holes in Sheet-Metal

Drew Diamond, VK3XU

The Rise and Fall and Rise of the GRES

Technical Abstracts: •Low Impedance Parallel Square Conductor Transmission Line •Oscilloscope Calibrator•Flying Solo Cable Tester



Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies ***and more!***

The "WIA Call Book 2001" is now available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 4
April 2001

General

Technical

Columns

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members
Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: t.b.a
e-mail: *newsl@webtime.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191
Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 0419 532 164

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Our cover this month

VK3HFI on the summit of Mt Jajungal with VX-5R. Story page 17

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues
Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Editorial Comment

Colwyn Low VK5UE

The Federal Convention is upon us...

Significant times lots of discussion on almost all aspects of our hobby. Will we have more spectrum or less ? Will we need to demonstrate more of our usefulness to the community ? Will we seriously look at the WIA structure and can we agree on a workable structure? Will we rededicate ourselves to each other? For it is strength of numbers that will carry the day in the end? Martin Luther's paper has been widely published and Federal Council is still to make formal comment on it. This will come at the Federal Council AGM. I have published a letter from Ken Fuller VK4KF in response to Martins proposal. I have to emphasize that the letter is Ken's personal views. It has been unfortunate that I have been unable to publish Martin's paper but I think most of you will have read it some where. I also have included a report from Martin on reaction to his proposals. This is so we can all participate in the process. All comment for change to the WIA Australia must go through Divisions to Federal Councilors to Federal Council. Council decides and the Directors try to make it happen.

I published an article on WICEN just to keep Community Service in ever ones thoughts. The floods have shown that you never can tell when a disaster will strike. We need to be prepared. Field Days are a good exercise to make sure we are prepared. My experiences in John Moyle Field Day were salutary. My learning curve on 1296MHz keeps going up. The transverter has developed a few faults and I should have checked it at close range before going bush. I did not and had a 60 km round trip for nothing. On Field Day it barely worked 500m. On the test bench one transistor in the local oscillator output well down and in the transverter itself there must have been a few marginal solder joints round the mixer. So now it goes into its die cast box and gets checked before it goes to the field again!

I have still a need for material, there are some news columns and I can see the May AR taking shape in March so things are looking up. HOWEVER I do need good PHOTOGRAPHS for the COVER. We need some of novel equipment; please take care with the lighting if you cannot see detail it may not be worth printing. People doing significant things are good as are activities at functions, but please make sure we have good contrast and we can see the person's features. There is not much use in printing clothed silhouettes with black faces.

Please note that VK3ADD whose Obituary was printed in Feb AR page 36 had his Family name incorrectly spelt. It should have been Brain. The Call Book is also incorrect. Thanks Gavin Brain VK3HY.

Other things to note ALARA Contest this year AUGUST 25/26th. New VK/ Trans Tasman Contest May 5th. VK5BAR Proctor BBS is now up and working but not on all HF frequencies. NERG Novice Classes start mid May. Phone 03 9436 0435 for details.

73 Colwyn

New Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of February 2001

L10170	MR J M GRODZICKY	VK2JBP	MR P B JOHNSON
L21184	MR D A WARNER	VK2ZXD	MR G CLARKE
VK1PSB	MR S K BATLEY	VK3CGR	MR P A U MCMAHON
VK1WX	MR A HAWES	VK3URB	MR R BAKUNOWICZ
VK2ITJ	MR A KAUFFELT	VK3ZSQ	MR G STEVENS

Bare Bones: 80M QRP

Compact, simple and easy

by Malcolm Haskard. VK5BA

For me home brew products should be compact; I have a fascination for miniatures, simple; the essence of elegance, and easy to construct; not requiring super skills or elaborate workshops. Bare Bones meets these criteria. Compact, for even using leaded components it all fits onto a 50 x 50 mm (2" x 2") PCB; simple, basic proven circuits used, requiring less than 50 components; easy, for the construction requires no wound inductors, no looming and can fit into a range of boxes, either commercial or home made.

Description

Figure 1 shows the circuit schematic. As the name suggest it is a no frills transceiver. The receiver is a conventional NE602/LM386 direct conversion receiver while the two stage transmitter has a buffer for the oscillator and a keyed 2N3866 final stage. Tuning is through pulling a 3.58 MHz ceramic resonator, the range for the capacitors selected being approximately 3.53 to 3.59 MHz. Some variation is possible by experimenting with capacitors C10 and C15, but the values chosen are near optimum values for obtaining strong oscillations from a NE602/612. On 9 volts operation RF power into a 50 ohm load is about 200 mW. Some thoughts on using an external power supply (and possibly higher output power), internal battery or both are given later and should be read before commencing the project.

Construction

The PCB layout (at x2) is shown in Figure 2 while the component placement is given in Figure 3. Since all components mount on the 1/16" thick PCB the specified phone and key sockets, RF connector as well as power switch must be used. Details on these are given in the components list. When preparing the PCB the rear edge must be made level with the two sockets, for the socket nuts hold the rear panel on, and for the panel to be at 90 degrees to the PCB, the PCB must not protrude past the sockets. Similarly nuts of the two recommended 10k potentiometers secure the front panel and once again the PCB must not protrude beyond their front faces. Some potentiometers have a small protrusion on their front face which must either be removed with a file or the washers have a flat filed on them so they sit flush on the front surface of the potentiometer allowing the PCB and front panel to be at 90 degrees. Note that as drawn, the PCB extends beyond the potentiometers, with two mounting holes centres shown. This option allows a metal bracket or extension to be added to the board so that it can accommodate other potentiometer styles/sizes and the assembly adapted so that the PCB can be mounted in a range of box sizes - the two sockets providing mounting to the rear panel and the metal bracket/ extension to provide front mounting. For the remainder of this article it will be assumed that the recommended potentiometers will be employed and one or other of the two case sizes shown in Figure 4 will be made. (This means that the extended portion of the PCB beyond the front face of the potentiometers is removed.)

When assembling the PCB the first step is to solder on the four rear large mechanical components and then the one wire link LL', located just in front of the RF connector. All the remaining components can be assembled in any order, however it is recommended the potentiometers are left until last. When assembled the board can be tested and verified that it works - noise in the headphones on receive and when keyed RF into a 50 ohm dummy load. Typical current drains (9v supply) - receive <20mA; key down 60mA.

Power supply

A decision must be made regarding the power source. The larger of the two cases (Figure 4b) assumes that a 9 volt battery is housed inside the case. A heavy duty or a lithium battery is essential. The battery lead should be tied to one of the heavy switch leads to ensure it cannot flex breaking the wires. Should it be decided that only an external battery or mains power supply be used then the smaller case will suffice. The on/off switch can even be omitted and a power-in socket fitted above the phone jack socket as indicated in Figure 4a and 4b. Some may choose to have both options, an internal battery for portable operation with a mains power supply for home use. Here the on/off switch becomes a change over switch, the power socket again mounted on the rear panel with power applied to the unused switch contact and the negative (earth) taken from the earthed switch housing. With the external power supply disconnected the switch becomes a battery on/off switch.

Case construction

The two case sizes both consist of four "U" shaped parts (Figures 4a and 5). The front and rear panels together with the top are made from 18 gauge aluminium and the "U" shaped bottom from thin tin plate. Being thin the bottom plate can slip under the sides of the top panel and everything is held together by four small metal screws. Make sure the screws are clear of the PCB and on the under side. A 50mm wide, 75 mm long piece of plastic sheet (cut from a 2 litre milk container) and bent into an "L" shape can be placed between the bottom tin plate panel and the PCB, with a vertical section separating the battery from the PCB.

Accessories for portable operation

For portable work small accessories enhance the Bare Bones compactness.

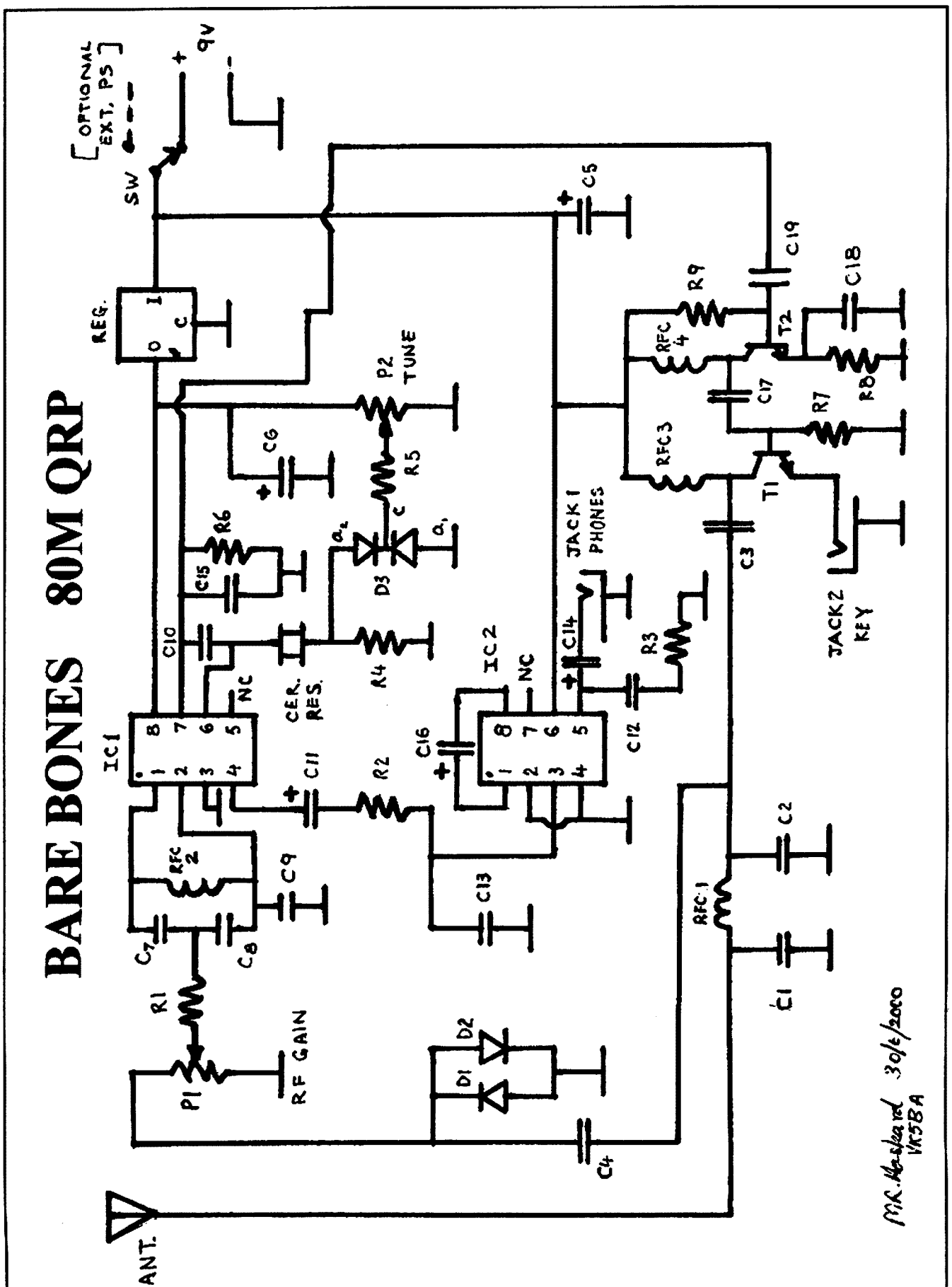


Figure 1. Circuit schematic for the Bare Bones QRP transceiver.

Normal good quality Walkman ear phones suffice with a small Morse key made out of a relay leaf spring, microswitch or similar (Figure 6). For the antenna a 10 metre length of PVC covered wire is used, requiring a small antenna tuning unit. As a compromise a fixed matching unit is used, that plugs directly into the transceiver antenna RCA connector. The unit is constructed in a very small tin plate housing with an earth terminal/clip included. Details are given in Figure 7.

Conclusions

Bare Bones is a very compact simple unit guaranteed to give lots of fun and some frustrations. The latter will provide a challenge to others to come up with improvements, hopefully retaining the criteria of being compact, simple and easy.

Acknowledgments

I wish to acknowledge the kind assistance of John Duval who undertook the board layout and Kon Joukovski for making the PCB.

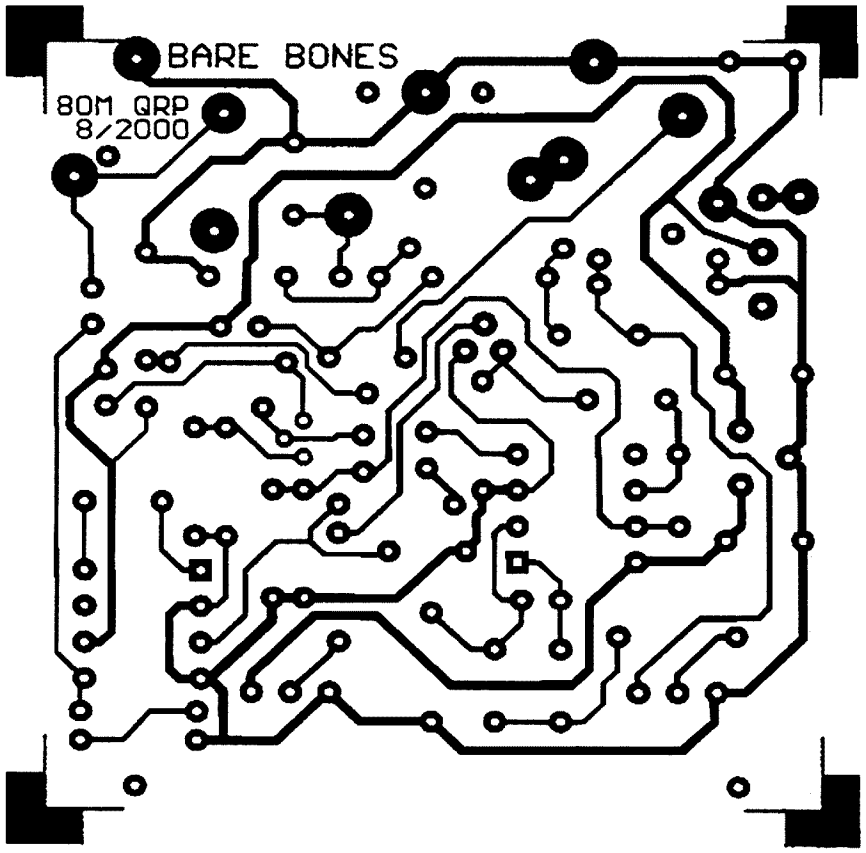


Figure 2. Layout of the PCB at x2 size.

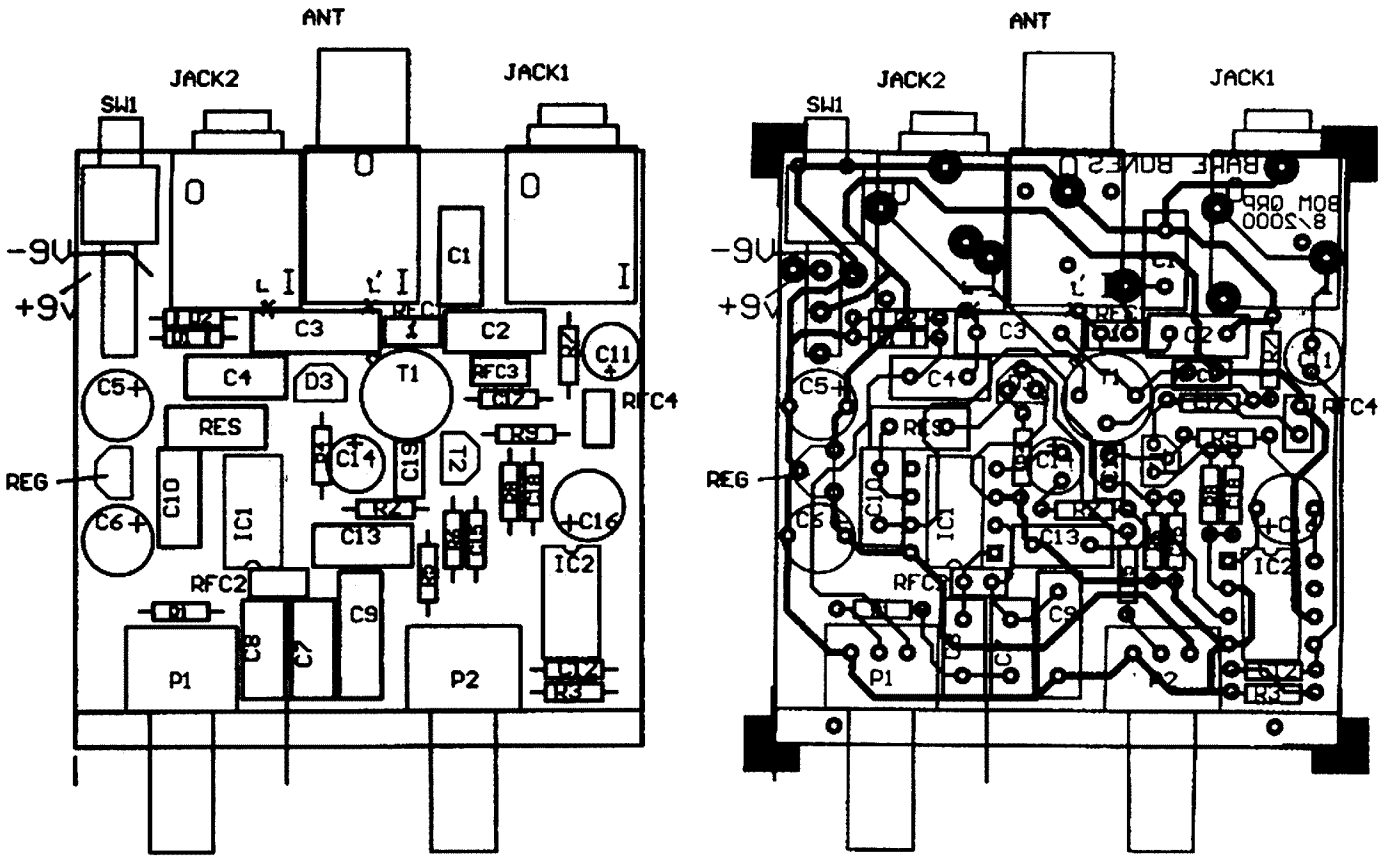


Figure 3. Component placement for the board.

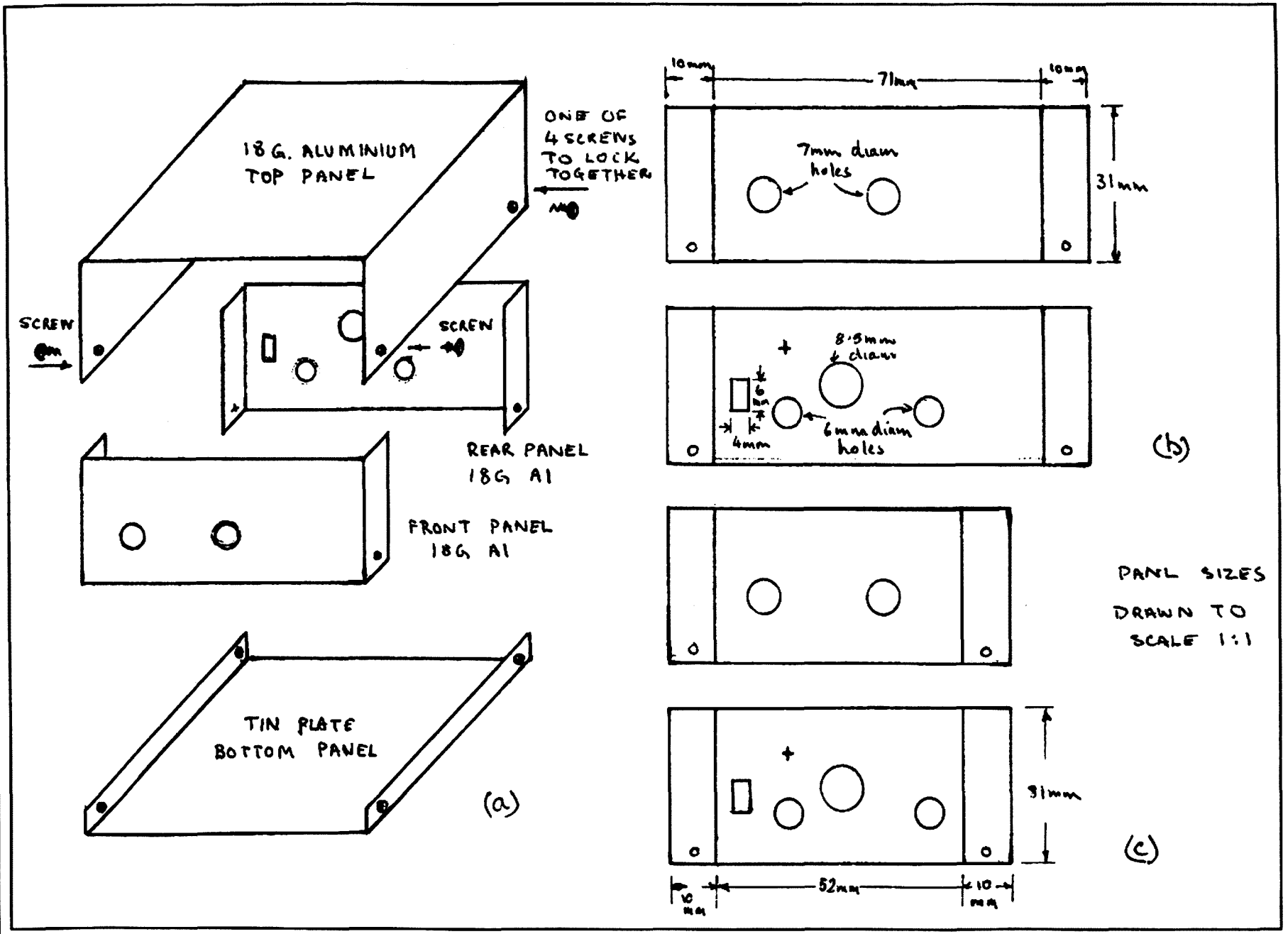


Figure 4. Simple case designs. Exploded view (a) and full size front and rear panels for two versions. Style (b) has sufficient space for an in house battery, while (c) relies on an external power source.

Component List

Resistors (all 250mW)
R1 10k
R2 2.7k
R3 100 ohm
R4 1M
R5 100k
R6 10k
R7 150 ohm
R8 100 ohm
R9 120k (Note - Select so collector current T2 is 8-10mA a compromise between current drain and RF power out)

Capacitors (all disk ceramic unless stated otherwise)

C1 1000pF
C2 680pF
C3 0.01uF
C4 68pF
C5 220uF electrolytic
C6 0.01uF
C7 100pF
C8 680pf
C9 0.1uF
C10 390pF
C11 3.3uF electrolytic
C12 0.022uF
C13 0.1uF
C14 33uF electrolytic
C15 56pF
C17 0.01uF
C18 0.01uF
C19 100pF

Inductors

RFC1	4.7uH DS - R5208
RFC2	22uH DS - R5218
RFC3	6.8uH DS - R5210
RFC4	100uHDS - R5228

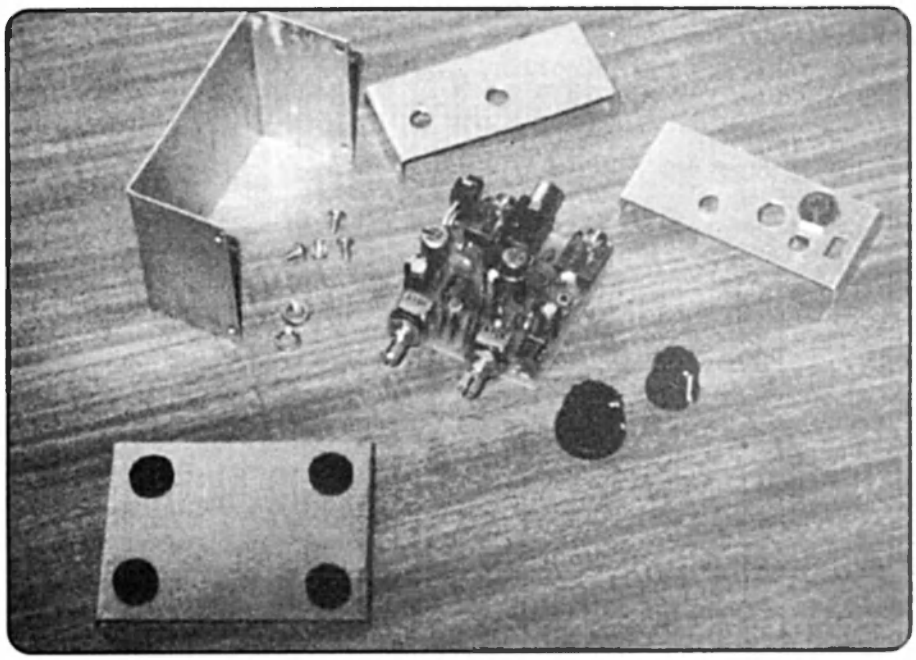


Figure 5. Photograph of the loaded board and four "U" shaped panels. Note the rear panel has the optional power socked assembled on it, while the bottom panel has four rubber legs attached.

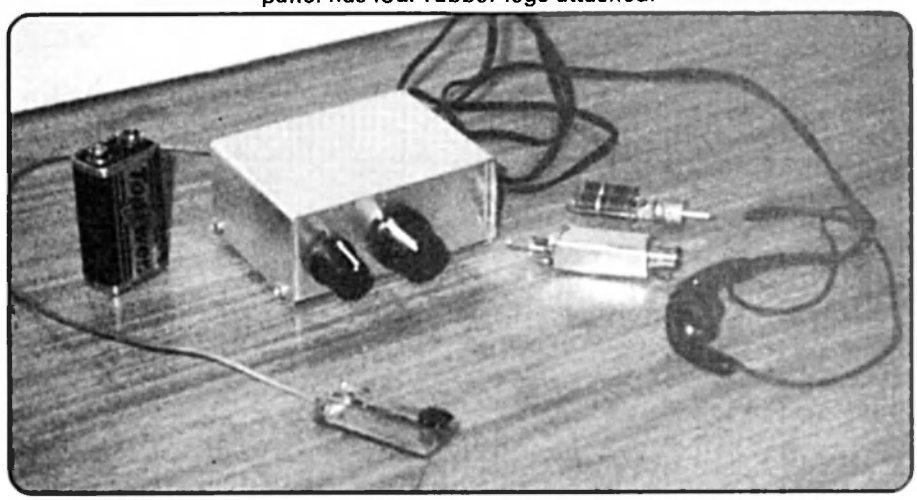


Figure 6. The completed Bare Bones, with internal battery, for portable operation showing the miniature key, Walkman ear plugs, antenna matching unit and 50 ohm dummy load.

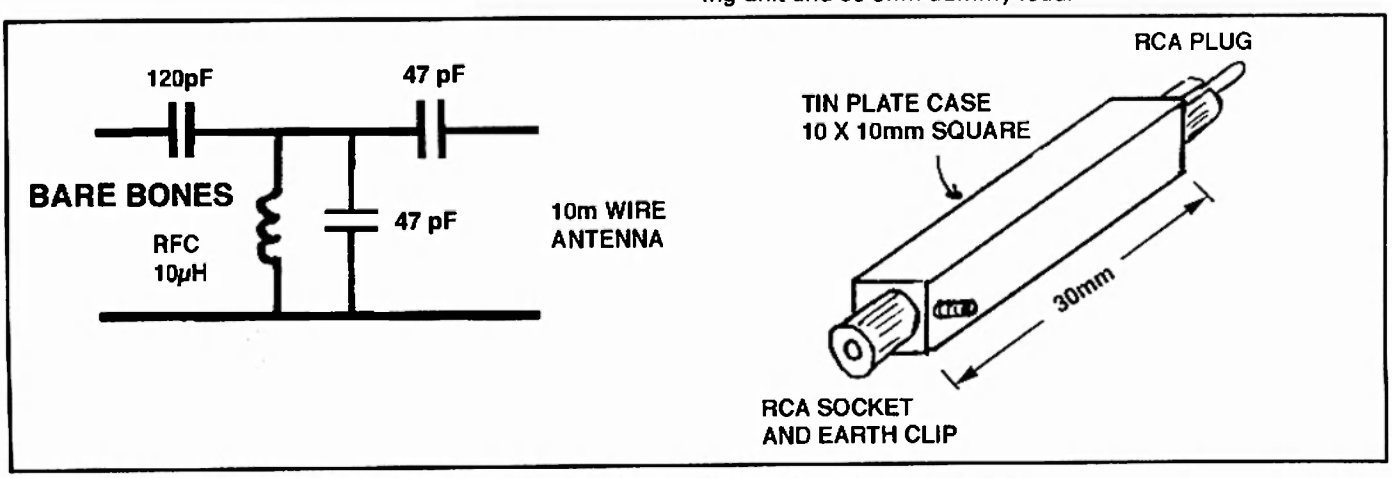


Figure 7. Fixed antenna matching unit for a10 metre wire antenna.

Potentiometers

P1 10k log JC - RP8610
P2 10k lin JC - RP8510

Semiconductors

IC1 NE602 or 612
IC2 LM386
Reg 78L06
T1 2N3866
T2 Any GP Si NPN transistor (2N3904 used) See note for R9.
D1 Any GP Si low signal diode(1N914 used)
D2 Same as D1
D3 BB212 Varactor diode

Other

RES Ceramic resonator 3.85MHz RS - 656-170
Jack1 Stereo socket 3.5mm A - P0092
Jack2 Stereo socket 3.5mm A - P0092
ANT RCA PCB socket A - P0208
SW PCB mount slide change over switch A - S2071

Optional

Panel socket for external power (DS - P1657 used)

Suppliers

A Altronics
DC Dick Smith
JC Jarcar Electronics
RS Radio Spares

ar

Silent Key

Arthur John Brown VK2IK

10/12/14 – 24/2/01

by John Lego, VK3BUI

Sixty-seven years is a long time to be a radio amateur. My childhood recollection of Arthur's "shack" at Epping in the 1950s was of a place of magic and wonder. Compressed into a room probably not more than one and a half by two meters, was wall to wall, floor to ceiling, radio. There was a workbench too! A few years later I was able to listen in on regular QSOs between Arthur, his colleague George, VK2AYG, and Arnold in Toorak on AM. Thus inspired it was a privilege to finally join Arthur and George on 40m many years later.

Arthur writes that it was during his secondary schooling he came across a publication "The Modern Boy" where there were articles on wireless, photography and travel. These topics were to interest him for a lifetime.

It was during his five year apprenticeship with Bushells Tea as their first Electrical Apprentice, in February 1934, that he gained his Amateur Operator's Certificate of Proficiency. I well remember him telling me of the thrill of working the ZLs using just 2 watts from a home brew transceiver at his Earlwood QTH.

In 1938, Arthur traveled to Britain where he worked with TV and later with the Army Signals Establishment. Returning to Australia in 1940 he joined the RAAF where his job was to ensure that the standards for electrical equipment including radar, made under contract at various Sydney factories were being met.

Arthur Brown operating VK2BST at Sydney Technical College, Dec 77.

Arthur joined the Department of Technical Education (NSW) in 1947. There he taught electrical, radio and subsequently TV trades courses. In 1973 he retired as Head Teacher, School of Television and Electronics, at Sydney Technical College, Ultimo.

In 1950 Arthur commenced a 3 year project to construct a one hundred valve electronic organ. A masterpiece of electronics in its day this organ was also a beautifully crafted piece of furniture. It was donated to the Powerhouse Museum in 1996.

Arthur continued to operate from his QTH at Alan Walker Village, Carlingford until October 2000. He is survived by his second wife Dorothy, his three children and nine grandchildren.

Technical interests and achievements made up but one strand of a busy and fulfilled life. Like a 3 core power cable there were, for Arthur, two other most important strands, family and church.

In 1997 Arthur wrote:

"I consider that over the years I have had an interesting and fortunate life and have been blessed with two happy marriages. I have also enjoyed the Christian faith throughout and the adventures of travel."

ar

Correction:

I noticed the Silent Key of David Brain VK3ADD in February A.R.

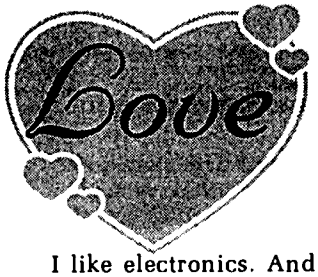
David's surname was 'BRAIN' not 'BRIAN' as printed. As one whose surname is also Brain, I find it interesting that people seem compelled to correct what they believe to be a spelling error in my own name (couldn't be Brain - must be Brian??).

Since Dave can't correct the matter I thought I would let you know that his name was in fact B-R-A-I-N. Perhaps a correction in A.R. might be appropriate.

73 de Gavin BRAIN VK3HY
(Member WIA)

Thank you for bringing this to our attention. We stand corrected, and apologise for the error.

Editor



and Amateur Radio

Our hobby has "sex appeal" that should attract young people, as Peter Ellis VK1KEP explains.

I like electronics. And today I have realised why I love being an Amateur Radio operator. But, first, a little social and linguistic history.

The stoical Aussie or American - anyway, those of English stock - will perhaps on a good day describe themselves as being **fascinated by** or **absorbed in** their hobby. But, I think that you'd be hard pressed to find me someone who describes themselves as IN LOVE WITH or "a love-doctor of" Amateur Radio. Yet, it is precisely this meaning that we should be expecting of ourselves and other Amateur Radio operators.

Let me explain.

My thoughts always seem to turn to radio between other thoughts of work, family, etc. It's my organic form of a computer's "multi-tasking environment". My wife even understands that about me.

The intricacies of radio technology often elude my understanding, yet I have been an electronics enthusiast since I can remember. Understanding parents bought me a hobby electronics kit in early Primary school. My earliest memory of Amateur Radio was around that time, in the '60s, going to the house of a family friend and being shown his radio room. It's something I still remember vividly. He demonstrated cross-band duplex 2m/70cm across town, using valve equipment he had built himself.

Interest was maintained during science courses at High School as puberty took its course. I did introductory electronics in early tertiary studies. It was there that I met an instructor, an Amateur Radio operator, who later sold me his complete station rather than moving it interstate, and I still have it all. It includes his old ARRL and RSGB handbooks that I read cover to cover so I was soon able to sit and pass the 5wpm Morse and full Theory. The day I visited the licensing office in North Sydney, they told me mine was the first K call in NSW and possibly Australia. I was in love with radio.

That the early RSGB Handbook[1] is very definitely dry of emotion! Our American colleagues via their ARRL handbooks were a little more forthcoming. They stated and even romanticise a little in "The Amateur's Code: The Amateur is Considerate... Loyal... Progressive... Friendly... Balanced... Patriotic..." and looking at it, this describes love!

The Handbook said that, "Although as old as the art of radio itself, amateur radio did not always enjoy such prestige. Its first enthusiasts were private citizens of an experimental turn of mind whose imaginations went wild when Marconi first proved that messages actually could be sent by wireless."[2]

The role of 'public service' in Amateur Radio was there, too. I feel that public service - of helping others to have a "fair go" - is love in action in the community.

Later, the ARRL comments on making new friends - "people with common and yet widely varying interests, able to exchange ideas and learn more about each other...."[3]

Enough of past loves.

I was reading a book today and a paragraph leapt out at me.

'Amateur' has come to mean 'non-professional' or 'unpaid'. But the word is derived from the French *aimer* ('to love' [verb]) and literally means someone who 'loves' what they do. The true amateur, then, is someone whose attitude to [whatever] never loses sight of [wanting to experience the joy of what they are doing.][4]

This was in a book describing how we should feel freedom in our enjoyment of and expression in playing or listening to music, also a love and pastime of mine. Yet, I quickly realised that the principles are the same. It is the very freedom that love gives us, to receive assistance of another and reciprocate by feeling free to give of our best and not be judged, that typifies the Amateur spirit.

I looked up some other references.

am'ateur, noun. One who is fond *of*; one who cultivates a thing as a pastime. Hence amateur'ISH adjective, amateur'ishLY adverb, amateur'ishNESS amateur'ISM, nouns [French from Latin *amatorem* (*amare* love, see *amor*)][5]

hobb'y, noun. Favourite subject or occupation that is not one's main business... [Middle English *hobyn, hoby,* a by-name of *Robin*]

pa'stime noun. Recreation; game, sport [from PASS + TIME]

A French-English dictionary gave me enough to know that between the English and the French, there should be no confusion as to the meaning of Amateur Radio.

lover noun *amant* masc.; (amateur): a lover of *un(e) ami(e) de*; *un(e) amoureux(euse) de.*[6]

radio noun *radio* fem., on the ~ *a la radio*; station *station* fem. *de radio.*

Hence, our French Amateur Radio colleagues might describe themselves as having a *station de radio d'amateur*, and being *une amie de radio* or saying of themselves merely *J'aime le technologie a la radio.* I hope that these double-meanings are plain.

Needless to say, this insight into the Gallic word carrying over into English now offers us a potent excuse to throw out our chest, inflate at least our egos, and say with great pride and as much of an air of mystery as you can muster, "**I'm a great lover *and* an Amateur Radio operator!**"

Now, what was that about Amateur Radio and its image not be "sexy"? Amateur Radio can speak every language, even love!

Peter Ellis VK1KEP
www.geocities.com/peter-vk1kep is Publicity Officer for the WIA (ACT).
Email: publicity@vk1.wia.ampr.org

[1] "The Radio Communications Handbook" (1968, 4th Edition), RSGB

[2] "The Radio Amateur's Handbook" (1975), ARRL, p7

[3] "The Radio Amateur's Handbook" (1980), ARRL, p1-1

[4] "The Inner Game of Music" (1986), Barry Green with W. Timothy Gallwey, Pan Books, p78

ar

Making Holes in Sheet-Metal

Drew Diamond, VK3XU 45 Gatters Rd., WONGA PARK, 3115

There are few radio/electronics projects that do not involve making holes in sheet aluminium, brass and plastics. For small round holes, up to perhaps 6 mm, ordinary "jobber" twist drills are usually adequate. Larger, and odd-shaped holes can be a little more tricky. Let me describe a few effective methods of tackling these.

Photo 1: Brad-point drills

Before we go further, it is strongly recommended that the following power drilling operations be performed on a drill-press/bench-drill, with the job firmly clamped upon the drill-table to prevent movement. If you do not own, or have access to a drill-press, an ordinary hand-held variable-speed electric drill will serve. However, great care must be exercised so as not to over-load the motor. Always wear approved safety specs or goggles when using any kind of power tool- make it such a habit that you feel naked without them.

The job should be accurately marked-out with a scriber to show where all holes shall be. To prevent drill drift, a centre-punch indent must be applied exactly at the intersection of the mark-out lines. To avoid error, it is good practice to note the final hole size adjacent to the mark.

When working with sheet-metals, less than say 2 mm thickness, holes larger than about 6 mm can turn out a bit raggedy, or we may get a triangular hole, even when the job is clamped firmly and backed with hard timber. The reason is that the drill point breaks through the material before the straight part of the drill has entered the work, so the point is free to wobble around- resulting in an irregular hole. One effective way of making nice round holes is to use 'pilot-point' or 'brad-point' drills (see Photo 1). The latter are intended for wood-working, but lend themselves very well to soft metals (such as aluminium) and plastics. In use, the pilot point enters the work first, which provides a stable pivot,

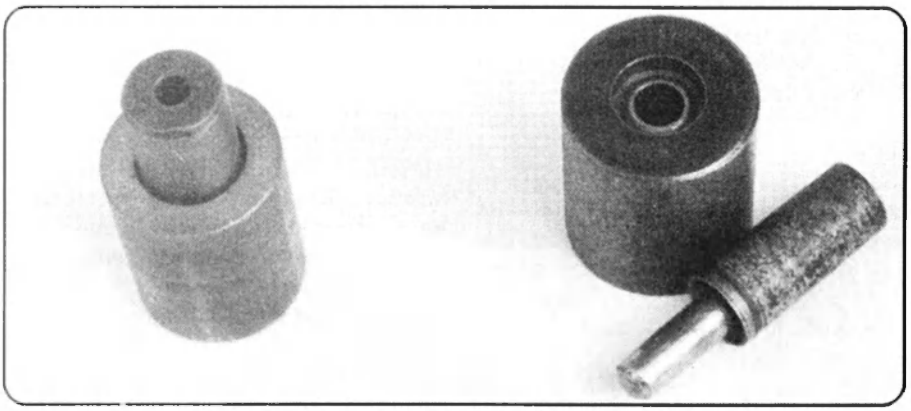
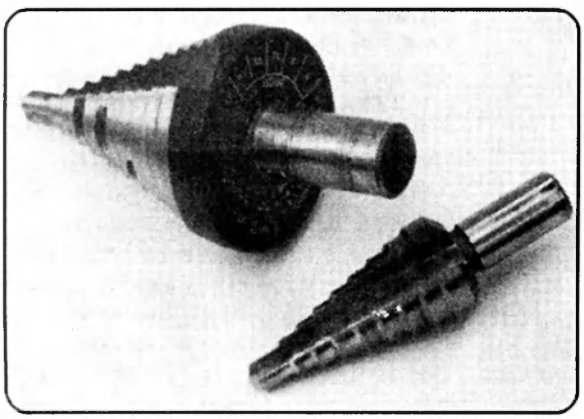


Photo 2: Hole punches



◀ Photo 3: Step-drill bits

Photo 4: Step drilling ▶

so that when the outer cutting edges enter, an accurate, round, and almost burr free hole is produced. Such tools permit holes with overlapping circumferences to be drilled, as will be described later (see also Refs 1 and 2).

One of the more traditional tools for making round holes is the "chassis-punch" or hole- punch (Photo 2). A pilot hole is drilled, then the guide-pin is inserted through the hole, and the punch is either struck with a hammer, or compressed in a vice. They make a clean round hole with very little burr. However, individual punches and punch sets are quite costly- when available.

Step-drill bits (Photo 3) are a relatively new idea. To ensure that the required step size is not exceeded, it is a good plan to mark- with felt-tipped pen, around the appropriate diameter upon the bit. A typical drilling operation is depicted in Photo 4. Note firm G-clamping and use of scrap wood blocks for protection of the drill table and the job. A similar tool is the 'cone-drill', which is used in a like manner.

An extremely useful tool is the tapered hand-reamer, pictured in Photo 5. Makes a clean hole with little burring. A hole slightly smaller in size is made first, then hand-reamed to exact final diameter, as depicted in Photo 6. Generally used as a follow-on after step or brad drilling, or round filing under-size. Incidentally, a de-burring tool may be fashioned from an old triangular file; grind the teeth off all three faces and fit into a file handle. The tool is inserted into a burred hole at about 45 degrees, where the burr may be shaved off.

When I was a lad with few tools, all my large holes were made using the good old "chain-of-holes" method, depicted in Photo 7. With care, a brad-drill may be applied inside the marked circumference so that their edges just touch, or overlap slightly. The waste is broken out, then the hole finished to required diameter with a half-round file.

A "nibbler" (Photo 8) is useful for making round- or any other shaped hole. I find that it is generally best to nibble about 1-2 mm inside the required dimension at first, then go round again, this time bringing the front of the blade right up to within "half a bee's dick" of the marked line (Photo 7), finishing off to exact size by filing.

We can probably thank electricians for making the hole-saw (Photo 9) so popular. The job must be firmly clamped upon the drill table, as depicted in Photo 10. Use slowest drill speed setting. A light oil lubricant, such as sewing-machine oil, or auto transmission fluid will aid things considerably. The resulting hole can be pretty raggedy, so a hole slightly under-size is to be preferred, which is then cleaned up and brought to required size with a half-round file.

Lastly, may I introduce my little mate the "rod-saw". Fits into a standard hack-saw frame. A hole must first be drilled inside the waste to admit the blade lug. The saw is then plied in the usual way,

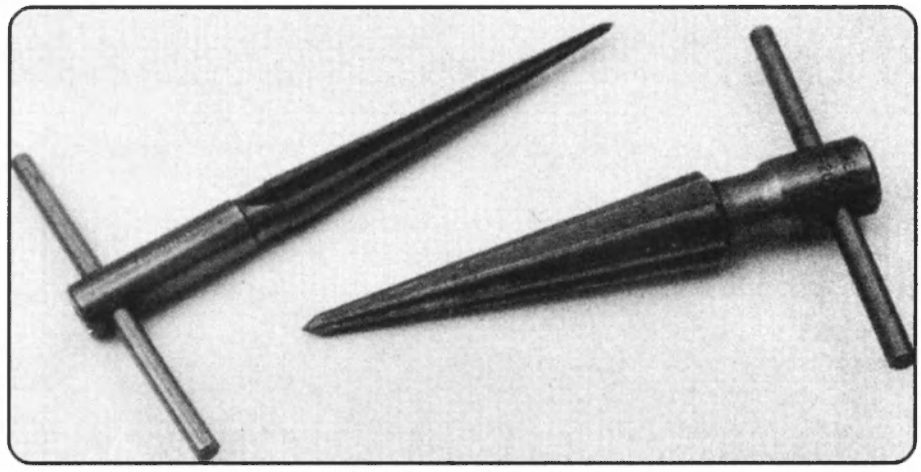


Photo 5: Hand-reamers

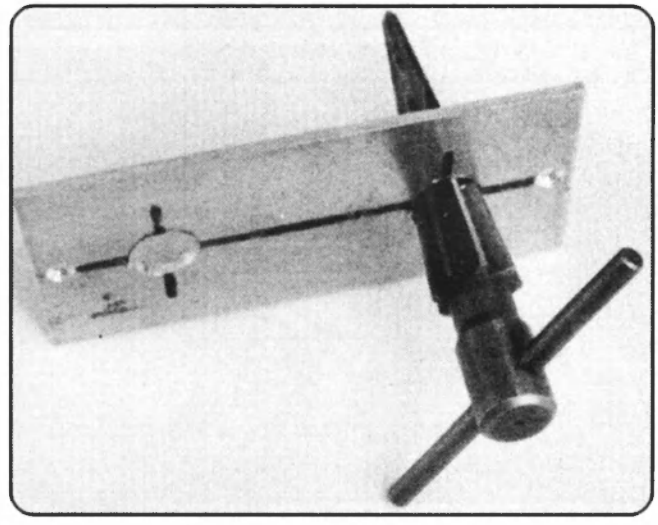


Photo 6: Hand-reamed hole

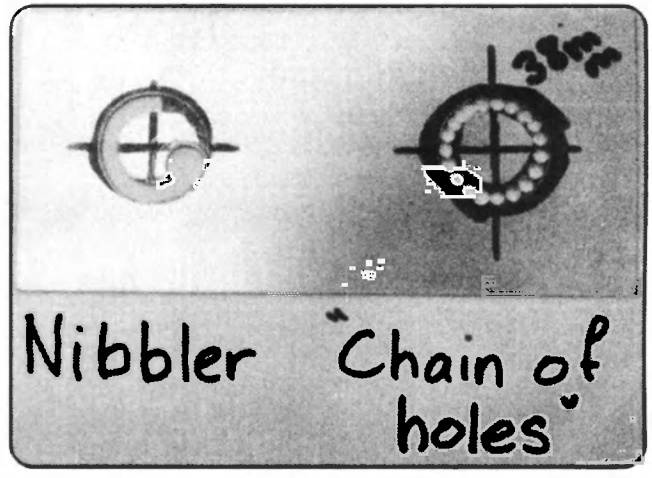


Photo 7

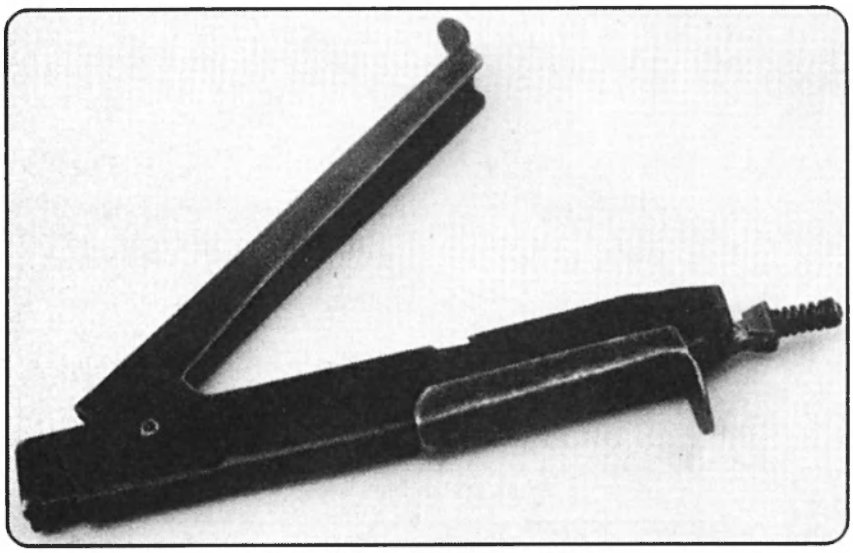


Photo 8: Hand-operated nibbler

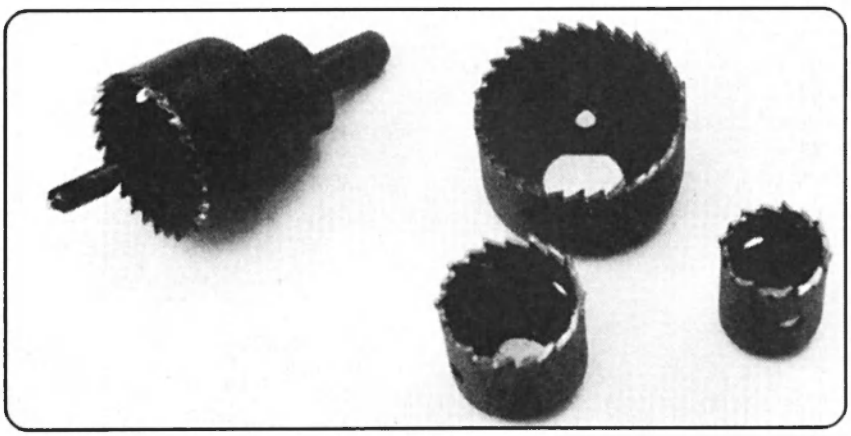


Photo 9: Hole saws

as depicted in Photo 11. Clean up rough edges and bring to required size by filing.

Tool Suppliers Punches, step and cone drills, nibbler, hole-saws and tapered hand-reamers are generally available from suppliers to the electrical/ electronics trade- for example; Radio Parts (03 9329 7888), Radio Spares (1300 656 636), Farnell (02 9645 8888), Jaycar and Dick Smith Electronics. Brad-drills, hole-saws and rod-saws available from many hardware suppliers and general tool merchants. In addition, for Melbournians, try; Gordon Franklin (tool merchant; 03 9887 8204) and Wantirna Sunday Morning Market (cnr Boronia Rd & Mountain Hwy, Wantirna). For mail-order, try McJing Tools (02 9789 3851)- catalogue available.

References and Further Reading

1. "Modified Twist Drills for Sheet Metal"; Diamond, AR July '95.
2. "Sheet Metal Drills"; Smith, Model Engineer issues #3851 and # 3853.
3. "Large Holes in Sheet Metal"; White, G3SEK, Rad Com Oct '93.
4. Model Engineering- A Foundation Course; P. Wright. Nexus Books, pp 225, 226 (excellent book- also applicable to radio/electronics metal-work operations).

ar

Photo 10

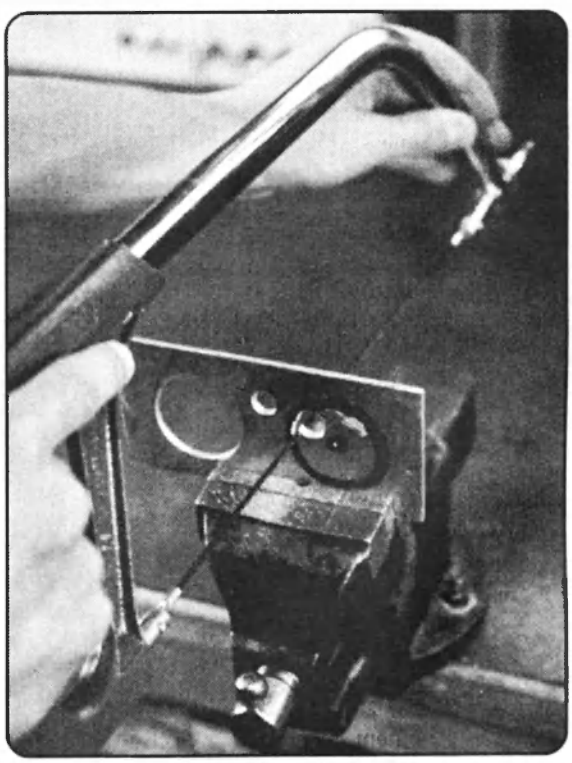


Photo 11: Rod-saw

Nikola Tesla

The First Radio Amateur and Real Inventor of Radio

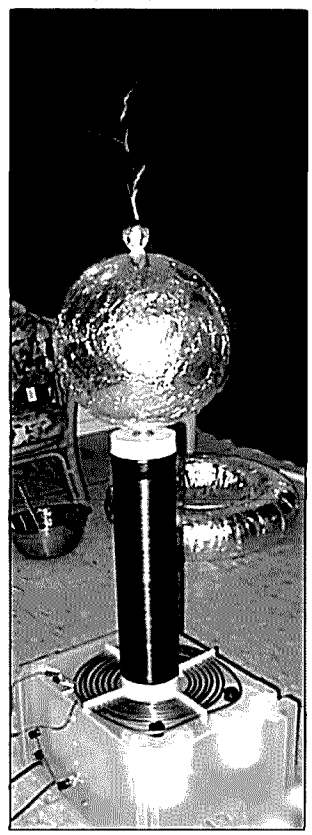
John W. Wagner, W8AHB,
3890 Tubbs Road,
Ann Arbor MI 48103.

At the stroke of midnight when July 9 became July 10, 1856, Nikola Tesla was born. Within the first 26 years of his life he had conceived the rotating magnetic field principle. This discovery for mankind made possible the generation and distribution over long distances of virtually unlimited electrical energy in the form of 50 Hertz AC.

The nature of this benevolent genius was such that he had no further interest in low frequency work, so he moved on to explore the world of high frequency phenomena. By 1890 he had conceived his famous "Tesla coil", still used as a major component in numerous electronic devices. By 1893 he had conceived, explained, and demonstrated the "Four tuned circuits", making possible the theories of Maxwell and Hertz on the transmission of intelligence. The circuits were tuned to resonance with each other, two on the transmitting side and two on the receiving side using Geissler tube detector. His apparatus used the first antenna, as well as a ground connection, plus an antenna-ground circuit containing inductance and capacity. Also conceived was the adjustable inductance and capacity circuit for tuning. In 1893 he made the first "wireless" transmission before the National Electric Light Association in St Louis, and it is this essential understanding that exists today in all modern radios. These principles served as the foundation for his US. patent that eventually had priority over Marconi's basic patents.

Most amateurs are unaware of what happened on 21 June 1943: The United States Supreme Court made a landmark decision that essentially settled the long dispute between Marchese Guglielmo Marconi and Nikola Tesla. The court's decision on Case No 369, identified as "Marconi Wireless Telegraph Company of America vs. United States," rendered invalid Marconi's basic patent No. 763,772 dated 28 June 1904. Tesla's patent No. 645,576, of 20 March 1900, and its subdivision patent for apparatus No. 649,621 dated 15 May 1900, had priority. The court also cited John Stone's patent No. 714,756 dated 2 December 1902, incorporating greater tuning selectivity, and Sir Oliver Lodge's patent No. 609,154 dated 16 August 1898, providing variable inductance tuning.

Our modern-day understanding of radio is very different from what people knew in those early days. Therefore, it is essential to state a definition of radio that encompasses only that which is indispensable as an embryonic commencement of our present day technology. Lack of understanding in this embryonic area is where most modern technologists and historians become confused, and understandably so. Nevertheless, without the conception of the radio "embryo," those basic elements underlying its fundamental principles, there would be no radio; and without a delimitative definition, there can be no definitive decision on who really invented those basic elements of our modern day radio technology.



Will McGhie's one metre high Tesla coil
(AR March 2001, Repeater Link)

The following definition served the Supreme Court well because it was then able to render a just decision: "A radio communication system requires two tuned circuits each at the transmitter and receiver, all four tuned to the same frequency." It is this "four-tuned circuit invention" that Tesla patented, published, and explained. This enabled the high court to give him priority for these necessary basic elements of "wireless," without which there would be no foundation for future advancements.

Naturally, many who followed Tesla made progressive refinements in the technology thus developing it to its present day state. Most of its tend to attribute the birth of radio to those early technologists who made the first refinements, but it was Tesla who had laid the foundation. Historians also give great praise, and correctly so, to such men as Maxwell and Hertz for their monumental work in wave theory. Puzzling to many, however, Tesla's greatest contributions, AC power distribution and fundamentals of radio, are either not known or challenged bitterly.

It is easy to understand why most people have a distorted understanding of just who was the real inventor of radio. First, it was the newspapers that hailed Marconi's first successful transatlantic radio transmission; then textbooks followed with their depiction of that exciting event. Both media sources had already raised the flag of victory for Marconi, so it is easy to understand Tesla's dismay—he had done much of the pioneering work.

A similar media blitz is responsible for Thomas Alva Edison becoming a familiar household name. In reality Mr Edison did not create or develop our system of alternating current electricity. History of "The war of the Currents" shows how he fought its adoption bitterly, choosing instead to promote a system of direct

current that had already been invented by others. In short, Mr Edison's brief role in the electrical power industry was that of an entrepreneur who failed, rather than an inventor. It was Nikola Tesla's discovery of the rotating magnetic field principle in 1882 and patented in 1888 that gives us our modern day system of electrical power distribution.

In 1988-89, the writer's students commissioned a bust of Tesla to donate to a large museum (any large museum). After discovering that the Division of Electricity and Modern Physics section of the National Museum of American History made no recognition of Tesla we offered our bust. The curator promptly refused the offer stating that he had no use for it. Later we discovered that the curator was displaying a bust of Edison alongside Tesla's induction motor. He also displayed photographs of the Niagara Falls power plant next to one of its original generators. A large brass inscription plate listed Tesla's patents, but there was no reference to Tesla. In the middle of the display stood a life size replica of Thomas Edison with the caption, "while the Niagara AC plant was being built by Westinghouse, Edison was busy with other important things." The caption did not explain what these "other important things" were, nor why this was relevant to the Niagara AC power plant. Perhaps Mr Edison was still busy catching stray dogs to electrocute at press conferences in a last ditch effort to defeat the spread of alternating current!

The *Smithsonian Book of Invention* is a prodigious 3/4-inch thick book of America's greatest inventors and their inventions. Tesla's name does not appear anywhere in that publication. The writer wonders how such an august institution with all the learned historians in their employ could possibly ignore Tesla's contributions in their chapters depicting the evolution of electric power and radio.

Further evidence of history gone amuck is seen in the Smithsonian's publication, "The Beginning of the Electrical Age." The curator meticulously traces the history of electricity from Volta to Edison, naming 43 significant contributors, yet Nikola Tesla's name is missing. Instead, the curator shows pictures of the Niagara Falls Power project and readers are carefully guided into believing that this was the work of Edison. Yet it was Tesla's polyphase AC system that the power commission adopted and licenses had to be issued to use Tesla's patents. Money for this publication came from the Thomas Alva Edison Foundation. Perhaps this is why Mr Edison's name and various pictures appear so prominently and Tesla's name is missing. History is indeed for sale at the Smithsonian, or so it appears.

Radio amateurs especially should take exception to the flagrant disregard for truth in history that exists in the Division of Electricity and Modern Physics section of the National Museum of American History, within the Smithsonian Institution. Why does the Smithsonian, and the general public as well, have such a biased view of electrical history? The answer is obvious.

Tesla's induction motor, using his rotating magnetic field principle, provides us our worldwide system of alternating current electricity. Few people realize the earthshaking importance of this discovery. Honoured engineers have ranked it to the electrical equivalent of the wheel.

Niels Bohr in 1956 stated, "Tesla's most ingenious inventions and researches have been the fundamental for that development which so deeply influences our whole civilization."

Dr W H Eccles in the *Proceedings of the Institute of Electrical Engineers*, stated, "Tesla was the greatest electrical inventor we have had on our roll of membership; in fact we might go as far as to say that he was the greatest inventor in the realm of electrical engineering."

John Stone in 1917 stated, "Among all those, the name of Nikola Tesla stands out most prominently. Tesla with his almost preternatural insight into alternating current phenomena that has enabled him some years before to revolutionize the art of electrical power transmission through the invention of the rotary field motor, knew how to make resonance serve, not merely the role of a microscope, to make visible the electric oscillations, as Hertz had done, but he made it serve the role of a stereopticon... He did more to excite interest and create an intelligent understanding of these phenomena ... than any one else ... and it has been difficult to make any but unimportant improvements in the art of radio telegraphy without travelling, part of the way at least, along a trail blazed by this pioneer who, though eminently ingenious, practical and successful in apparatus he devised and constructed, was so far ahead of his time that the best of us then mistook him for a dreamer."

Lord Kelvin in 1896 stated, "Tesla has contributed more to electrical science than any man up to his time."

Tesla was recognized by his peers but forgotten by his successors, including much of the amateur community. We depend daily on his wireless creation and the power to make it work; yet the vast majority of our ranks still has a distorted idea of our real benefactor.

Tesla died 7 January 1943, alone in his hotel room at the Hotel New Yorker; surrounded by a world of technological progress he was instrumental in creating. Yet the only monument to his memory in our country is a statue at Niagara Falls, a gift from the former country of Yugoslavia. He is one of only two Americans honoured by the International Electroteclinical Congress in Munich. In 1956, the unit of magnetic flux density in the MKS system was designated the Tesla. Thus, his name is alongside only fifteen others such as Volta, Faraday, ohm, Watt, and Ampere. Joseph Henry is the only other American so honoured.

For those who are old enough to remember, the Smithsonian Institute carried on a similar feud with the Wright Brothers that lasted 45 years. It was not until December 1948, after we had entered the jet age, that its officials finally relinquished their demand to honour Samuel P Langley whose plane did not fly. He was Secretary of the Smithsonian in 1903 when the Wrights flew their plane at Kitty Hawk. Although there is no connection between the Wright Brother's debacle and the historical mendacity suffered by Tesla at the Smithsonian, there is an aspect of relevancy.

At best, the writer hopes to engender enough support from the amateur community to petition Smithsonian Institution officials to honour Tesla. Certainly there is overwhelming evidence that he has earned his place in history in our country's premier museum. At the very least, this issue might stimulate some lively discussions on the ham bands.

Editor's note *This article is reprinted from* Spark Gap Timer *(April 1995) the journal of the Old Old Timers Club of the USA. One amendment was made [50Hz mains]. Some of the claims may be controversial. Publication by the WIA does not imply support or otherwise for any such claims.*

ar

Invisible Antennas

by Ron Holmes VK5VH.
Unit 8, 22-24 Marden Rd.,
MARDEN 5070

> "It was something of a shock at the first meeting of the strata management group to discover that only indoor antennas for TV were expected and nothing was to show outside the units except with the permission of the whole group"

When I knew we would be moving to a unit I gave some consideration to the question of antennas. Probably I could put up a pair of phased verticals. I'd had good results with them before and one sees CB type antennas everywhere. At worst I thought, I can put up a good looking TV antenna and use it as a top loaded vertical. It was something of a shock at the first meeting of the strata management group to discover that only indoor antennas for TV were expected and nothing was to show outside the units except with the permission of the whole group. I did not want to draw attention to myself from day one as a potential producer of TVI so said nothing and went back to the drawing board.

When I climbed into the ceiling I discovered that I was reasonably lucky in that we had a tiled roof without that aluminium sheet insulation sometimes seen, and the row of rafters looked suspiciously like an inverted vee beam. On 20 metres perhaps I could do something there?

Without going into all the experiments and trials and climbing up and down I will just report a couple of facts which may be useful to others and go to my present arrangement.

POINT ONE: There will be no close relationship between the resonant frequency of a length of wire in open space and the same wire in your ceiling. The frequency will be much lower due to all the wires and pipes and metal braces etc which share the space under it.

POINT TWO It is very difficult to feed a beam at the centre in your ceiling and get the feedline away at rightangles to the radiator without boring holes in your ceiling and maybe a couple of walls as well. Most XYLs have objections to this sort of thing and if the unit happens to belong to someone else there are further difficulties.

Another matter to take into account is that a beam which points in the direction your unit happens to face may or may not take you where you want to go.

The antenna books tell us that two elements at a spacing from 1/8 wavelength to 1/4 wavelength and fed 180 degrees out of phase will radiate in two directions with a gain of about 3.5 db over that of one element. Normally they are fed at the centre. I did this but had considerable trouble with TVI. Perhaps because the feed line could not be taken away at right-angles. So why not at the ends if that is more convenient? Particularly when the ends were folded back towards one another in any case and the feedline could then come down the side of the house and through the window of the shack.

Of course at the ends there was high impedance so I fed them with a 4 to 1 balun and tuned out what standing wave was left on the coax at my transmatch ATU. Under the tiles the elements, 3 metres apart and each 10 metres long, were attached to rafters for the middle 8 metres and turned back towards one another one metre each end. As I was not keen on high RF voltages on the ends of the elements being loose in the ceiling I took the ends of each element through the tiles and back along the lower edge of a row of them, held in place with bluetack. The balun hung under the tiles out of the weather and the coax came down the wall through the small gap at the top of the bricks.

Incidently my baluns are the simple home-brew type using short lengths of ferrite rod from old broadcast antennas. To my surprise the TVI was greatly reduced by the end feed. In fact, while it still affected our 20 year old main set, the more modern portable we bought for the caravan was quite clear, even though sitting in the shack only a few metres from the transmitting antenna.

Although the "beam" points approximately SE and NW it has a very broad radiation pattern and I get good results from VK4,VK2,VK3,VK6 and VK7 with occasional DX at approximately the same level as a temporary quarter wave vertical in the back yard.

But what about 40 and 80? I could not hang wires in the air but knew from past experience that bricks and tiles were no great hindrance to radio waves. A piece of black insulated wire a quarter wave long on 80 could be run from earth level up the brick wall, through the small gap between the top row of bricks under the eaves, between a couple of tiles, then on top of the black tiles up to the ridge of the roof and along the ridge to the far end of the unit. There the end was secured by gripping it between a couple of tiles. From the ground you would have to be very observant to notice it.

This I did and eventually found that on 80 metres all it needed was a variable capacitor at about 100 pf in series at ground level to tune it with SWR at 1/1 against an earth rod and the metal fence. My regular 80 metre net, which I used to work on a full wave loop,* (See "Hamtenna with the Lot" A..R.. Oct 1987),reported that while not quite as before the signal was very satisfactory to all in VK5 and VK3.

On 40 metres the same wire was an approximate half-wave and therefore would need high impedance feed. Was it possible to use a 4 to 1 balun with one side, (that shared with the coax centre lead), connected to the end of the antenna and the other side to earth.? I had not seen a 4 to 1 balun used like that but it was worth a try. Somewhat to my surprise it not only worked but gave a 1 to 1 SWR at first try. Reports on this 40 metre antenna from all over Australia have almost all expressed surprise that I was not using a normal dipole. As an extra it not only works on 15 and 10, but also on the 30 and 17 metre WARC bands. To my joy this 40 and 80 metre antenna does not cause TVI.! Well, apart from a little on 15 metres.

To save the trouble of changing the tuning unit every time I wanted to move

from 80 to 40 I built the variable series capacitor and the 4 to 1 balun into a small plastic box with a coax connection one end and two good terminals the other. The box sits on a paver to lift it off damp earth and has another on top of it to keep the lid down and protect from rain. The coax from the shack and the antenna and earth remain connected all the time. In the box is a 3 pole 2 way switch which changes all connections from one antenna configuration to the other. The control for this and the knob to adjust the 100 pf capacitor are mounted on the front of the box. I still have to walk round the house to change it but fresh air and exercise are supposed to be good for you.

I am still working on other possibilities for 20 metres, but frankly I doubt if the 80 and 40 metre could be improved on. Everybody who works me says, "Don't touch it!"

I realise that every ham in a unit is likely to have different conditions to contend with.. These antennas may suit your situation but an exact copy will not necessarily work the same as mine does. The main thing is to look for the possibilities and make the best of it. I still envy those with 5 acre blocks, or for that matter with quarter acre blocks, but inventing invisible antennas is a new challenge.

ar

AHARS Notes

The most recent meeting of the AHARS was the AGM at which the same committee was reelected. Everyone must consider they are doing a pretty good job so "if it ain't broke, don't fix it" is the attitude. There is no doubt that when the members become dissatisfied with a committee they soon make changes.

As is the usual practice, a "Member of the Year" was named by Geoff VK5TY as President. This year the honour was shared between Geoff VK5JB and Grant VK5ZWI in recognition of the sterling effort they put in, on the behalf of all SA amateurs, in the presentation made to a government sub-committee in relation to the height of amateur towers.

After the AGM the members were introduced to the new regulations and the new safety equipment required for anyone climbing a tower, not his own. You may still use your old safety equipment when you climb your own tower but if you are asked to climb the tower of another amateur and wish to be covered by his insurance policy. in the event of an accident, you must be using the required safety equipment and you must know how to use it properly.

Two members of AREG demonstrated all the rigging and gave a very informative talk about the new rules. There were many long faces among the amateurs who had been climbing towers for years. They will have to do some thinking about the situation.

AREG will be conducting a course, later in the year, for anyone wishing to learn all about safety and the new equipment, in more detail. Anyone in VK5 interested in participating could get more information from AREG members or from Geoff VK5TY or Alby VK5TAW, President and Secretary of AHARS.

If you are visiting VK5 get in touch with either of these gentlemen (QTHR the callbook) for information about the AHARS meetings. Visitors are very welcome on the third Thursday of each month.

Did we talk to you in the Field Day? If not, why not? It is good club fun.

Riverland Radio Club Inc

Xmas Pageant

The Riverland Radio Club supported the Renmark Xmas pageant again in December last year; this is the second year that the club has supported the pageant. Last year the club was able to display its new banner which incorporates its logo (see photo) some 30 odd floats were in the parade through the streets of Remark.

The club also held a post Xmas dinner, this year at the Renmark Club over looking the floodlit River Murray. The dinner was not held until later in January to avoid the many celebrations that are held around Xmas time, 21 members and wives enjoyed an excellent meal and Oh! What a view. The evening concluded with a trip on Tony's VK5ZAI and Jill's houseboat the "Nooralie" which was moored in front of the Club, tea and coffee was served by Jill and members wives, a very enjoyable evening was had by all.

Congratulation must also go to three of our club members. Chris Hedger VK5PBI received a Silver Koala for Distinguished Service as a Scout Leader of the Berri group in the Riverland.

David Wilson VK5NAP received a Certificate of Merit for good service as committee of the Barmera Scout group also in the Riverland.

Gary Watt VK5CWP also received a Certificate of Merit for good Service as committee of the Barmera Scout group.

Another member of the club also has been honored with an invitation from NASA to watch the launch of the shuttle Discovery STS-102 with Adelaide born Andy Thomas who will be accompanying mission. Andy will be involved in an EVA from the ISS space station. Tony Hutchison VK5ZAI and his wife Jill leave for the USA on Tuesday the 27th Feb. to be at Cape Canaveral for the launch on March 8th, Andy's father Adrian and his stepmother Gill will also be at Cape Canaveral for the launch.

Doug Tamblyn VK5GA

Amateur Radio in the Australian Alps

Cover Story

Stephen Warrillow VK3JNH

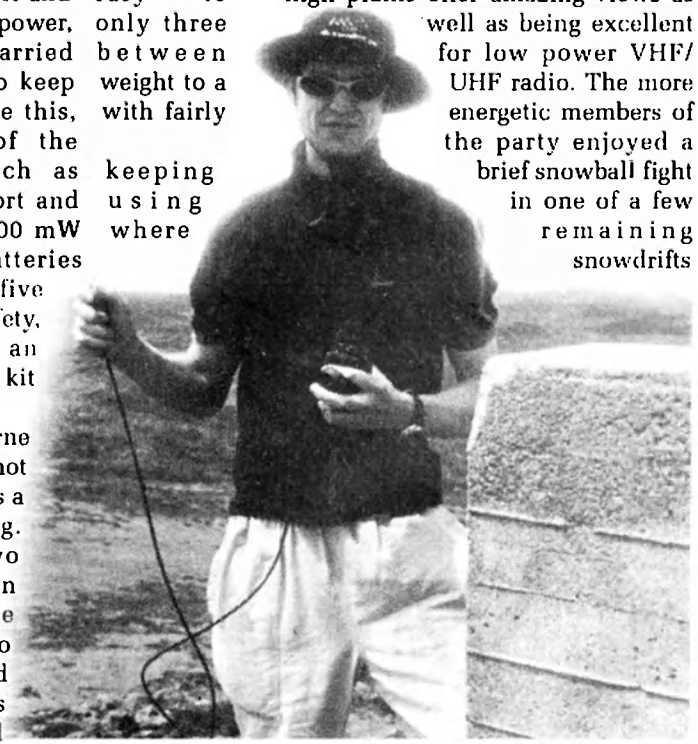
Australia's alpine region covers an area from Gippsland in southeast Victoria through to New South Wales and the ACT. While only making up a very small part of Australia's landmass, this range of mountains contains unique flora and fauna as well as regions of exceptional beauty. The alpine areas include high plains and peaks towering over deep river valleys - ideal for VHF and UHF radio, as these high points offer line-of-sight pathways to the horizon in nearly every direction. Most of these remote high points therefore have excellent repeater access, even with low power and compromise antennas. Standing on peaks such as Mt. Feathertop or Mt. Kosciusko, one can readily work stations back in Melbourne or Sydney on only a few watts, using distant repeaters. As a keen (if somewhat infrequent) bushwalker, I have had a great deal of fun operating on two metres with a handheld from some of the highest parts of Australia. On nearly every occasion, there have been amateurs willing to have a quick contact via their local repeater with a faint and noisy signal coming from a handheld on the top of a mountain.

In January this year my brother, Gerard (VK3HFI), arranged a trip to Mt. Jajungal in the northern section of the Kosciusko National Park. Compared to the southern areas of the park, this area is seldom visited and is best accessed by foot. After deciding on what turned out to be a fairly ambitious route, we coerced a few others to join the party and made the necessary preparations. These included arranging gear such as tents, packs and stoves, organising food and meals and obtaining "leave passes" from our families. In total we would be camping out for four nights, so everything required for the five days on the track had to be carried. Anyone familiar with climbing a steep and rocky mountain track will understand the importance of prioritising the contents of one's pack to keep weight to a minimum- packing the extra block of chocolate or bottle of port may seem like a good idea back at home, but halfway up a mountain slope every kilogram counts!

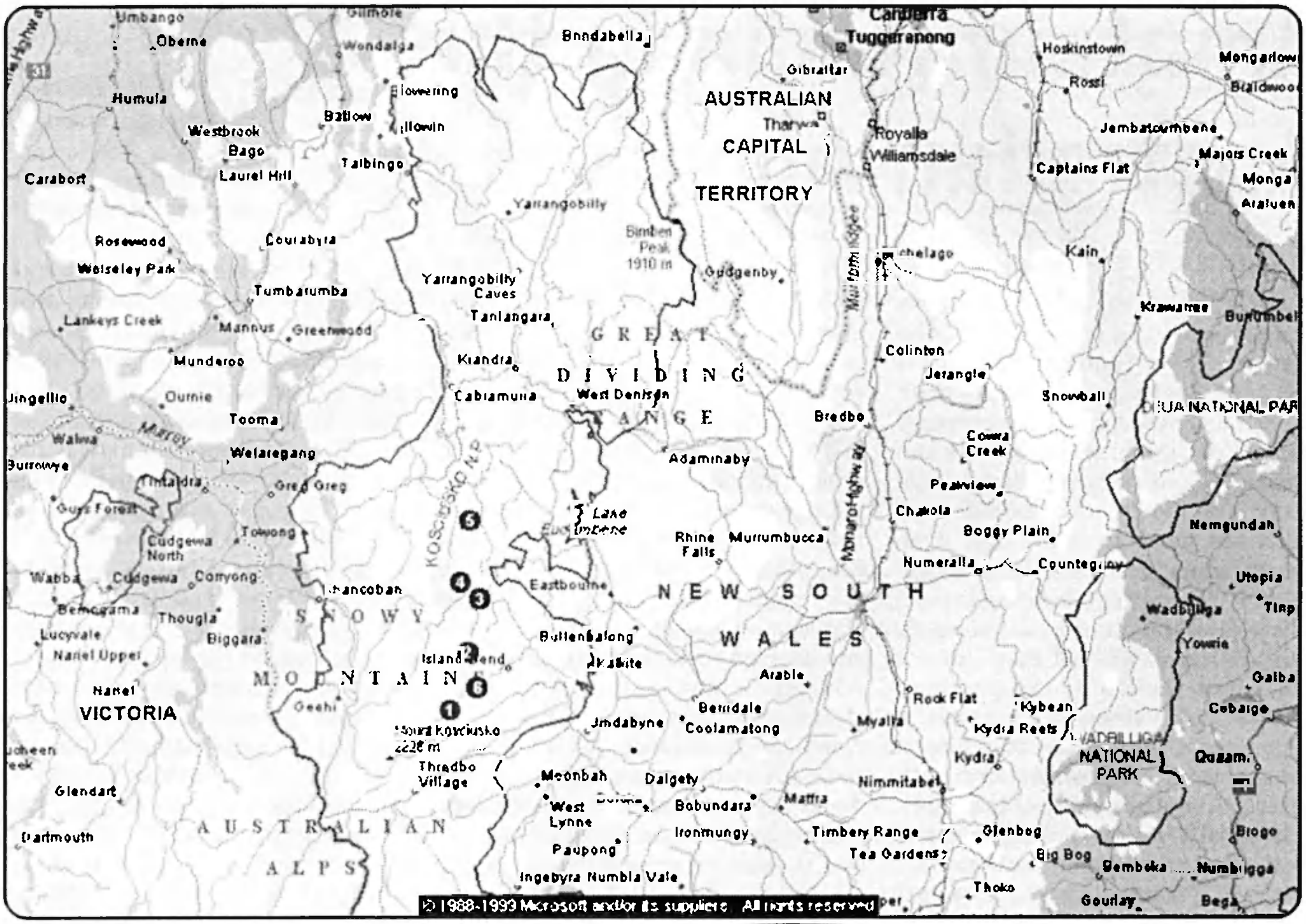
Navigation gear included detailed maps, compass, an altimeter and the now indispensable GPS. In terms of radio gear, we took two handhelds; a two meter FM monobander and a 6/2/70 cm FM tribander, each with five watts maximal transmit power. The tribander was also capable of extended reception and enabled us to listen to commercial AM and FM broadcasts to keep in touch with weather changes and fire warnings. Antennas were basic and light; both radios had their respective "rubber ducky" type antennas which are light and rugged, and we also took a home brew two metre ground independent whip made of coax off- cuts, broken fishing rod and heat- shrink tube. This antenna possessed all the best attributes of a home brew project, being cheap, reliable and easy to make. In terms of power, only three batteries were carried between the two radios, to keep weight to a minimum. Despite this, with fairly judicious use of the keeping transceivers (such as using transmissions short and where low power e.g. 100 mW possible), the batteries lasted the entire five days easily. For safety, we also had an extensive first aid kit and EPIRB.

Leaving Melbourne for the hills on a hot afternoon is always a great feeling. Travelling in two vehicles, we kept in touch with one another on two metres (simplex and on various repeaters) and enjoyed numerous contacts with locals as we travelled north-east along the Hume Freeway and then east to Corryong. After crossing the Murray into New South Wales, we made our way to Khancoban and proceeded to climb along the Alpine way toward Geehi where we spent the first night.

The next day, our trip really began. After picking up the sixth member of the party in Jindabyne, we drove to the Guthega Dam and parked the cars. After last minute checks that all was packed, we farewelled the cars and started up the first of many steep ascents toward Mt. Tate. Coming out of the tree line for the first time and seeing the view across toward the main range of Kosciusko, we briefly forgot about the heavy packs, aching legs and march flies to admire the view. The next several hours involved steady progress along an area known as the "Rolling Grounds", beneath which passes the hydro scheme's "Snowy-Geehi" tunnel. These high plains offer amazing views as well as being excellent for low power VHF/ UHF radio. The more energetic members of the party enjoyed a brief snowball fight in one of a few remaining snowdrifts



VK3HFI standing on the summit of Mt Jajungal with VX-5R and home brew 2m antenna.



1) Guthega Dam 2) Schlink Pass 3) Valentine Hut 4) Grey Mare Hut 5) Mt. Jajungal 6) Munyang Power Station

before a difficult scrub bash down a two hundred meter vertical slope to Schlink Pass where we made camp.

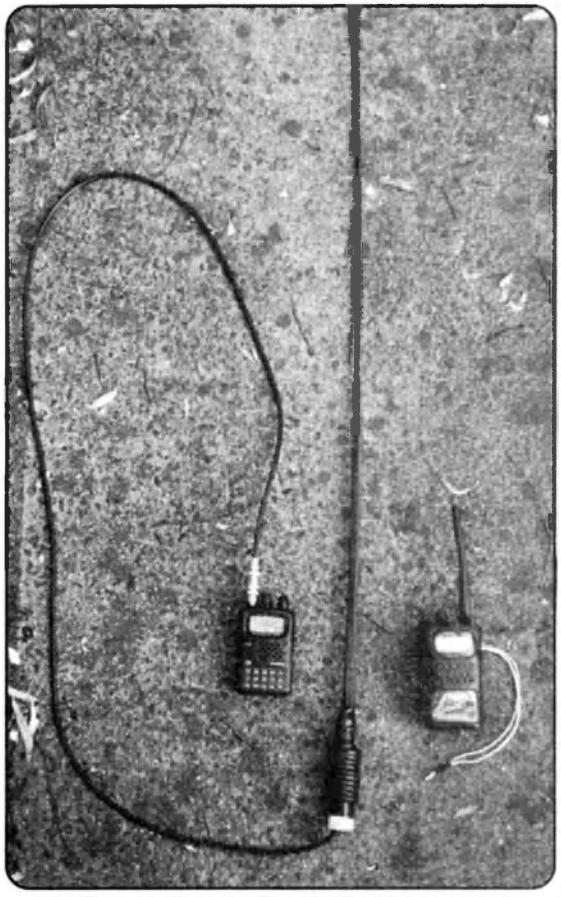
Despite temperatures of nearly thirty degrees the previous day, that night was frosty, with the tents icing up heavily. By sunrise, however, we were again on the move, meeting up with the Valentine fire access trail before morning tea and making Valentine Hut by lunch. Significant patches of erosion caused by feral pigs were evident, and a sow and her litter were spotted feeding alongside a small creek nearby. This area is crossed by rivers with steep sided valleys and is accessible now only to walkers and helicopters. Several contacts on two metres were achieved, via the repeaters at Corryong and Mt. Ginini. After a side trip to the cascading Valentine falls, we moved on, crossing the Valentine and Geehi Rivers and several smaller creeks.

VK3HFI standing on high plateau beneath summit of Mt Jajungal

Each crossing would involve a steep descent from a high ridge, rock hopping across stones in the water, and climbing back up to the previous altitude or higher on the other side. After a few crossings, pace certainly slowed and it was with much relief that we arrived at Grey Mare Hut in the late afternoon.

Grey Mare Hut is situated beside an abandoned gold mine and much of the old equipment from its' busier days can be found nearby. The hut's "drop-through-dunny" is situated above the main vertical shaft! Most mountain huts are located near a stream, but Grey Mare is special with a piece of old iron pipe driven into the hillside to tap a clear spring providing much appreciated fresh (and very cold!) water. Black Flat Creek runs in the pretty valley beneath the hut and contains fish for the bushwalker keen enough to carry in fishing gear. With the wisdom of past experience, we had not relied on fish for dinner, but were lucky enough to enjoy a trout entrée.

We decided to carry only day packs up to Mt. Jagungal, leaving most of our



Yaesu VX-5R and F10-R. The VX-5R is attached to the homebrew 2m antenna

VX-5R and FT 10-R

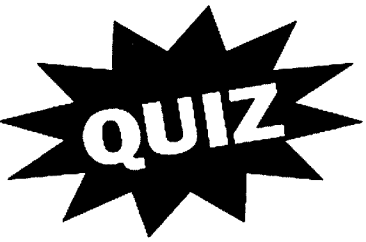
gear back at Grey Mare Hut as a sort of base camp. This left our load much lighter, and made the final assault on the summit a great deal easier. With exceptional weather, we wandered along the undulating track toward a broad based plateau upon which the imposing twin peaked summit sits at 2061 metres ASL. After several creek crossings we arrived at the turn off to the summit. From this point it was a steep five hundred meter climb up to a high plateau and the summit beyond. The final scramble to the summit is a little precarious, requiring both hands to haul oneself over a steep rock face, but arriving at the peak makes all the effort truly worthwhile. In every direction, the view was exceptional, with the Main Range of Mt. Kosciusko rising to the south about forty kilometres away. After catching our breath and taking a few photos it was time for radio. In the hour we remained on the summit, we were delighted to make many great contacts via several repeaters on 2m and 70 cm. Via the Mt. Ginini 70 cm repeater link through to Sydney we chatted to an operator handheld in the city! The highlight, however, was provided by two amateurs in the Wagga Wagga area who helped contact my wife back in Melbourne and allowed me to fulfil my promise to call on her birthday. Six metres was unfortunately unproductive, with no contacts made on this band. After a quick lunch, it was time to make the trip back to Grey Mare Hut where we would spend another night and drain our bulging blisters.

The next morning was mild, with a mystical lake of mountain mist filling the valley below the hut. After breakfast we broke camp and walked back to Valentine Hut appreciating our now lighter packs (we had ensured everyone ate every scrap of food allocated to each main meal for the previous two days!). We had allowed an additional day to walk back, but with our reduced load to carry and the enthusiasm gained from reaching the peak, we decided to continue walking. From Schlink Pass we headed back along the Munyang River to the power station, where we had left one of the vehicles. By mid-afternoon, with feet burning and shoulders aching we arrived back at the car and rapidly divested ourselves of our packs. Nobody required much convincing to make the trip back to Jindabyne for a shower and some liquid refreshment!

We covered just under one hundred kilometres of rugged walking over four days, and despite increasing fatigue toward the end, it had been a great walk. Taking the radio gear added another dimension to the trip and also provided an element of safety not otherwise available. It was nice to know that if required, we could reliably obtain assistance in an emergency. At virtually every point along the trip, there were amateurs keen to take an interest in our trip and provide helpful advice such as regional weather forecasts. Carrying the amateur gear had certainly been worthwhile! Now that the blisters have healed, perhaps it's time to start planning the next walk and pre-arrange some six metre contacts.....

ar

Stephen Warrillow VK3JNH has been an amateur for nearly four years and is novice course coordinator for the North-East Radio Group in Melbourne.



How much do you know about your WIA?

Peter Parker VK3YE

You're a member, but how much do you really know about your organization and the amateur activity it supports? Try this quiz and find out.

Like the Regulations paper there are 30 questions to answer. You have 30 minutes. Use of reference books, magazines, computers and pocket organisers is not permitted. Answers appear on page 55. Remember, no cheating!

1. **Which three Australian radio pioneers have amateur radio transmitting contests named after them?**
   a. John Moyle, Earnest Fisk, Alan Shawsmith
   b. Merv Stinson, Max Howden, HK Love
   c. John Moyle, Ross Hull, Harry Angel
   d. Earnest Fisk, Alf Traegar, Hiram Percy Maxim
2. **In which year does/did the WIA turn 90?**
   a. 1990
   b. 2000
   c. 2002
   d. 2010
3. **Who heads the Australian Communications Authority?**
   a. Tony Shaw
   b. Michael Owen
   c. Christine Goode
   d. Alan Jordan
4. **AM is prohibited by law on which amateur frequency segment?**
   a. 14.070 – 14.095 MHz
   b. 146 – 148 MHz
   c. 28.0 – 28.2 MHz
   d. 50.000 – 50.300 MHz (in VK1, 2, 3, 4 & 7)
5. **If you were listening to 14.175 MHz at 0130 UTC Sundays, which WIA Divisional News bulletin would you be hearing?**
   a. VK2WI
   b. VK6WIA
   c. VK3BWI
   d. VK4WIA
6. **The WIA 2000 Federal Convention was held in which city?**
   a. Canberra
   b. Sydney
   c. Darwin
   d. Melbourne
7. **Who is the current WIA Federal ARDF Co-ordinator?**
8. **For AR readers, who was the 'Voice by the Lake'?**
   a. David Wardlaw VK3ADW
   b. Bill Rice VK3ABP
   c. David Minchin VK5KK
   d. Eric Jamieson VK5LP
9. **Which Division won the 1999 Remembrance Day Contest?**
   a. VK7
   b. VK4
   c. VK5
   d. VK3
10. **In which state is the Moorabbin and District Radio Club based?**
    a. Victoria
    b. New South Wales
    c. South Australia
    d. Queensland
11. **Who prints *Amateur Radio* magazine?**
    a. Newsletters Unlimited
    b. Bill Harper
    c. Bill Roper
    d. Streamline Press
12. **Which month is the Novice Contest held?**
    a. August
    b. June
    c. May
    d. March
13. **Which long-standing AR advertiser regularly advertises Weather Fax computer software?**
    a. M Delahunty
    b. Dick Smith Electronics
    c. RJ and US Imports
    d. Radio and Communications Magazine
14. **Which country is <u>not</u> in IARU Region Three?**
    a. New Zealand
    b. Japan
    c. Korea
    d. South Africa
15. **Which part of the WIA decides on the recipient for the annual Ron Higginbotham Award?**
    a. Federal Council
    b. Federal Executive
    c. Amateur Radio Publications Committee
    d. Federal Awards Co-ordinator
16. **Federal Office staff members are:**
    a. June Fox and Rita Trebilco
    b. Barry Wilton and Ann McCurdy
    c. Pixie Chappell and Donna Reilly
    d. Bill Roper and June Fox
17. **In relation to the Federal Council, which of the following statements is correct?**
    a. Federal Executive sets policy, Federal Council implements policy
    b. Voting weight per Division is proportional to the number of members in each Division as a proportion of national membership

c. Each Division has one vote on Federal Council, irrespective of its size

d. Federal Councillors are directed by Federal Executive to run Divisions

18. Which WIA positions are paid?

a. Federal President

b. Members of Federal Executive (Directors)

c. Federal Councillors

d. None of the above

19. When you join the WIA, you become a member of:

a. A national body known as 'The Wireless Institute of Australia'

b. A state or territory Division of the WIA

c. A local radio club

d. The Radio Amateur Old Timers Club

20. The WIA is a member of:

a. The International Amateur Radio Union

b. The American Radio Relay League

c. The Australian Communications Authority

d. The inter-governmental consultative council on telecommunications and broadcasting

21. How many years ago do you need to have been first licensed to become a member of the Radio Amateur Old Timers Club?

a. 15

b. 20

c. 25

d. 30

22. Which of the following are <u>not</u> recognised as calling frequencies in Australian band plans?

a. 29.600, 50.110, 144.100, 439.000 MHz

b. 1.825, 14.195, 28.500, 438.525 MHz

c. 52.525, 146.500, 432.100, 1294.0 MHz

d. 53.500, 144.200, 432.200, 439.0 MHz

23. The WIA offers the following services:

a. Videotapes for affilated clubs

b. A register of stolen equipment

c. Federal news available via e-mail

d. All of the above

24. What is the exact title of the 2000 edition of the publication usually known as the 'WIA Callbook'?

a. WIA Yearbook 2000

b. The Australian Radio Amateurs Callbook 2000

c. 2000 WIA Callbook

d. The WIA Radio Amateurs Australian Callbook

25. WIA members who are not licensed amateurs are given listener numbers when they join. Which of the following would be an example of a WIA-allocated listener number?

a. BRS 14514

b. SWL 00787

c. L60004

d. Australian Receiving Station 508

26. How many members does the Federal body of the WIA have?

a. 7

b. 4300

c. 8000

d. 15000

27. WIA representation has achieved the following for Australian amateurs in the last 20 years:

a. Primary status for 420 – 450 MHz, 1000 watt power limit and access to an HF band at 5 MHz

b. Increased amateur access to 50 – 50.3 MHz, continuation of ATV repeaters on UHF Channel 35, novice privileges on two metres and a DX window near 3.8 MHz

c. A 160 – 190 kHz LF band, CEPT licensing and expansion of the 14 MHz band

d. Unattended remote crossband operation of amateur voice stations, permission to post equipment disposals messages on packet radio and Limited licence access to 28 MHz SSB.

28. Which of the following best summarises the Amateurs' Code?

a. Brave, Loyal, Tolerant, Friendly, Prudent, Hard-working

b. Persistent, Considerate, Resourceful, Impartial, Compassionate

c. Decisive, Ingenious, Balanced, Ethical, Fair, Knowledgeable

d. Considerate, Loyal, Progressive, Friendly, Balanced, Patriotic

29. Who has been the longest-serving editor of Amateur Radio magazine?

a. Ron Higginbotham VK3RN

b. Tom Hogan VK3HX

c. Bruce Bathols VK3UV

d. Bill Rice VK3ABP

30. On the internet, where would you find the WIA's Federal website?

a. <u>http://www.wia.org.au</u>

b. http://wia.org

c. <u>http://www.amateuradioaustralia.org.au</u>

d. <u>http://www.wia.net.au</u>

Answers on page 55

Itinerant, flooded out and now happily in jail the very successful Geelong Radio and Electronic Society (GRES) and its museum has had a chequered and sometimes damp history

The Rise and Fall and Rise of the GRES

A 400 square metre multi-roomed clubhouse for $10 per year? The Geelong Radio and Electronic Society thought they were at the crest of the wave.

As it turned out the 2 metre wave was a literal, not figurative one.

By Rod Green VK3AYQ

After years in shared premises the offer of a dedicated clubrooms seemed like heaven for the Geelong radio and electronics society.

The new premises, on the banks of the Barwon River, were in fact a rather old and dilapidated former migrant hostel. Unfortunately, the buildings had been flooded during the early 1950s. The local council wanted to find a use for these buildings and they were offered to interested groups for meeting rooms. There were two 26 room "huts" available, each approximately 50 by 8 metres. One hut was rented from the council for $10 per year.

Sow's ear to silk purse through much effort

Extensive modifications were necessary to make the building 'home'. The whole building needed rewiring, and walls had to be removed. Fortunately two members were electricians, and one was a carpenter who could oversee the renovations.

When Bill Erwin VK3WE was elected as president in 1967 he accepted the position as project leader on one condition: that the members finished all renovations as soon as possible so that the clubrooms could be officially opened.

Bill was a primary school headmaster, a person who liked to get the job done. The number of working bees was increased. Members and their families were involved.

A ladies' auxiliary selected the colour scheme for the interior and performed many other essential tasks.

Early Navy Direction Finding Equipment

Outside; just a coat of paint; inside, big changes.

The hut was divided into 15 rooms, some the same size as the original rooms and some much larger. There was now a main meeting room, class rooms, workshop, office, kitchen, Morse code room, HF and VHF radio shacks, component store, library and audio room. Carpet for the main meeting room and the audio room was obtained for nothing when the Geelong Bowling Lanes replaced their old carpet.

The audio room was a feature, being as near to an anechoic chamber as finances allowed. The walls and ceiling were lined with egg cartons and cardboard packaging material. Heavy curtains were placed over the windows, and remaining areas were painted with satin finish paint. The result was a room with virtually no echo in it. Just right for testing audio amplifiers.

Finally in 1969 the rooms were ready for the official opening. The South Barwon Shire president, Cr R J Reynolds, opened the rooms in 1969 at an 'open weekend'. Members of the society were present to show visitors around and to answer any questions. It was estimated that the equipment was worth several hundred dollars.

Members had also been busy constructing a complete HF amateur radio station. The Society had been allocated the call sign of VK3ANR. It was essential that a working station go on air promptly. The station consisted of a superheterodyne receiver and a CW and AM transmitter for 80 metres, grid modulated due to a lack of funds. A suitable modulation transformer was too expensive, so a less costly method of modulation was used.

This station went on air either on the

regular Thursday meeting night or a regular Sunday morning net on 80 metres, and was open to all amateurs in the Geelong area. The net had a large audience of short wave listeners, who used either army disposal receivers, or converters in front of broadcast band receivers.

The first committees recognised the need to teach the basics of radio and electrical theory, so members could obtain an Amateur Radio station licence. As there was a shortage of licensed amateurs within the club the pupils were also the instructors. When I said yes to an invitation to join a class I was then told that I had to give a one-hour lecture on the neutralisation of high power RF amplifiers. A daunting task for a neophyte who couldn't tell a mixer from an oscillator. Why would you need to neutralise an amplifier anyway?

Every class member had to give one lecture on a designated topic, which made you learn that subject thoroughly. It helped the rest to learn, or maybe it was the blind leading the blind. Many amateur licences were obtained as a result of those classes. There were also classes held for the junior members. No examinations, the juniors attended just because they wanted to learn.

The syllabus has changed little over the years. Visits to industry, guest speakers, members giving talks on their own projects etc.

For example in 1976 an officer from Telecom gave a talk on Telecom in the future. In 1999 an officer from Telstra gave a talk on fibre optic communication. Also in 1976 a member gave a talk on radio-controlled models.demonstrating his single channel all valve equipment. In 1999 a member of the Geelong Model Aeroplane Club gave a talk on modelling. The topics remain the same but new techniques freshen the interest.

"Vintage" Radio

Due largely to the efforts of Mr Bill Bond VK3BWS, a telephone technician with the then PMG, a museum was started in the rooms.

Bill had 2 main hobbies: photography and audio. About 1973 someone donated an old Dutch radio receiver to the Society. This caught Bill's eye and a museum was born. He collected more items which he restored and put on display. In addition to radio there were early broadcast devices, teletypes, test equipment, old telephones, books, valves. The oldest item was an 1866 magic lantern complete with hand painted colour slides.

As the number of exhibits grew so did the area of the museum. Bill was the justifiably proud curator. Being in the clubrooms, the museum could not be open to the general public on an extended basis, but opened every Thursday, and later every Wednesday afternoon. During these openings retired members would meet for a talk, a coffee, and to work either on the clubrooms or on the museum. The museum was open to all by appointment with Bill. As news of the wonderful exhibits spread so the distance that visitors travelled increased. By 1995 a conservative estimate of the museum's value was $50,000.

A whole new meaning to 2 metre band

In November 1995 disaster struck.

The Barwon River flooded. The levee bank around the clubrooms, which previously kept the flood waters out, was overwhelmed and a lake formed behind it. The club house and museum sat in this 2 metre deep pond for two days after the flood until the levee could be breached to allow it to drain.

This gave rise to whole new meaning to '2 metre band', which became the high tide mark on the walls of the clubrooms. In the face of the rising water some members had rowed into the rooms and salvaged some items. However, not one thing fully escaped the water and silt. Absolute devastation. The rooms were so badly damaged that the council ordered they be vacated and were ultimately demolished.

A decision had to be made. Do we disband the club, or do we continue? These were the questions the members had to face up to. Urgent meetings were held in the rooms of the Geelong Amateur Radio Club and later the Guild Hall, the original meeting place. After much discussion the members agreed that the Society should continue.

Temporary accommodation was found at the Uniting Church hall in Hearne Hill, a suburb of Geelong. Meetings were again held on a Thursday evening with classes in radio theory being held before the main meeting. There was a lot to do now, with all of the flood-damaged material stored in various sheds around Geelong and in members' homes.

The old Geelong Jail had been leased by the Rotary Club of Geelong which was leasing out rooms to interested organizations. It was decided that the museum could be set up in rooms at the jail, with unused cells used to store surplus items. All at no cost to the Society, a very generous offer indeed. The museum was open regularly to the public as the jail opened each weekend and also on public holidays.

New premises were also found. The Society leased a disused tin shed behind the youth club in Belmont, a southern suburb of Geelong, and started to convert it into permanent meeting rooms. The renovation took about 12 months to a achieve functionality and is still ongoing. A large area of the shed housed vintage radio and telephone equipment. Other items were still stored at the jail. All submerged items had to be cleaned and catalogued. At the end of this process an auction of unwanted equipment sold over 600 lots to interested buyers. This freed up space, got rid of surplus equipment and generated much needed revenue.

There is no end to this story. More renovations to the clubrooms are planned,as is a workshop for members' use.and new radio shacks.

The important thing is that the Geelong Radio and Electronics Society is continuing — to build, to teach, and to embrace the exciting changes that are occurring in the field of radio, electronics and communications.

ar

The Geelong Radio and Electronics Society was born on Thursday 22nd of August 1963.

At the first general meeting were 19 people who shared more than just an interest in radio. It also accommodated those interested in audio, radio control, or anything else that used resistors, capacitors and valves.

Mr Harry Michael VK3ASI was the first president. Meetings were held each Thursday evening in the Guild Hall. As scout groups shared hall, a search was made for more suitable rooms and two and a half years later the members moved to new premises. the rise and fall of these premises and the rise and rise of the club are the subject of the main story.

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Low Impedance Parallel Square Conductor Transmission Line

Low impedance twin conductor transmission line is hard to find. It suffers from the need for close spacing and it is not readily available as a manufactured item. Construction of lines of between 70 ohms and 120 ohms impedance using square tubing as the parallel conductors was discussed in CQ November 2000 by George Murphy VE3ERP.

A formula which was used is :-

$$Z = \frac{120}{n} \log \left(A + \sqrt{(A^2 - 1)}\right)$$

where

Z = Characteristic Impedance in ohms

W = Width of face of square conductor

D = 1.8*W

S = Centre to centre distance between conductors.

A = D/S

A basic program is available from George by emailing a request for SQLINE.BAS to ve3erp@encode.com.

The lines were constructed from square aluminium tube of between 0.25 inches square and 1 inch square. Spacers were cut from plastic waterpipe and the lines were held together by plastic bolts and nuts. For lines longer than the lengths of available tube George recommended cutting joining pieces out of scraps of the tube used for the lines. By doing this the chance of electrochemical reactions or corrosion is reduced as the line and the joiner are both made of the same material. It is relatively easy to cut short angle joiners out of a piece of square tube.

The dimensions of lines between 70 and 120 ohms for a range of tubing sizes are given in Table 1. Such a transmission line would make a boom for an all fed element array such as a log-periodic.

Table 1.

	Spacing between tubes. Inches.					
Tube Face Inches	70 ohms	80 ohms	90 ohms	100 ohms	110 ohms	120 ohms
0.25	0.097	0.113	0.132	0.154	0.178	0.205
0.5	0.193	0.226	0.264	0.307	0.356	0.410
0.75	0.290	0.339	0.396	0.461	0.534	0.616
1.00	0.387	0.452	0.528	0.614	0.711	0.821

Oscilloscope Calibrator

To calibrate an oscilloscope a known wave form with a known amplitude is needed. A 1 volt peak to peak square wave is convenient and easy to provide. A calibrator circuit which provides a 1 volt peak to peak square wave at a frequency of close to 1 kHz was described in CQ TV November 2000 by John Lawrence GW3JGA. The circuit uses common components and is easy to set to the required 1 V Peak to Peak output.

The circuit is shown in Fig 1. A common 9V battery is used for power. The locally available 216 type should be suitable. The other components are not particularly critical. For setting up disconnect D1 and adjust the DC output voltage across R4 to 1.0 volts. Then connect D1 and the output will be a 1 volt Peak to Peak square wave at around 1 kHz.

Many CROs use a probe with an adjustment. This adjustment can be set for a square wave and the sensitivity and calibration checked with this circuit.

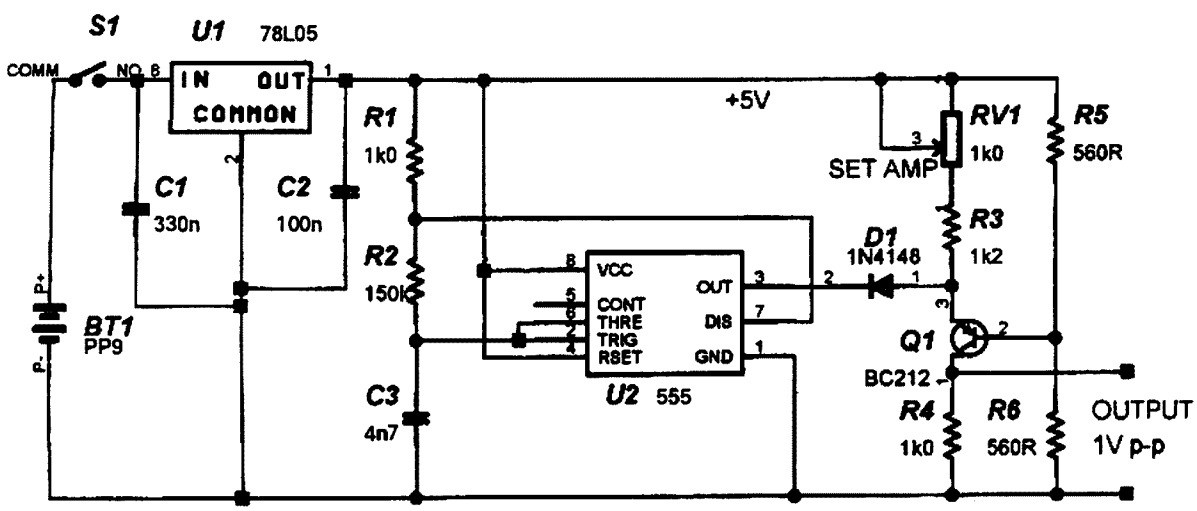


Fig 1. Oscilloscope Calibrator

Flying Solo Cable Tester

There are occasions when it is necessary to identify cable cores and this needs to be done by one person. Rotator cable cores where a colour code is not evident or identifying which coax is which in a bundle between shack and tower top are two applications where a cable tester is useful. A suitable simple design appeared in CQ November 2000 from Gary Palamara KB2YTN.

The tester uses a string of resistors in a voltage divider across the output of a single chip IC Regulator. The resistor string is arranged so that each resistor has one Volt across it. This makes it easy to relate the tester output pin and wire number to the wire and voltage at the remote end. The regulator used was a 12 Volt one which with 12 equal value resistors results in one Volt per output. The regulator type is not critical as the load is small.

The tester is shown in Fig 2.. The power source could be two 9 volt batteries in series. The LED provides an indication of voltage output from the regulator. No light from the LED could be a dodgy battery ora short across the output pins 0 and 12. The regulator would be current limiting in this case. The resistor values are not critical but all should be of the same value to maintain the 1 Volt steps. For larger cables a 24 or 15 Volt version could be built using other common regulators. These would accommodate 25 or 16 wires respectively. The number of batteries in series as a power source would need to be increased.

ar

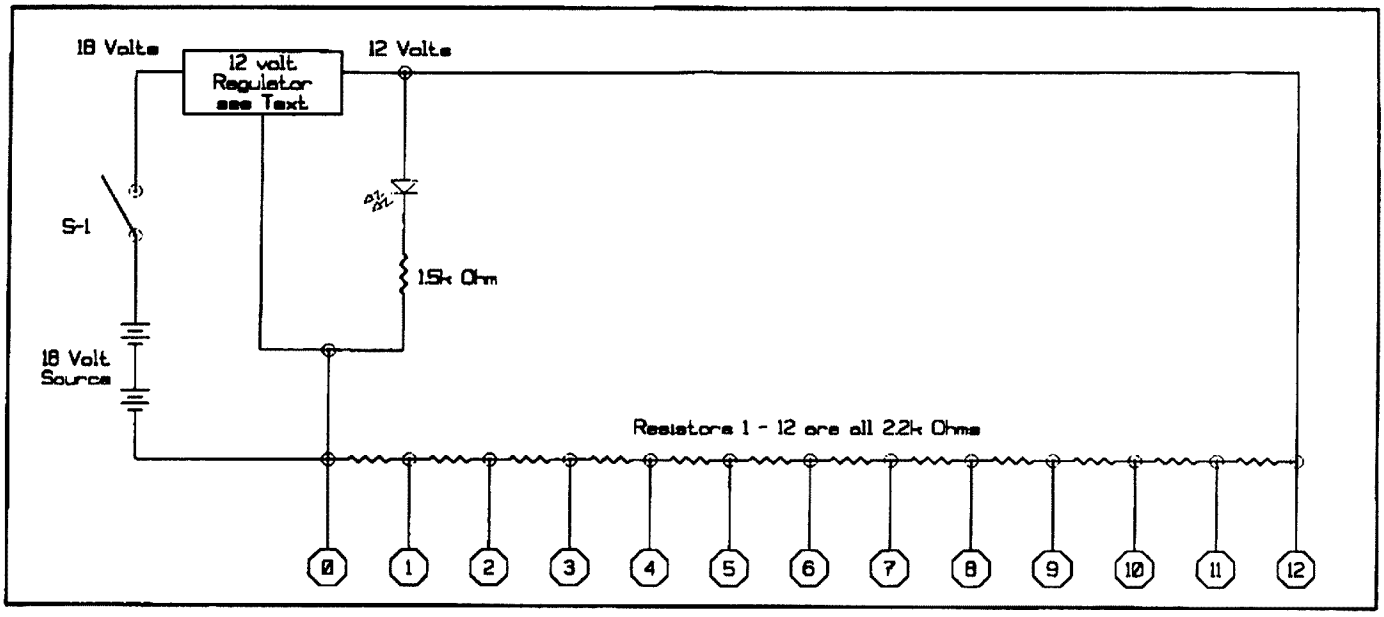


Fig 2. Flying Solo Tester.

VIRAS: Special Event Station

An event which attracted little publicity but which was important to those amateur operators who have served in the Royal Australian Corps of Signals, took place during November last. The special callsign V15RAS was allocated for the whole month of November in connection with the 75th Anniversary of the Corps.

The event was ably managed by VK5 operators who were on air from current Army Signal Squadrons in South Australia and New South Wales. It is to be hoped that some amateurs found previous Signals Comrades through the special event station.

To those who managed to contact the station, an attractive card was issued, printed in the traditional colours of Signals regiments with a short Corps history on the reverse. A copy is enclosed for reproduction.

On behalf of all "ex-Sigs" I thank VK5ABO, VK5FV, VK5GZ and supporting troops who made the whole operation work so well.

Amateur Radio Magazine Awards

The Publications Committee has decided to make the following awards for 2000.

The Technical Award for the best Technical Article published in AR in 2000 to **Godfrey Williams VK5BGW** for his article "An USB RX for the 20m band" published in April 2000.

The Higginbotham Award for service to the Amateur Radio Magazine to **Bill Rice VK3ABP**. Bill was the longest serving Editor of AR and continues to participate in the production of the magazine.

This year the Awards will take the form of a framed Certificate and a cheque.

C H Low VK5UE Editor

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

Luncheons

The summer months are a popular time for luncheon meetings. In VK3 and VK5 these are regular events but in Townsville, a ladies luncheon is not so common. At the luncheon (at the "Bulls' Britches Bistro") there were 11 ladies present. It is great to see so many faces and to have the chance to share a happy time together. I am sure this will not be the last such luncheon, it is one of the reasons ALARA was founded, for the YLs, both licensed and unlicensed to get-together.

At the January meeting in Adelaide the regular lunchers had the opportunity to meet some of the family of Christine VK5CTY (she was partly in the photo but was cut out before inclusion in this column). Once or twice a year we meet some of the younger families and enjoy it very much.

Some Information For All Amateurs

Here in Australia and in most parts of the world amateurs regularly exchange the greetings "73" and "88" but this is not as welcome in some parts for local reasons.

If you are talking, by voice or CW to an amateur in Germany it is best not to use the "88" greeting. Unfortunately this form of greeting has been adopted by some of the more radical political groups in that country. If you think of the eighth letter of the alphabet you will realise that "88" could stand for a greeting that was common in the 1930's and 40's.

At the ALARA meeting in Hamilton the ladies present were warned by the OM of one of the YLs there of the undesirable connotations that "88" can mean in Germany.

On a more cheerful note, for anyone travelling through Central Victoria, the Ben Nevis repeater may be incorrectly listed in the 2001 callbook. It can be heard on a frequency of 147.100 MHz. For local contacts in the Ballarat area it is recommended that you use 146.750 MHz, as usual. This information came from Mary VK3FMC who would love to hear from anyone passing through Ballarat. If you have time I know she would also like to offer you a cup of tea.

On that point, don't forget, whenever you are visiting a new city or town it pays to put out a call on 2-metres. There is usually someone listening who will be happy to talk to you. To those who listen but only talk to their friends, remember how pleased you might be one day to have a contact in a strange town.

As far as ALARA is concerned, in Adelaide at least, the ALARA members are so well known to the amateur community that we are almost always given a call on the phone if a YL voice from another state is heard. We would love to have a chat and to meet if that is possible.

If the ALARA ladies in the other states are not quite as well known the word usually finds its way to the right ones. Please give us a chance to say "Hello".

The Townsville Amateur Radio Club ladies' luncheon
L—R: Lynda Male, Lynette Mann, Sri, Nutiti Ostrenski, Pat Edmonds VK4MUY, Annette Franz, Sally Grattidge VK3SHE, Ann Renton VK4MUM, Lyndal Reibelt VK4MOP, Daven Tulloch and Margaret Neilsen VK4JMN

Food For Thought

A message from across the world came this way recently. It told of a group of Girl Guides in the US who are all the daughters of women in prison. These girls form a normal GG group but with an extra dimension. At times they go to visit their mothers in prison.

When they visit they must pass though the security system, negotiate a metal detector and an X-ray machine and leave all their crayons and pens at the door just like any other prison visitor. Inside they behave like any other child with the mother they only see occasionally, they show off their report cards and photos and they bring greetings from brothers and grandparents etc. They draw pictures with and for their mums and they stand hand-in-hand in a circle to recite the Girl Guide mottos pledging honesty and responsibility, and to sing songs together.

Then it is time to leave which can be difficult for them all. "Till the next time" they wave at each other through the bars.

This particular troop is number 1617 of Doylestown in Pennsylvania, part of "Girl Scouts Beyond Bars" and is one of 20 such groups in America. They have been formed in the hope of "breaking the chain". Too often the children of prison inmates later go on to commit crimes that see them also become prison inmates. If this chain can be broken all of society will benefit. In Doylestown the scheme has been running for six years in which time none of the girls have been arrested.

Perhaps the saddest story is that of one girl who visited her mother for several months through this program till her mother was released. Unfortunately her mother offended again and was returned to prison. Now her daughter will not visit her. She has expressed the wish that her mother "stay in prison forever so she can keep her life straight".

Monday Nets

The number of YLs on the Monday Nets is very pleasing. Even though the summer this year the VK4 girls have been able to hear those down South

better than usual. This may due to the high sunspot number but perhaps also due to the work of the Intruder Watch group as they have suffered for some years from commercial stations originating to the North of Australia but being transmitted in the amateur bands. Thanks IW people. You do a great job with few thanks.

Please join us on a Monday evening. We use 3.580MHz or thereabout and start at 1000 ZULU in summer, 1030Zulu in winter. We have a different net controller each week and we operate from North to South of the country and East to West. The ALARA Net is a good place to find out what the weather has been like across this marvelous country. That is usually the first topic, but after that the discussion could be on any topic at all. Between us we have a wide range of interests.

OMs please call in and allow the YL to participate. Newcomers are always welcomed. Remember that we all had to pick up the microphone for the first time. We were just as mike-shy as anyone else the first time although we sound so confident, now.

ar

An Adelaide luncheon
L-R Tina VK5TMC, Deanna Taylor, Trisha Taylor, Jason Taylor, Meg VK5YG and Maria VK5BMT.

Education Notes

Brenda M Edmonds, VK3KT.*

Challenge to amateurs: recruit women

I have been discussing the future of amateur radio with a number of amateurs of late.

There seems to be a general agreement that we are not recruiting the numbers that are needed if the hobby is to survive and prosper into this century. It is agreed that many of those who would once have been attracted to amateur radio are now so firmly attached to their computers that surgical removal seems the only option. Those who would have entered the hobby after experiencing the magic of worldwide communication are already communicating worldwide at the touch of a switch and without studying and passing examinations.

So what is there left for us to offer? We have to remember that we are, firstly and most importantly, communicators. A radio is the medium most familiar to us, but perhaps we can entice the new recruits by linking the computers to the radios, or by exploring the radio links provided by the mobile telephone systems. I am not technically competent to build on these ideas, but one thing I have learnt from a long time in amateur radio is that if an idea is advanced, there will be someone somewhere who can build on it and make it work. The ingenuity and resourcefulness of the amateur body is well documented. Perhaps now is the time for amateurs to reclaim their position at the forefront of development.

What about the other source of new recruits, - those who come to amateur radio as a hobby for their retirement? There are still a few retirees who are happy to have left the computer systems behind. We need to be ready to accept these and make the path into amateur radio easy for them - once they find out about us and decide they wish to become amateurs. I would be interested to know which clubs or groups are running novice or full-call classes this year, and how they are advertising the classes. If the public does not hear about amateur radio, how can they become involved? Some groups run field days or hamfests on a regular basis, but are these advertised in the local press or just by a flier in "Amateur Radio"?

Another reason for publicity is to attract that other large section of the population - women. There is no reason why the number of female amateurs should not equal that of males unless our predominantly male members have a biased outlook. I challenge all current amateurs to go out and recruit one new female licensee! I am working on my two granddaughters!

ar

Correction:

Maths for Amateur Radio,* December 2000 issue of *Amateur Radio

A reader has found mistakes in the article "Maths for Amateur Radio" published in the December 2000 edition
The correct statements are:

(2) Bearing H =acos {(sinL2-sinL1cos(D/60))/sin(D/60)cosL1}

(5) H =57.3*acos((sin(b2)-sin(a2)*cos(a4))/(sin(a4)*cos(a2))

(5a) a4=a3/(60*57.3)

Lindsay Lawless VK3ANJ

DON'T MISS THE ACTION!

WIA Amateur Callbook 2001

Features a wide range of information about amateur radio, and includes an updated listing of call signs, names, and postal addresses of all radio operators licensed by the Australian Communications Authority.

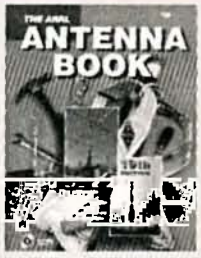
B 2315

NEW

$24.80

ARRL Antenna Handbook

19th Edition



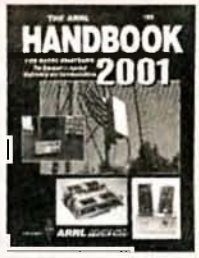
Learn how to design and build your own antenna. This book covers broadband antennas, gain and size comparisons for multi-element arrays, log periodic, quad, long-wire and travelling wave antennas. Includes a CD-ROM with two new Windows programs, detailed propagation forcasts, and more.

B 2214

NEW

$69.70

ARRL Ham Radio Handbook 2001



This is the 78th edition of the standard reference book for radio amateurs, electronics technicians and professional engineers. 1200 pages translate theory into practice through a large variety of hands-on-projects.

B 2238

NEW

$69.70

SB-15 6m/2m/70cm Mobile Antenna

A compact tri-band mobile whip that covers the Australian 6m, 2m, and 70cm amateur bands. It has centre frequencies of 52.5MHz, 146.5MHz, and 435MHz, with good bandwidth on each band. The antenna is approximately 1.5m long, weighs just 420g and includes a fold-over adaptor built into the base section.

D 4818

$149

CFX-514N Antenna Triplexer

Allows connection of a multi-band transceiver such as the FT-847 to a common coax cable. Inputs cover 1.3 to 90MHz, 130-200MHz, and 300-500MHz, with 500W PEP power rating. Insertion loss is <0.3dB, and isolation between ports is more than 55dB. Uses an N-connector on UHF input, and PL-259 connectors on other inputs.

D 3305

$168

AS-510 6m/2m/70cm Handheld Antenna

A high-efficiency flexible antenna with fitted male SMA connector that suits 6m/2m/70cm Amateur band transceivers such as the Yaesu VX-5R. Provides improved performance compared to the antenna normally supplied with the VX-5R, particularly on the 6m band.

D 4339

$69.95

DICK SMITH ELECTRONICS POWER HOUSE

PowerHouse stores

A shopping experience like no other!

Dick Smith PowerHouse stores not only offer an expanded range of those original electronics products that have made our stores famous, but now you can experience the fun of using a wide range of communication equipment in our hands-on demonstration area. Called the "Ham Shack", each PowerHouse store has a dedicated area where licensed staff can show you the latest Yaesu, Uniden, or Magellan communications and GPS products, as well as an expanded range of accessory lines that may not be available in other stores. Not involved in Ham Radio? Staff can also advise on the installation of a CB radio for your four-wheel drive vehicle, how to get involved in listening to Shortwave radio stations from around the world, or assist you in the selection of a suitable accessory for an existing piece of equipment. For bushwalking or boating users, you can also find out about the latest in inexpensive satellite based navigation receivers or emergency beacons, or just browse through an extensive selection of communications related books. The PowerHouse is also the place to go if you simply need a component to finish that weekend project, to buy tools, or just to while away a few hours while checking out our in-store technical books, library CD-ROMs, or our dedicated customer use Internet terminals. With over 20,000 product lines in the electrical, computer, and communications areas, our new PowerHouse stores get the wavelength right!

To find your closest PowerHouse store, phone 1300 366 644.

2373 DPSspot col

DON'T MISS THE ACTION!

6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

D 4825

$60.94

Digitor 2m 30W RF Power Amplifier

If you use your 2m band FM handheld at home or in the car, but find that 2-3W RF output isn't enough for reliable communications, then this compact 30W RF amplifier may be the answer. It works with inputs from 0.5 to 5W and produces up to 30W output with just 3W input. A switchable 12-15dB gain low-noise GaAs FET receiver pre-amplifier can be selected for improved receiver performance on less sensitive handhelds when being used in RF quiet areas. The amplifier offers a large heatsink for extended duty-cycle transmissions, fused DC power lead, and SO-239 input/output connectors.
Frequency range 144-148MHz, FM only.
Size: 100 x 36 x 175(WHD).

D 2510

$99.90

Yaesu VR-500 Multi-mode Scanner

The new VR-500 is more than just a scanning receiver, it's more like a miniature high performance monitoring station! Providing almost continuous coverage of the 100kHz to 1300MHz range, the VR-500 includes reception of narrowband FM, wideband FM (for FM and TV broadcast audio), SSB (for Amateur, CB, and HF reception), CW, and AM (for shortwave and broadcast station) signals. A large backlit LCD screen not only displays the receiver operating frequency, but also displays channel steps and reception mode. For monitoring band activity above and below your current listening frequency, the VR-500 even provides a 60 channel Bandscope to display local activity (within a range of 6MHz max when used with 100kHz steps). A total of 1091 memory channels are provided, with 1000 of these being "regular" memories with alpha-numeric tagging, and the balance being for special features (such as Search band memories, Preset channel memories, Dual Watch memories, and a Priority memory channel). A Smart Search™ function, which sweeps a band and finds in-use channels, allows you to allocate up to 41 memories that can automatically note these active frequencies. The VR-500 operates from just 2 x "AA" size alkaline batteries, and can be connected to an external 12V DC source (such as a vehicle cigarette lighter) using the optional E-DC-1 adaptor. For easier operation, the VR-500 can also be connected to your PC using the optional ADMS-3 interface/software package.

D 2799

YAESU

$599

SAVE $100

Yaesu FT-90R 2m/70cm micro mobile

Another engineering breakthrough from Yaesu – a tiny dual-band mobile rig with high power output, a remoteable front panel, and a rugged receiver front-end. The FT-90R provides 50W RF output on the 2m band as well as 35W output on the 70cm band, a solid die-cast casing with microprocessor controlled cooling fan for reliable operation, and a large back-lit LCD screen, all in a package measuring just 100mm x 30mm x 138mm.

Also includes:

- Wide dynamic range receiver for greatly reduced pager breakthrough.
- Huge receiver coverage – 100-230, 300-530, 810-999.975MHz (Cellular blocked).
- 180 memories and a variety of scanning functions.
- Built-in CTCSS encode/decode, battery voltage metering.
- Designed for 1200 and 9600 baud packet operation.
- Tiny remoteable front panel (requires optional YSK-90 separation kit)
- Includes MH-42 hand mic, DC power lead, and easy to follow instructions.

D 3312

AMAZING VALUE!

YAESU

$599

SAVE $100

2 YEAR WARRANTY

YSK-90 Front Panel Separation Kit

$144

D 3317

PHONE FAX AND MAIL ORDERS

direct link

PHONE: Within Australia: 1300 366 644 (local call charge)

FAX: (02) 9395 1155 within Australia and (+612) 9395 1155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 160, PO Box 321, North Ryde NSW 1670 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 30/4/2001. All prices shown are in Australian dollars and are inclusive of GST.

2373 DPS spotcol

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules

All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.30pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

VK2 Division News South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.30 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK3BWI broadcasts on the 1st Sunday of the month at 8.00pm. Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4 Division Queensland
PO Box 199, Wavell Heights, Old. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Colin Gladstone	VK4ACG
Secretary	David Jones	VK4OF
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $56.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*

President	Jim McLachlan	VK5NB
Secretary	David Minchin	VK5KK
Treasurer	John Butler	VK5NX

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.iinet.net.au/~vk6wia/*
e-mail: *vk6wia@iinet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $69.00 Pensioner or student $59.00. Without *Amateur Radio* $38.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $88.00 Pensioner or student $75.00. Without *Amateur Radio* $55.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

Division Notes

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

Our Annual General Meeting was a successful event on February 26, 2001. A total of 38 members were present to say goodbye to the old committee members and welcome the new ones. Two new members joined the committee. They are Alan Hawes (VK1WX) and Colin Holmes-Clarke (VK1HCC). Alan is an old hand with committee work; he used to be the divisional president some years ago. Colin has not been on the committee before, but his presence there is important because as Broadcast Officer he can keep himself fully informed about current issues facing the Division and make his broadcasts more newsworthy. The full lineup of the new committee is as follows: Gilbert Hughes-President, Phil Longworth-Vice-President, Mike Dower-Vice-President, Ernest Hocking-Treasurer, and Peter Kloppenburg-Secretary. Richard Elliott, Colin Holmes-Clarke, and Alan Hawes, are committee members. All of us are looking forward to an equally successful term of office as last year.

The Division's status as a business was confirmed recently when the Australian Taxation Office (ATO) issued an Australian Business Number (ABN) to us. The number is as follows: ABN 49 165 386 789. The main benefit is that we can receive grants from other registered entities without having 48% withheld for taxation purposes.

At the time of writing , the Division is getting close to finalising the terms of condition for the establishment of a VK1 amateur radio club station in Farrer. Conditions of our use of the site have been proposed between the Scout Group and the Division, and we will need approval from Urban Services to erect a tower on the grounds.

The next General Meeting will take place on April 23, 2001 in Room 1, Griffin Centre, Civic, Canberra City. See you there! Peter K.

VK3 Notes

Website: www.wiavic.org.au Email: wiavic@wiavic.org.au

By Jim Linton VK3PC

WIA Victoria AGM

The Council has set the AGM date at Wednesday, 23 May, 2001. An official notification and annual reports will be sent to members.

The Science Show

The viability of WIA Victoria hosting a stand and other activities at the very popular annual Science Show is being investigated.

The show held at the Convention Centre (Jeff's Shed) runs for several days and is visited by thousands of school students and teachers.

It is an excellent opportunity to expose our hobby. If sufficient sponsorship and voluntary labour support can be found, this major public relations project will go ahead.

If you can assist, please contact Brenda Edmunds VK3KT QTHR, or email wiavic@wiavic.org.au

WIA Victoria Awards

Reminders about both the WIA Victoria George Bass Diploma and the WIA 90 Award.

The diploma is for trans-Bass Strait contact on VHF and UHF. This is now in its second semester which ends on 30 April. With reports of summer propagation between Tasmania and the mainland some more operators are certain to have qualified.

The WIA 90 Award celebrates the 90th birthday of WIA Victoria. Members are encouraged to join in the celebration and qualify for a special award through personal achievements.

The mandatory requirements include submitting an entry in the RD Contest 2000, and making contact with nine other WIA Victoria members (not during a contest).

There is also a list of extra optional achievements for qualification. Entries for the WIA Victoria 90 Award close on 30 June, 2001. It is available at no charge.

Full qualification criteria for both awards are on the WIA Victoria website and available on requests to the WIA Victoria office.

Tower woes

A recent inquiry by a member has prompted a general warning to radio amateurs who are considering buying a second hand tower.

A problem does exist with copies of the popular Nally tower, including home-brew clones, which do not meet specifications.

When making an application to a local government council for installation of a radio mast (preferred term to tower), the applicant needs an engineering plan and specification. Without this documentation the council won't accept an application.

Some radio amateurs in the past with Nally look-a-like towers have tried to fool their council by supplying Nally engineering and specification documents.

Apart from this being fraud, and the consequences of it failing structurally, a council on final inspection is likely to order it be pulled down. A cheap second hand tower may not be the bargain it first seems. Buyers should ask the following questions: Does it have an engineering plan and specification? What is the age of the tower? This is a factor because the steel specifications changed many years ago.

WIA Exam Service

WIA Victoria supports a re-shaping of the WIA Exam Service to addressing its known shortcomings.

The council at its meeting on 27 February addressed the issues of examination centre and invigilator registration, the terms of appointment, exam procedures and recovery of administrative costs.

The review of the WIA Exam Service is expected to be completed by the Federal Council at the WIA Federal Convention this month, and policy determined to implement the agreed changes.

VK4 Notes

QNews

By Allstair Elrick VK4MV

An Opening

Last Saturday saw a spectacular sporadic E opening on our bands. Many in the Brisbane area who run "police scanners" were alerted to the conditions as they suddenly were copying VKR Rockhampton on 468MHz.

The action starting around 0300z, saw VK4's working VK5 on 52.525 MHz. VK4s were also working into VK3 and VK5 on 144 MHz SSB. 6 hours later VK5 into VK3 on 10 and 6 meter repeaters then the whole E ended abruptly at 13:15. The opening was enjoyed by all present and the bands were buzzing all night with activity.

It Is On Again

After some confusion with the venue and bookings, it can be confirmed that BARCFEST will be held after all at Kelvin Grove High School. However the date is now MAY 26 a little later in the year than usual.

QNews Bits

For the week of February 18th, QNEWS recorded three hundred (300) audio checkins on RF! This without any P29/VK6 figures and with no VK2 broadcast that Sunday. Our previous 'high' was 276 audio checkins April 30 2001

One of our more easily made contacts with the WIAQ is by HF radio Monday nights. Normally with at least 1 Councillor ready to answer any of your questions. This is on 80 meters, 3.605 following the 7:30pm rebroadcast of QNEWS.

Messages sent via the QNEWS @ VK4WIE Server are automatically copied across to Ham Club News Editors and Office Bearers, Special Interest Groups and WIAQ Office Bearers along with AR and QTC Magazine Editors. Hopefully it is the SAFEST and QUICKEST way to get your organisations activity broadcast during QNEWS plus alert all Clubs WIAQ and AR Journal. NOTE THE ADDRESS QNEWS @ VK4WIE.#BNE.QLD.AUS.OC E-MAIL qnews@powerup.com.au

QNews 160 metre News Re-broadcasters

The 160 metre band has 3 rebroadcasters, VK4AIF Ivan, VK4AI Reg and VK4BOS, Cliff. They have callbacks supplied each week by VK4BCF Brian.

VK4AIF transmits from Beachmere with a Kenwood TS44OS, 100 watts to an Open wire fed 250 foot dipole and has been serving the 'top end gang' for approximately 11 years and full time rotation for about 6 years.

VK4AI operates from Clontarf again with a TS440S into a full size 160 metre dipole for the same period.

VK4BOS is at Upper Caboolture, 400w from an IC2KL Linear and an Icom 756. Cliff's antenna is a quarter wave end-fed Marconi driven against the ground.

All stations take their audio feed from the Brisbane VHF Groups UHF repeater, and Reg VK4AI also can take the 2 metre uplink audio.

An Address To Note

There are still some articles of correspondence to the WIAQ requiring redirection from the old PO Box. It is worth adding to the publicity in this regard that the only WIAQ address for all incoming mail including both QSL Bureaus, QTC, Qnews and Council or Office is now PO Box 199, Wavell Heights, Qld 4012. All mail should always be sent to the official box not home addresses.

Link Complete

Bundaberg club has completed the link to Dalby from their Mt Goonaneman repeater site. Bundaberg's 70cm repeater and Dalby's 2m repeater are linked and many contacts have already been made, with good copy each way. The Sunday Morning news now can also be heard on their 70cm repeater via Dalby with several stations in the Wide Bay area checking in with Margaret VK4AOE in Dalby after QNEWS. Dalby repeater coordinator Mike VK4XT says these stations say were VK4's JM/BG/TVI/NW and JRO. Bundaberg's local Club net has been re established. The Committee is more than pleased with 12 stations calling in for a ragchew on a normally pretty quiet repeater. This net is open to all amateurs in the area and is run on "Town Repeater" 147.800 MHz Monday nights commencing at 1930 hrs.

Towering Inferno - NTS Array Goes Up In Smoke

An electrical fault in a television transmitting array lead to a spectacular fire and loss of 4 of the available 5 free to air television channels in the Townsville/Thuringowa region, along with SBS and ABC FM audio services.

Amateur Radio operator Don/VK4MC brought the event to the attention of other hams in the region. About the same time the population of the region were coping with fuzzy signal and distorted pictures minutes before radio and television services ceased transmitting and David/VK4KIX witnessed the flaming remains of the radome falling onto the ground.

The TARCinc VK4RAT Repeater Site, sited only metres from the NTS compound was undamaged, relaying situation reports during the incident without any degradation to service. The fire was hot enough to melt aluminium and brass. VK4ZZ collected a piece of melted antenna for a show and tell session at the next TARC Project Night and the next TARC Radio Theory Class. The top of the tower is a mess, resembling something out of a Godzilla movie. The UHF TV arrays are gone, but there are still pieces of fibreglass radome in place and there is a mess of burnt coaxial cable just lying on top of the tower.

The BoatAnchor Manual Archive is available to all that enjoy working on and restoring old valve type amateur radio equipment and short wave receivers. This is a totally free cooperative service to the BoatAnchor community. It is made possible by the generous folks who take the time and make the effort to scan and upload their manuals to the BAMA site. http://bama.sbc.edu

VK2 Notes

By Pat Leeper

Well, the Wyong Field Day has come and gone and seems to have been a great success. It was good to meet so many people, especially those from other states. Among the helpers on the WIA stand were Peter and Monica Naish of Federal, most of the NSW division directors and several other regular stalwarts.

We saw the WIA (NSW) Historian Jo Harris VK2KAA on her club stand, answering questions as usual.

The NSW Division Annual General Meeting is coming up on the 21st April, with nine nominations for council. As this is the required number of directors, there will obviously be no need for an election. Those standing are Terry Davies VK2KDK, Brian Kelly VK2WBK, Pat Leeper VK2JPA, Geoff McGrorey-Clark VK2EO, Chris Minahan VK2EJ, Andrew Scott VK2TWO, John Turner VK2WRT, Ken Westerman VK2AGW, Barry White VK2AAB. The only new name is Andrew Scott VK2TWO, as the remainder are present councillors standing for another term.

The meeting will be held at Amateur Radio House 109 Wigram Street Parramatta commencing at 11am.

The next regular council meeting will be held on 27th April, having been put back because of Easter and the Annual General Meeting.

As this may be my last report, I would like to thank the editor Colwyn, for coping with my sometimes late submissions and for all of you for reading same.

Cheers

Pat Leeper VK2JPA

VK7 Notes

Wireless Institute of Australia. Tasmanian Division Inc.
VK7 Division Executive 2001

President/Federal Councillor	Mr Phil Corby	VK7ZAX
Secretary / Treasurer	Mr John Bates	VK7RT

Divisional Councillors

Mr Ron Churcher VK7RN	Mr Allen Burke	VK7AN
Mr Mike Jenner VK7FB VK7MGW	Mr Bob McCulloch	
Mr Dale Barnes VK7DG	Mr Bob Cropper	VK7BY

Ex Officio Office Holders

Federal Councillor	*Phil Corby VK7ZAX
Alt Federal Councillor	*Ron Churcher VK7RN
Public Officer	*John Bates VK7RT
Membership Officer	*John Bates VK7RT
Membership Recruitment Officer	*Allen Burke VK7AN
Awards Manager	*John Bates VK7RT
QSL Manager	*John Bates VK7RT

FTAC

Broadcast Officer	*Mike Jenner VK7FB
Assistant Broadcast Officer	John Rogers VK7JK
Historian	Richard Rogers VK7RO
Education Officer	Reg Emmett VK7KK
Hon. Solicitor	*Phil Corby VK7ZAX
Web Master	Robert McKenzie VK7RB
Intruder Watch Co-ord	Robert McKenzie VK7RB
QRM Editor	*Ron Churcher VK7RN

* Indicates sitting member of Council.

Silent Key

George Welch, VK2UN,

George Welch, VK2UN, became a silent key on 15 February 2001 at Terrigal, NSW, after a battle with cancer. George was born in England in 1920 and came to Australia with his family in 1928. During WWII he enlisted in the RAAF as an apprentice electrician and was discharged as a pilot. His working career was spent with ACI, from which he retired in 1983 as a project engineer. He was active in amateur radio circles for many years.

George is survived by his wife, Audrey - an ex-RAAF radio operator; two sons, Craig and Bryan; and a daughter, Pam. He will be sadly missed by all who knew him.

Many thanks for your anticipated publication of this information.

Sincerely,

Bill Gelvin, VK4AK

Beyond Our Shores

David Pilley VK2AYD
Davpil@midcoast.com.au

The information presented in this column has been obtained from the RSGB "Rad. Com", ARRL "QST" and weekly News Letters from Amateur Radio Societies.

IARU

It is sometimes good to be reminded of those who look after our Amateur Radio spectrum. The following is the statement found on the internet web site for the IARU

"Because it uses an international natural resource—the radio spectrum—Amateur Radio must organize nationally and internationally for better mutual use of the radio spectrum among radio amateurs throughout the world, to develop Amateur Radio worldwide, and to successfully interact with the agencies responsible for regulating and allocating radio frequencies." Our own WIA is an example of this organization on a national scale. "At the international level, national societies throughout the world work together for the international good of Amateur Radio under the auspices of a representative democracy, the International Amateur Radio Union (IARU)."

"Created in Paris, France, the International Amateur Radio Union has been the watchdog and spokesman for the world Amateur Radio community since 1925. The IARU Constitution, last amended in 1989, organizes the Union into three Regional Organizations that correspond to the three administrative regions of the International Telecommunication Union (ITU)."

LF-TO-LF Transatlantic Amateur Contact Is History

Amateur Radio history was made in February when amateurs in Canada and the UK completed what appears to be the first two-way transatlantic Amateur Radio exchange on 136 kHz. Larry Kayser, VA3LK, and Lawrence "Laurie" Mayhead, G3AQC, managed the LF feat using extremely slow CW that featured 90-second-long dits and 180-second-long dahs. The two-way contact took two weeks to complete.

Now – who said 5 wpm was slow..!

WWV Survey Planned

The National Institute of Standards and Technology plans to survey users of WWV and WWVH later this year. The time and frequency-standard stations have been airing occasional announcements about the upcoming poll in order to start building a mailing list of survey recipients. The announcements state that NIST "is seeking information on how listeners use the broadcast services offered on the WWV broadcast," but the survey will not begin for at least several weeks. NIST said their Web-based timer server gets in excess of 3 million hits a day. The survey will probably start in May and extend to September.

If you would be interested in assisting with this survey send your name and address to: NIST Radio Station WWV, 2000 E County Road 58, Ft. Collins, CO 80524, USA, or by e-mail to nist.radio@boulder.nist.gov

WWV in Ft Collins, Colorado, and WWVH on Kauai, Hawaii, broadcast continuous time and frequency information to millions of listeners worldwide.

Emergency Communcations

The ARRL has an on-line course called Introduction to Emergency Communications. These courses are on-going and are not just directed at Radio Amateurs in the U.S.A.. According to the ARRL News Letter, even a ham in Italy has been added to the growing list of foreign students "attending" this on-line course.

More information can be obtained from the internet at http://www.arrl.org/cce

USA ARDF Championships

The USA ARDF Championships will be held in Albuquerque, New Mexico on July 31 through August 4.

All ARDF enthusiasts world wide are invited to come and test their skills. For more information contact the sponsors, Albuquerque Amateur Radio Club at http://groups.yahoo.com/group/abqardf/files/web/index.html

For more information on Amateur Radio Direction Finding visit K0OV web site www.homingin.com

Congratulations

Congratulations go to Murray Greenman, ZL1BPU who won the QST Cover Plaque Award for his article on "MFSK for New Millennium" in the January issue of "QST". MFSK stands for "Multi-tone Frequency Shift Keyed" and is really a super form of RTTY. All you need to get into the action is a computer with a sound card and the software. The software is free and known at "Stream". You can obtain this software from www.qsl.net/zl1bpu/MFSK/Software/IStreamSeup083.EXE.

World Amateur Radio Day

World Amateur Radio Day is set for April 18. The IARU has selected the theme "Providing Disaster Communications: Amateur Radio in the 21st Century." They have also approved of the Disaster Communications Handbook for Developing Countries and the role of the Radio Amateur service is one of it's main points. With so many floods and earthquakes occurring around the globe this could be a useful handbook.

Hamvention

For those of you who are globe trotters, you may like to make a note in your diary that the Big Bash at Dayton, Ohio this year is scheduled for May 18 – 20. The Hamvention is the largest Radio Amateur Convention in the world. It provides educational forums and the opportunity to see the best in Amateur

equipment available. Over 500 equipment vendors exhibit here and of course there are acres and acres of flea market to enjoy.

Should you be travelling to Japan later in the year you might like to arrange your trip for late August as the Japan "Amateur Radio Festival" known as the "Ham Fair" will be held at the Pacific Convention Centre, Yokohama, August 31 through September 2.

Morse Code

In the March edition of "QST" there were 5 closely typed pages covering the minutes of the ARRL January Directors meeting. These are quite detailed. (WIA Directors please note). Morse Code was mentioned and the fact that at the WRC-2003 meeting it could be dropped completely. To off-set this, the ARRL is already preparing plans for HF band planning for the Novice operators. It is perhaps something we should be looking at here.

Travelling To New Zealand?

Did you know that New Zealand is one of very few countries in the world where licensed amateurs visiting from overseas can immediately operate without the hassle of getting a ZL licence and without paying a licence fee? A visiting amateur can walk down the gangplank from the arrival aircraft into the terminal building and start operating on 144 MHz and above with the callsign ZL/(homecall)! See: http://www.med.govt.nz/rsm/guide.html and also http://www.nzart.org.nz/nzart/nzart/recip.html

Hiking Hams Claim Pedestrian Mobile Distance Record

From the ARRL News Letter

Bonnie Crystal, KQ6XA, of San Mateo, California, and Max Pompe, ZL1BK, of Auckland, New Zealand, are claiming the record for the longest direct-path, pedestrian-to-pedestrian Amateur Radio contact. The two worked each other February 18 on 10 metres using compact SSB transceivers and homemade antennas.

On the New Zealand end, ZL1BK used a 1.8 metre (5 feet 11 inches) homebrew telescopic whip mounted on his Yaesu FT-817 running 5 W. Crystal had a 6 metre (19 feet 8 inches) fishing pole strapped to an aluminum pack frame and ran 20 W using a Vertex/Standard VX-1200 HF Manpack transceiver.

The 6500-mile contact began on 15 metres but ended on 10, because conditions were better there for that path.

Did any one ever claim a record for the longest distance using the famous Australian Treager Peddle Power Transceivers?

Amateur Radio Mounts Quick Quake Response

From the ARRL News Letter

Hams responded within minutes after an earthquake hit the Seattle area the morning of February 28. The epicenter was some 35 miles southwest of Seattle, but the quake was felt as far away as Salt Lake City. Washington Gov Gary Locke declared a state of emergency for western Washington.

By the weekend, Amateur Radio had scaled back its response as power and telephone service returned to the stricken region. Amateur Radio Emergency Service (ARES) and Radio Amateur Civil Emergency Service (RACES) teams in the quake zone were mobilized within minutes of the event. The Salvation Army Team Emergency Radio Network (SATERN) and the Military Affiliate Radio System (MARS) also activated.

Residents in the affected region now are picking up the pieces. Damage estimates could top $2 billion. Upwards of 350 injuries—a few of them serious enough to require hospitalization—were reported, but no deaths were directly attributed to the earthquake.

ARRL Western Washington Section Manager Harry Lewis, W7JWJ, reported that very soon after the quake struck, State RACES Officer Jim Sutton, WA7PHD, was on the air, handling net control duties for the Washington State Emergency Net on 75 metres from the State Emergency Operations Center at *Camp Murray*. Western Washington Section Nets also activated on HF SSB, and in the Seattle area, ARES volunteers had mounted an emergency repeater net with King County EC Rich Hodges, KB7TBF, and Lt. Russ Reed, N7NOV, of the US Coast Guard sharing NCS chores. Several other county ARES nets took to the air.

Amateur Radio operators also set up a temporary 2 metre net to assist the Red Cross with damage assessment. An unconfirmed report says one ham used an ATV link from a helicopter to the State EOC—where Gov Locke was on hand—to survey the damage below.

Eastern Washington SM Kyle Pugh, KA7CSP, said "a loose information net" also fired up on 40 metres to handle general inquiries and health-and-welfare traffic.

The Alaska Pacific Emergency Preparedness Net also took the airwaves on 20 metres (14.292 MHz). "The net was opened within minutes of the quake, and hundreds of messages were passed," said Bob Baker, NL7UH, in Anchorage, Alaska. Baker praised net participants for their "very highly professional manner. The net was formed after the 1964 Alaska earthquake, and it includes several net control stations in Alaska and in the "Lower 48."

The SATERN Net activated for about six hours on 20 metres (14.265 MHz), processing health-and-welfare information requests and handing out situation reports from Washington and Oregon amateur stations. "Scores of stations over the nation assisted in relay," said National SATERN Director Pat McPherson, WW9E.

Congratulations To Austria

This year the Austrian Amateur Radio Club (OEVSV) is celebrating their 75th year. The OEVSV is a fully voluntary organisation with some 3,800 members, representing over 70% of the Austrian Radio Amateurs. (WIA please note). Austrian Amateurs are licenced generally in accordance with CEPT and have 3 classes of licence. CEP1 is unlimited and similar to our own with telegraphy requirements. Class 2 does not require CW examination and is for frequencies above 30 mHz. The Class 3 is the Newcomer licence limiting the operation to 70 cm only, but with 100w permission. Each year they run a national contest on May which includes emergency communications with the government, military, police, Redcross, etc.. It makes for good relations. If you would like to learn more about the OEVSV you can obtain more from www.oesvs.at Remember though, it is currently in the German language. Hopefully soon it will be available in English.

ar

Contests

Contest Calendar April – June 2001

Apr	7/8	SP DX Contest	(CW/SSB)	
Apr	7/8	EA RTTY Contest		
Apr	7/8	King of Spain Contest	(CW/SSB)	
Apr	13-15	Japan Int. DX Contest 20-10 m	(CW)	(Mar 01)
Apr	14	Holyland DX Contest	(CW/SSB)	(Mar 01)
Apr	21/22	YU DX Contest	(CW/SSB)	
Apr	25	Harry Angel Sprint	(CW/SSB)	(Apr 01)
Apr	28/29	SP DX RTTY Contest	(Mar 01)	
Apr	28/29	Helvetia DX Contest	(CW/SSB)	(Mar 01)
May	5	VK/Trans-Tasman 80m Contest	(CW/SSB)	(Apr 01)
May	5/6	Ten-Ten Intl. Spring QSO Party	(CW/RTTY)	
May	5/6	ARI Intl. DX Contest	(CW/SSB/RTTY)	
May	12/13	VOLTA WW RTTY Contest		
May	12/13	CQ-M Intl. DX Contest	(CW/SSB/SSTV)	
May	26/27	Anatolian RTTY WW Contest		
May	26/27	CQ WW WPX Contest	(CW)	(Feb 01)
June	9	Portugal Day Contest	(SSB)	
June	9	Asia-Pacific Sprint	(SSB)	
June	9/10	WW South American CW Contest		
June	9/10	ANARTS WW RTTY Contest		
June	16/17	All Asian DX Contest	(CW)	
June	23/24	Marconi Memorial Contest	(CW)	
June	23/24	ARRL Field Day	(All Modes)	

This month your support is asked for the annual Harry Angel Sprint, on ANZAC night, 25th April. We remember Harry as VK's oldest licensed amateur at the time of his death in 1998.

All you RTTY enthusiasts will be aware of the large number of contests for this mode in the near future. Please make these known to as many VKs as possible.

An advance warning — watch out for changes in the annual Jack Files Memorial Contest this year. This will be on first weekend in July only. Details here as soon as available.

Harry Angel Memorial Sprint

1100z - 1246z Wednesday 25 April, 2001

This is the third year of a Contest to remember VK's oldest licensed operator, Harry Angel. Please note the time length of the Contest - 106 minutes, Harry's age when he died in 1998. It is open to all appropriately qualified HF operators.

Object is to make as many contacts as possible on band 80 metres, using modes CW and SSB.

Categories: Single Operator (CW, Phone, Mixed) and SWL.

Frequencies: CW: 3500 - 3700 kHz, Phone: 3535 - 3700 kHz. Contacts in DX window not permitted. Exchange RS(T) and serial number; revert to 001 if 999 reached.

Score two points per CW QSO and one point per Phone QSO. Stations may be worked once only per mode.

Logs must show time UTC, callsign worked (both callsigns for SWLs), mode, RS(T), serial numbers sent and received for each QSO.

Send summary sheet showing name and date of Contest, name and callsign of entrant, category entered, address, equipment used, points claimed and a signed declaration that the rules and spirit of the Contest were observed.

Send logs to Harry Angel Sprint, PO Box 199, Wavell Heights, 4012, Queensland, by Friday, 25 May, 2001.

2001 VK/trans-Tasman Competition - Rules

Contest Date: 1st Saturday in May. 2001 = 5th May.

Time: 0800 UTC to 1400 UTC, (in 6 one hour stages).

Aims of Contest:

a).The VK/trans-Tasman Contest was conceived as a reciprocal event to the NZ Memorial Contest (held in July). The main emphasis is on VK/ZL, LSB contacts.

b). The scoring system was devised in an attempt to give all entrants a system that compensates for

(i) geographical location and usable band time, so as to give more equal opportunity, and thereby also encourage participation by VK's in Central and West zones.

(ii) promote trans-Tasman contacts, by giving bonus points for VK/ZL contacts.

(iii) provide some incentive for the astute Operator, by allocating additional bonus points each hour, for working multiple stations in any one call area.. The value of these bonus points has been structured to reflect the difficulty of the achievement, with regard to "Operator population densities" and distance.

c). promote/give recognition to QRP and 80m mobile operators.

d). As with the NZ Memorial Contest, provide a short event that doesn't impinge too much on family life or sleep time, while giving 6 hours of constant on-air activity.

General:

a). The Contest is open only to all VK and ZL callsigns.

b).The Contest shall be in 6 X 1 hour stages, and stations can only be reworked after the commencement of each hour. However, stations worked in the 5 minutes before the hour, cannot be reworked until 5 minutes after the hour.

A station can be worked on Phone and CW, during any one hour stage, only if the Operator is contesting both Categories.

c). Sequential numbers commencing at 001, shall be given and received for all contacts made during the Contest. (Use of RST numerals is NOT required).

d).Contest details; Rules and a suitable log sheet are available on the Contest web-site: http://home.iprimus.com.au/vktasman

Any queries or constructive criticism should be attached to the log, or e-mailed to vktasman@hotmail.com

Band: 80 metre band.

Frequencies: Phone: 3.540 to 3.625MHz.
CW: 3.500 to 3.550 MHz.

Modes: LSB (DSB optional for QRP); AM; CW

Max. TX Pwr: LSB: 100 watts pep. (QRP 5 watts pep, LSB or DSB).
CW: 100 watts pz.

Categories: Division 1. Single operator - Phone.
Division 2. Single operator QRP Phone, (also eligible for Div. 1)
Division 3. Stationary mobile, Phone, (also eligible for Div. 1)
Division 4. Single operator - CW.

Scoring:

a).VK shall be divided into 3 zones (for scoring purposes):
"East" = VK1, VK2, VK3, VK4 (south of Tropic of Capricorn),VK7 and VK9.
"Central" = VK4 (north of Tropic of Capricorn); VK5 and VK8.
"West" = VK6 and VK0.

Note: Assume usable band time is after 7pm local Therefore: ZL has 6hrs(all after 8pm) VK/East has 5 hrs VK/Central 4.5hrs VK/West has 3hrs

b). VK to VK = 3 pts
VK/East to ZL = 5(distance)+1(band time) + 5(bonus) = 11pts
VK/Central to ZL = 7(distance)+2(band time) + 5 (bonus) = 14pts
VK/West to ZL =10(distance)+5(band time)+5(bonus) = 20pts
ZL to ZL = 3 pts
ZL to VK/East = 5(distance) + 5(bonus) = 10 pts
ZL to VK/Central = 7(distance) + 5(bonus) = 12 pts
ZL to VK/West =10(distance) + 5(bonus) = 15 pts
(5 bonus points awarded for each trans-Tasman contact).

c) During each 1 hour segment, additional bonus points shall be awarded as follows, (allowing for distance/Operator density)
VK working 4 X VK call areas = 20 bonus points
VK (East) working 4 X ZL call areas = 40 bonus points
VK (Central) working 4 X ZL = 50 bonus points
VK (West) working 3 X ZL = 50 bonus points
ZL working 4 X ZL call areas = 20 bonus points
ZL working 4 X VK (East) call areas = 40 bonus points
ZL working 4 X VK (Central and/or West) call areas = 50 bonus points

All contact points should be calculated after the Contest.

Bonus points (para c.) for each hour of the Contest, should be entered at the end of the log, above the score total.

Logs:

a) For each contact, logs shall record callsign of station worked; numbers given and received, and UTC time.

b) A spare column shall be included at the right of each entry,for contact points score, - (should be completed after the Contest).

c) On each page, leave one spare line at the bottom of each points score column, for score sub-totals.

d) Logs, or log entries that are not clearly legible, in the opinion of the Contest Manager, will not count.

Log Summary:

Logs shall be accompanied by a Summary showing the Operator's Name; Address; Callsign; Category(s) entered, and total points score claimed.

Lodgement of Logs

Logs must be received either by post, to:
VK/trans-Tasman Contest,
28 Crampton Crescent,
Rosanna, VIC. 3084 Australia.
or, by email to: vktasman@hotmail.com

Note: Closing date for receipt of Logs shall be 0700 UTC, **10th June.**

Operators are requested to submit their logs (even if you don't think you will win). This will justify the effort and expense involved by the Contest Manager, and ensure the on-going success of the Contest.

Awards:

VK/trans-Tasman Trophy: 1st Phone score.
Certificates: 2nd and 3rd Phone score
1st QRP score
1st 2nd and 3rd CW score
1st VK phone score
1st ZL phone score
1st mobile score
(Night-owl's award) Top score in last hour

Publication of Rules and Results:

a). Rules will be published in the WIA "AR" and NZART "Break-in" magazines.

b). Results will be published in "AR", "Break-in" and "Radio & Communications" magazines.

c). The first 10 place getters in each Division will be published on the Contest web-site no later than 20th July 2001.

Results of 2000 John Moyle Field Day Contest

Thankyou to all who took part this year, a total of 41 logs received, 11 of which were received by e-mail.

Scores in the 24 hourMulti-op section were down this year ,with VK3ER taking first place with 8,044 points, followed by VK3CNE and VK4WIS with 4,296 and 3,970 points respectively.

The President's Cup was won by VK3YE/p, Peter will receive an individually inscribed wall plaque as permanent recognition.

The leading home stations are ZL2AWH with 329 points, and VK3CAT with 198

Points. On behalf of the operators who were portable our thanks to the home stations

for your support during the contest.

Results are in the following order: Callsign, Mult/Single, Mode, Band and Score.

Certificate winners are highlighted with an Asterisk (*).

Portable, Six Hour

VK3BEZ	Multi	All Mode	All Band	1552	*
VK5SR	Multi	All Mode	All Band	998	
VK7CHT/3	Multi	All Mode	All Band	142	
VK3FH	Multi	All Mode	HF	76	*
VK8DA	Multi	All Mode	HF	18	
VK3YE	Single	CW	HF	20	**
VK5EX	Single	Phone	All Band	130	*
VK2WF	Single	Phone	HF	100	*
VK6MM	Single	Phone	HF	2	
VK3GK	Single	Phone	VHF/UHF	1458	*
VK3YZR	Single	Phone	VHF/UHF	868	*
VK3JKI	Single	Phone	VHF/UHF	460	*
VK3KAI	Single	Phone	VHF/UHF	420	
VK3PRA	Single	Phone	VHF/UHF	200	
VK3HEN	Single	Phone	VHF/UHF	30	

Portable, 24 Hour

VK3ER	Multi	All Mode	All Band	8044	*
VK3CNE	Multi	All Mode	All Band	4296	*
VK4WIS	Multi	All Mode	All Band	3970	*
VK2HZ	Multi	All Mode	All Band	1794	
VK4BAR	Multi	All Mode	All Band	1122	
VK4WIL	Multi	All Mode	All Band	980	
VK2ADX	Multi	All Mode	All Band	770	
VK3LY	Multi	All Mode	All Band	622	
VK5BAR	Multi	All Mode	HF	670	*
VK4IZ	Multi	All Mode	HF	532	*
VK4CHB	Multi	All Mode	HF	484	
VK7OTC	Multi	All Mode	HF	96	
VK3DPW	Single	All Mode	All Band	718	*
VK4OE	Single	Phone	All Band	1406	*
VK5UE	Single	Phone	All Band	282	
VK5AIM	Single	Phone	All Band	270	
VK4EV			HF	144	*
VK4IS			VHF/UHF	690	*

HOME, 24 Hour

VK3DID	Single	All Mode	All Band	66	*
VK4PJ	Single	All Mode	All Band	36	
VK5RG	Single	All Mode	All Band	32	
VK3PP	Single	All Mode	All Band	21	

SWL, 24 Hour

Roy Ford	Single	All Mode	All Band	184	*

Check Logs: VK2DKD VK4APZ VK5BR

Comments on the Logs.

It would be appreciated if all logs contained the following information.

Front Cover Sheet: Callsign, Name, Mailing address, section entered, number of contacts Claimed score, location of station in contest, equipment used and the usual declaration.

Headings for Log Sheets.

TIME BAND/MODE CALLSIGN #SENT #RXD LOCATION / DISTANCE POINTS

Log times in (UTC or GMT) not your local time, overall most logs contained all info thanks.

Just as a side issue in previous Field Days I have used RACQ Road Maps with the distances (50, 100 and 150 kilometers) marked on them to calculate contact distances.

Some comments from Logs.

Although hearing VK& repeaters (2m and 70cm) no simplex QSOs resulted, it was good to work VK5SR on 2m and 70 cm,band conditions were good but not many people around. *VK3GK*

I didn't find out until a few days before the contest and wasn't sure if it was worth doing on a hand held In the country, low outout power didn't help as I could hear stns from all over Victoria. Half the fun was putting gear together suiteable for transport on a trailbike and heading bush on fire trails, I had a lot of fun and found a good spot for next year. *VK3HEN*

Thankyou for your patience whilst waiting for these results, I've had a career change (becoming redundant and starting in a totally different area). I also had too many irons in the fire so AR had to take a backseat.

Certificates will be forwarded in due course.

73, Eric Fittock.

ar

World Radio Conference 2003

With this important meeting looming, how does the WIA, your Wireless Institute of Australia fit into the overall scheme of things? The WIA is a participant in the ACA Australian Radiocommunications Study Groups Committees (ARSGs).

The ARSGs have an important role in preparing proposals, briefs and recommendations to the ITU-R and various conferences including WRC2003. They provide a forum for industry and government organisations to interact, debate and exchange ideas regarding radiocommunications matters. Study group ARSG 8 handles Mobile, Radiodetermination, Amateur and Related Satellite Services. Chairman is Mr Len Bray Spectrum Planning / ACA E-mail: len.bray@aca.gov.au

Recognising the diverse range of issues encompassed within that international study group, the load is distributed across two working groups and the one which includes Amateur Radio is chaired by Mr Garth Jenkinson Telstra Research Laboratories, E-mail: garth.jenkinson@team.telstra.com Participating organisations of this working group include: Australian Communications Authority, CSIRO, Department of Defence, Motorola Australia Pty Ltd., NZ Ministry of Commerce, Telstra Corporation Ltd., Wireless Institute of Australia (sourced from www.aca.gov.au/committee/national/arsg.htm)

Sourced from Qnews 1/04/01

DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Extreme nostalgia

Some people have a really strong hankering for the 'good old days' and how things used to be, while others carry nostalgia to extreme limits. While searching for some interesting news on DX I found the following piece in a recent copy of The Daily DX published by Bernie McClenny, W3UR.

"Bob Denniston, VP2VI, is going to mount a DXpedition called 'gone waki' (a play on words meaning 'gone crazy') in an attempt to recreate some original operating conditions. Bob was due to operate from his QTH at Tortola, British Virgin Islands over the weekend 10/11th of March. He is so intent on recreating 'original conditions' that he will be using basic equipment comprising 100 watt into 66 foot and 138 foot wire antennas, a hand key (good man!), a Meissner Signal Shifter (can anyone enlighten me on this item?), a homebrew amplifier and an SX28A receiver. While Bob was reminiscing he remembered that the term 'DXpedition' was coined by his friend CM9AA." I didn't manage to work Bob but if he was on the air I bet he had a 'good old time'!

Did anyone manage to work the St Peter and St Paul Rocks DXpedition station PW0S? Brazilian amateurs Jim PY7XC, Ciro PY7ZY, Eli PT7BZ and Andre, PY0FF mounted this DXpedition on a shoe string budget. The 'rocks' are actually the rim of a submerged volcano about 1000km off the eastern coast of Brazil. They are very isolated and landing is extremely dangerous. Once you successfully set foot on the island you are then faced with the daunting task of finding a level area to pitch camp. This small DXpedition ran a real risk of losing or damaging their equipment and ran a significant risk of injury, or perhaps worse! There is an official PW0S website at www.soutomaior.eti.br/paginas/dx.htm

The team used a 49 foot motor/sail boat called "Old Smuggler" to reach the 'Rocks'. It took them 6 days to arrive and then they had to wait for a further 3 days for the seas to subside enough for them to land safely. Three days on such a small boat in the middle of a stormy South Atlantic could not have been a very pleasant experience! While ashore the weather didn't seem to abate very much and operations were interrupted by high winds, heavy rain and lightning.

Their final tally of QSO's came to approx. 7800. This is not a record by any means but under the circumstances a very respectable result. For the dedicated DX'ers amongst us it was a chance to work a rare new country or perhaps on a needed mode. The team deserves a big thank you for a job well done and some sincere respect for their success under such difficult and dangerous conditions.

At the planned finish of the operation the weather was still bad enough to make the job of packing up and re-boarding the boat very dangerous. Their bad luck continued on their return trip. The boat developed problems and could not return them to their port of departure and they had to fly home from Fernando de Noronha to Recife. Due to the severe weather they were days late in returning to their families and their jobs. The weather, directly and indirectly, caused the cost of the DXpedition to far exceed there allocated budget. Those VK amateurs who managed to get in the PW0S log can QSL via the address below and perhaps show some appreciation or support any way they can.

PW0S Operators: Jim Faria, PY7XC (Leader), Ciro da Silva, PY7ZY; Eli Pinheiro, PT7BZ; Andre Sampaio, PY0FF.

PW0S QSL Manager: Steve Wheatley KU9C, PO Box 5953, Parsippany, NY 07054 USA

The DX

A5, BHUTAN. Charly, K4VUD (also A52UD) has reported that Kesang, A51KC, who is newly licenced, is willing to make skeds for contacts on the 10m (he can only operate SSB) via E-mail. Kesang's E-mail address is as follows, sophun@druknet.net.bt [TNX OPDX]

CE0, EASTER ISLAND. There have been a number of rumours that some operation will take place from here between 29th of March until the 9th of April. The operators will be Arliss, W7XU and Holly, N0QJM. 6 metre operation will be very high on their agenda. [TNX OPDX]

EM, ANTARCTICA. Paul, UX2HO, is now active signing EM1HO. He is located at the Ukrainian Base on an Argentine Island in the Antarctica. He arrived on the island a few weeks ago and is active on HF with 200W and a vertical. He is also active on 6 metres with 100W to a simple dipole. He plans to eventually raise a 4 element yagi on six metres in the near future. On HF, he will be on SSB, CW, RTTY and PSK31. Paul will be stationed in Antarctica one year. QSL via I2PJA. [TNX K0YR and OPDX]

GM, Scotland. Jim, MM0BQI (http://www.qsl.net/mm0bqi) will be operating as MM0BQI/p from the Tanera Mor (SC10) in the Summer Isles (EU-092) during the upcoming Scottish Activity Weekend on the weekend of 21st – 23rd April. He plans to be active on all bands from 80-10 metres operating all modes including RTTY and PSK31. The activity weekend is sponsored by the GMDX Group. Jim also plans to get back to EU-092 between 27th of July and the 3rd of August and will participate in the IOTA Contest. His aim is to activate some other nearby islands. QSL via MM0BQI either direct (Jim Martin, 3 Lismore Avenue, Edinburgh, EH8 7DW, Scotland) or through the RSGB bureau.

[TNX MM0BQI and 425 DX News]

HZ, Saudi Arabia. Joe Musachia, W5FJG (ex KA5ZMK, EL2JM, JY9ZK) is employed by the US State Department and is currently attached to the American Consulate in Jeddah, Saudi Arabia. He will be there for the next two years. Joe has recently obtained permission from the Saudi Government to operate from the Consulate using the call 7Z1AC. Joe plans to be on the air beginning sometime in mid April. QSL arrangements are currently via WA4JTK but may change in future. Joe's web page is as follows http://sites.netscape.net/joeyjeep99usa/homepage. Logs will be available for checking on the page along with operating updates. [TNX W5FJG/7Z1AC and 425 DX News]

S9, SAO TOME & PRINCIPE. John, W7KNT, is letting us know that Tom, W7LUU, is now on the air as S92TX. Tom will be mainly on the 10/15/20 metre bands running SSB; he also plans to be active on 6 metres as well. He has been working at various locations throughout the world for the US State Department and the Voice of America for the last 12 years. His latest assignment just started in Sao Tome & Principe and he should be spending the next 2 years. QSL is via W7KNT who is his QSL manager. John also says that he is planning a trip there himself and will be there for about a month in the northern autumn, or perhaps February 2002, to work the pileup's. [TNX OPDX]

TR, GABON. Xavier, TR8CX, has been very active on 10 metres FM in the past few weeks. If you want to try some long distance FM work then listen around 29175 and 29235 kHz between 1200-1600z. [TNX OPDX]

TX, New Caledonia. Jacky Calvo, F2CW is operating as TX5CW from New Caledonia. Jacky, F2CW and Dany/F5CW, along with a couple of other operators, will be active from the Chesterfield Islands (OC-176) between the 24th of April and the 8th of May. [TNX The Daily DX and 425 DX News]

V4, ST. KITTS AND NEVIS. Joe, VE3B plans to be active from here as V47CA from the 9th to the 24th of April. There will be activity on all HF bands plus 6 metres. They will be running a TS690, an AP8A vertical and a 3 element beam on 6 metres. The main mode will be CW. [TNX VE3BW and OPDX]

IOTA Activity

EU-092. Jim, MM0BQI is planning some operating from EU-092 between 27th of July and the 3rd of August and will participate in the IOTA Contest. His aim is to activate some other nearby islands. QSL via MM0BQI either direct (Jim Martin, 3 Lismore Avenue, Edinburgh, EH8 7DW, Scotland) or through the RSGB bureau. [TNX MM0BQI and 425 DX News]

AS-062. Alex, RU0LM, will again be operating as RU0LM/0 from Shikotan Island for a period of approx. two months. QSL via UA0MF: Mike Filippov, P.O.Box 20, (note; not 29), Vladivostok, 690021, Russia. [TNX OPDX]

OC-087. Tom, K7ZZ, has confirmed the V73E operation from Enewetak Atoll (OC-087) Marshall Islands is scheduled to run from the 19th till the 26th of April. The team members are Dave, V73UX/WW2AVG, George, V73GT/AH8H, Tom, V73ZZ/K7ZZ and Jim, W7UG. The team plans to operate on SSB, CW and RTTY on all bands from 80m to 6m. Two stations will be operating with amplifiers, a tribander, multi-band verticals and wire antennas. QSL to WF5T direct or via the bureau. [TNX 425 DX News]

AN-013. LU, Antarctica. The GACW expedition to Vicecomodoro Marambio Base on Seymour Island has been suspended. The trip was tentatively scheduled to take place in March 2001. Unfortunately the icebreaker that was to have transported the group is currently under repair and will not be available for service until the Antarctic summer is over. However the trip is being planned for next season. [TNX WC6DX, Islands On The Web and OPDX]

Special Events

Roman, RZ3AA, has been given permission to use the call R73A. This special call has been issued for the year 2001 to Roman to celebrate his 25th anniversary as a radio amateur. If you hear him on the air give him a call. QSL to RZ3AA (Roman Thomas, P.O. Box 38, Moscow, 129642, Russia). [TNX RZ3AA and 425 DX News]

The special event station IR0MA will be active throughout April. The station is celebrating the 2754th anniversary of the foundation of Rome. QSL is direct only to I0MWI, Stefano Cipriani, Via Taranto 60, 00055 Ladispoli - RM, Italy. [TNX I0MWI and 425 DX News]

DXpeditions

3B6, AGALEGA. The team has added 4 new members, close to the maximum number of 20 operators. The new members are as follows Steve (N3SL), Stefan (SP9RTI), Leonid (4Z5FL) and Antonio (CT1EPV). The other crew members will be Rene (HB9BQI), Christine (HB9BQW), Hans-Peter (HB9BXE), Hermann (HB9CRV), Cedric (HB9HFN), Karl (HB9JAI), Friedhelm (HB9JBI), Jacky (3B8CF), Luis (CT1AGF), Matthias (DL3KUD), Mart (DL6UAA), Jack (F6HMJ), Derek (G3KHZ) and Ken (NK6F). Tom (9A4DU) had to withdraw from the DXpedition to continue his studies in Florida during the time the expedition is planned to take place. The 3B6RF team is now scheduled to arrive at Agalega on the 3rd of May and operations should begin on the 5th for two weeks. The 3B6RF Web site is at: http://www.Agalega2000.ch

While not a full blown DXpedition there will be a limited operation from Mellish Reef coming up soon. **VK9M, MELLISH REEF** will be mounted by the VK9WI team who brought you Willis Island in May 2000. Team members will comprise David, VK4ZEK, Alan, VK4BKM, Peter, VK4APG and Harris, VK4CWT. They plan to be active on Mellish Reef from the 21st until the 24th of April. Activity will take place on all bands from 80m – 10m plus 6 metres. The trip will serve as a survey to help plan a larger "full-on" DXpedition to Mellish Reef in either late 2001 or early 2002. The team plans to be on the reef for approximately four days only. There will be one HF station operating continuously along with one 6m station. For the latest news on the VK9ML Melissa Reef Site-Survey/Activation in April 2001, visit the VK9ML Web site at: http://www.qsl.net/vk9ml Suggested frequencies are as follows: CW - 3504, 7025, 14025, 21025, 28025, 50105 kHz and SSB - 3799, 7085, 14195, 21295, 28480, 50145 kHz. [TNX OPDX]

VP8, FALKLAND ISLANDS. Look for 4 members of the GMDX to be active from the Falkland Islands (SA-002) as VP8SDX, between April 23rd and May 8th. The operators will be Rob, GM3YTS, Jack, GM4COX, Tom, GM4FDM and Gavin, GM0GAV. They plan to have 2 stations active. Their main focus will be on CW, LF and the WARC bands. QSL via GM4FDM. Further information can be found on the Web page at: http://www.hfdx.co.uk/vp8sdx

Round up

CIS AWARD. A new award 'The Radio Amateur's Diploma of the Commonwealth of Independent States' is sponsored by the "Funkner DX Family" amateur radio club (RZ3DZZ) and is available to licenced amateurs and SWL's for contacting or hearing 12 stations located in the twelve CIS countries. QSL cards are not required. For further information on the award contact fdxf@aha.ru [TNX RN3FX and 425 DX News]

PSK31 AWARD. The Penn-Ohio DX Society (PODXS) has something operators of PSK will enjoy working for. The "PODXS" has a free 070 Club PSK Award program available. For more information about the "PODXS" and the 070 Club PSK Award visit their Web site at the following address, http://hometown.aol.com/n3dqu/podxs.htm [TNX OPDX]

QSL VK0MM. Alan has announced the QSL route for his VK0MM activity from Macquarie Island. Please QSL direct to his QSL manager, VK4AAR, Alan Roocroft, P.O. Box 421, Gatton, QLD 4343, Australia. He says all excess proceeds from the QSL'ing process will be donated to Camp Quality, a very worthy charity, providing care for children with cancer and other terminal illness. The log for the operation has been carefully checked, however if you receive 'Not In Log' and you are certain that you had a QSO with VK0MM then you should contact Alan via E-mail (vk0mm@yahoo.com) and he will double check the original log in case of a typo. [TNX 425 DX News]

I read a short note in a 425 DX News bulletin regarding the future of the Morse code in the USA. The ARRL has issued a short piece of text that states the following.

"ARRL Board of Directors has approved a resolution that "recognises and accepts" the Morse requirement likely will be dropped from Article S25 of the international Radio Regulations at the 2003 World Radiocommunication Conference.

The Board's Morse code resolution declared that deletion of the Article S25 international requirement at WRC-03 "should not automatically or immediately mean a similar removal of the Morse code from Part 97 of the FCC rules."

Morse code, the Board affirmed, "should be retained as a testing element in the US." (From ARRL)"

As there are a very large number of amateurs in the USA it would be safe to assume, with the popularity of reciprocal licencing, most other countries will retain Morse code to some degree to maintain licence equivalence.

Indian amateurs have been granted an extension to their use of 3790 – 3800 and 10100 – 10150 and 50.350 MHz and 50.550 Mhz. They will be allowed to operate on these frequencies until 1830z on 31 July 2001. [TNX VU2JOS and OPDX].

I received E-mails from a couple of people containing the sad news of the death of Bill Orr, W6SAI.

"Amateur Radio legend William I. "Bill" Orr, W6SAI, of Menlo Park, California, died in his sleep on January 24. He was 81.

Most of us will own, or at least have read, one of his 'classic' books on radio construction or antennas and found them excellent sources of information and ideas. Our sincere condolences are extended to his surviving family.

And finally, a quick note from Bill Norris, VK1WN, who says that he uses an E-mail form of QSL'ing that is available at www.eQSL.cc. The service is free (although donations are welcome). Being basically an E-mail, QSL returns from other hams using the service, or something similar, should be very quick indeed. As bill says " It is free and fast, what else can you ask for?" This form of QSL'ing has been around for a couple of years now and it is rapidly gaining a foothold in DX circles. I wonder how long it will take before the E-mail QSL replaces the current card form? It would be a safe bet to say that there is currently logging software under development that will allow QSO details to be exported to an E-mail QSL program.

Sources

This month our thanks go to K4VUD, UX2HO, K0YR, MM0BQI, W5FJG, W7KNT, F2CW, VE3B, RU0LM, K7ZZ, WC6DX, Islands On The Web, RZ3AA, I0MWI, OPDX, 425 DX News and The Daily DX.

Silent Key

James George Cowan VK2ZC 22/6/1908—27/7/2000

It is with deep regret that I advise that Jim Cowan VK2ZC became a silent key on the 27/7/2000. Jim was born in Scotland and arrived with his parents in Melbourne on Melbourne Cup day 1912, and then went to Newcastle with his parents where he lived for the rest of his life. He started school at Waratah and was noticed by a neighbour who noticed his interest in electrical thing so gave him some LeClanche batteries. Being curious he touched the leads to his tongue and said he considered he had a taste for electricity. Graduating from Waratah school he went to Wicham Technical School and in the lunchtime break would cross to the newsagent to buy Wireless World magazine.

He made his first crystal set at the age 12. With only static and passing ships to hear he soon mastered the morse code. Whenever a ship came into Newcastle he would always try to meet the radio operator. Graduating from Wicham Technical school he became apprenticed to a fitter & turner. Still very keen on radio he obtained an experimental receiving license. On completion of his apprenticeship he was unemployed because of the depression. A Newcastle dealer of imported radios employed him to service some radios.

He joined the WIA as an associate in 1933 and gained his AOCP in 1934 with the callsign VK2ZC. He was offered a job at 2KO by Allen VK2KB. Although now in commercial radio his amateur radio activities were always prominent. He was very active in working dx. In later years he was active on satellites and computers and was active till the 26th July 2000.

Jim's wife passed away in 1992. Jim is survived by his daughter and her family who live in Scotland and his son Doug and family who live in Newcastle. Many amateurs and friends attended his funeral on the 31st July 2000.

Farewell Jim; you will be sadly missed. Bill Hall VK2XT

Spotlight on SWLing

Robin L. Harwood VK7RH

Well a quarter of the year has already slipped by and shortwave still is very interesting. Swiss Radio International (SRI) based in Berne, the nation's capital , only has one sender left on Swiss territory. It mainly utilises senders in Germany, Singapore and French Guiana and also, I think, South Africa

There have been rumblings for some time over the English language programs concentrating exclusively on News and Current Affairs with many of items relating to Swiss culture and events being dropped, especially the Swiss folk music which was a music bridge between the various language formats.As one American listener recently remarked, listening to SRI now is indistinguishable from many of the other European stations.

Austria, which is Switzerland's neighbour, reduced their transmitter output due to budgetary constraints. Now the Seventh Day Adventist Church are going to utilise the senders for their programming to Europe and the Middle East. According to a recent press release I received:

In announcing this new information yesterday, Mr Greg Hodgson, Director of Engineering for the AWR System, stated that usage of the relay facilities in Austria will give AWR added flexibility in covering the desired target areas, due to the fact that one of the main antennas at Moosbrunn is rotatable. The transmitter for these new AWR broadcasts is a 500 kW unit operating with 300 kW output. The new transmission period commenced on Sunday March 25 and AWR is taking out a daily 12 hour relay from Moosbrunn for coverage into frica, the Middle East, and Pakistan. The antenna beam will change throughout the broadcast day and the same transmitter at 300 kW will change frequency according to propagation conditions. An additional AWR service from Austria will commence on the sameday, Sunday March 25 from the other 500/300 kW transmitter at Moosbrunn with an omni-directional antenna. This will carry AWR programming to Europe morning and evening in English and German. The AWR DX program, "Wavescan" will feature in this new programming for Europe in the English broadcasts on Sundays.

The transmissions via Slovakia were discontinued on 24th March and AWR will also be continuing using the Sentech facilities in South Africa and the Juelich site in Germany and from their own senders in Italy and Guam. AWR sold their Costa Rican sender to an American televangelist, Dr. Gene Scott A satellite link will be used to feed the programs and it is intended to replace it later by soundfile distribution through the Internet.

Another evangelical group, Trans World Radio is also using the Austrian senders for up to 75 minutes between 1400 and 1700 UTC on 9745.

New Zealand has made some frequency changes and has opted for lower Channels during the Southern Hemisphere winter. Here is their schedule:

0459-0705 All Pacific 15120

0706-1105 All Pacific 11720

1106-1305 East Timor & NW Pacific 11720

1305-1650 OCCASIONAL - to All Pacific 6095

1651-1850 NE Pacific / Samoa / Cook Isles 6095 (weekday only)

1851-2050 All Pacific 15120

2051-0458 All Pacific 17675

15175 has been beaming to the NZ troops on duty in East Timor and has been providing good signals here compared to 17675 which is not as reliable in the daytime. 11720 is certainly an unusual choice as it has been used for some time by the VOA relay in the Philippines also to Asia.

As I have been mentioning in this column, there is an anti-Iranian clandestine operation transmitting on very odd channels. I had mentioned that they were heard within the aeronautical allocations on 8 and 10 MHz. They must have been causing some interference because they are now gone. However another mysterious station has appeared simultaneously on three channels, endlessly broadcasting sentences or phrases. It now has been tentatively identified, thanks to the Cumbre DX Group as "Sedye Mujahid". The organisation backing this goes under the initials of MEK or Mujaheddin e Khalq. It must be a terrorist organization because the British Home Secretary announced it being as such and banned it from operating within the UK. This station is identical to that of the signal I was hearing on 8850 but in a very different format.

My informant says that the senders are based in Iraq and are between 10 and 50kW. The Iranians are particularly sensitive to these transmissions, putting up severe bubble jamming, which can spread over 30 kHz. You can hear the clandestine and the accompanying jammers on these channels, 8600, 10080 and 12450 kHz from 2045 UTC or earlier, running through to past 2200.

The transmissions seem to be in 15-minute slots and seem to be in a loop.

There is no music, only a male or female reading out sentences.

Inexplicably the jammers are usually not there on Sundays.

I can hear Radio Australia on 15240 kHz around 0900z from two separate locations. The Shepparton site comes in plus the same program is being relayed from Taiwan yet is about 500 ms behind the Shepparton signal.

It is quite a mess. Also it appears that relays from the VOA/RFE sites

In Saipan and Tinian, were cut back.

Taiwan has an extremely strong signal on 11550 kHz. Between 0800 and 0900, it relays Radio Australia's Indonesian Service and Portugal was using it after to broadcast to East Timor, but I now believe that local FM relays are now available in Dili. Taiwan is heard clearly on 15060 in a Chinese dialect at 0930. Radio Taiwan International (RTI) is on 9610 and 7130 in our local evenings yet the former channel also has a Chinese mainland domestic sender plus Beijing being either side of the channel.

Well that is all for this month. Until next time, the very best of listening!

Robin L. Harwood VK7RH

Awards

John Kelleher VK3DP, Federal Awards Officer
4 Brook Crescent, Box Hill South Vic 3128, (03) 9889 8393

Firstly, I must apologise for the publication of erroneous material regarding the Zone 29 Award in a previous issue of this magazine. It must be established that I am operating from a 1997 issue of the K1BV International Awards Directory

Readers of this column will recall that from time to time I have pleaded for current information on all local awards. I have even offered free publication and endorsement of any or all local awards. To their credit, the WA division of the WIA have proffered a fully up to date resume of the abovementioned Zone 29 Award. Naturally, I would be remiss if I didn't publish it in full. Follows.

The Zone 29 Award.

The Zone 29 Award is offered by the Western Australian Division of The Wireless Institute of Australia, to all licensed radio amateurs and SWLs throughout the World.

To qualify, the following conditions must be satisfied.

1. Establishment of two-way communication with any 25 different amateur stations located in CQ Zone 29. Only contacts made after 0800 UTC on January 1 1952 are valid.
2. The total of 25 different stations may be obtained by operation on one or more of the authorized amateur bands as applicable at the time of the claimed contact. Cross-band contacts will NOT be accepted.
3. Any type of emission as permitted by the local licensing authorities at the time of the claimed contact may be used. Cross-band not permitted.
4. Applications containing multi-band and multi-mode valid contacts will be accepted, but the award will be issued with no endorsement.
5. Special endorsements as listed hereunder, will be displayed on the Award Certificate, where applicable, when all valid contacts fulfill the following conditions.
   (a) Single Band Multi-mode
   (b) Single Band All Phone
   (c) Single Band All CW
   (d) All Phone Multi-band
   (e) All CW Multi-band
   (f) Other special endorsements – As considered to be outstanding or unique.
1. Short-wave listener applications will be accepted, and the Award Certificate
   Issued with appropriate endorsements as applicable. When all conditions listed above are complied with.
2. QSL cards are not required as proof of valid contacts, but the application must
   Show that log extracts have been examined and verified by two other radio amateurs, or the Awards Manager of the applicant's IARU affiliated radio society. A simple declaration that the applicant's station has conformed to all licensing regulations as related to his/her operation is mandatory.
3. The fee for the award shall be Aus$2.00 or 5 IRC's for overseas stations.
4. Essential information required must include : Call sign of station worked/heard, Band (MHz), Mode used, Date/Time UTC.

Standard-form application sheets are available on request, or by a .doc or html file from our website:
vk6wia@iinet.net.au

Applications should be addressed to:
Award Manager, Zone 29 Award
WIA Western Australian Division
P.O. Box 10
West Perth WA 6872

PSK 31 Award :

The Penn-Ohio DX society has a free 070 club PSK Award programme available. Visit their website at: http://hometown.aol.com/n3dqu/podxs.htm

VRZA Award.

Contact 4 of the following stations: PI50VRZ/A, PI50CQP/A, PI50V, PI50R, PI50Z,and PI50A; during 2001. QSL is via PI4 (club call). Applications must be verified by two other licensed amateurs, and be accompanied by a fee of 5 USD.

The Award Manager is :-
Ben Horsthuis PA0HOR,
Fr. Halsstraat 95
3781 EV Voorthuizen
The Netherlands.

A short summary of International Postal Charges as from July 1 2000.

Weight Asia/Pacific Rest of World
Up to 50g $ 1.00 $ 1.50
50 to 125g $2.00 $3.00
125 to 250g $3,00 $4.50
250 to 500g $6.00 $ 9.00

Air Mail letter charges includes all letters up to and including a maximum size of 200mm X 360mm X 20mm.

Aerogrammes : To any destination 78c each or $7.30 per pack of 10.

** Postcards/Greeting cards up to 20g : To any destination $1.00 each.

Seasonal Greeting cards : Applies to greeting cards only during November and December. Cards must be in a sealed envelope, endorsed Card Only.

Maximum weight 20g Maximum size 130 X 240mm Charge : 80c each.

International Post and GST.

Unless indicated otherwise, International Post charges are GST free. A new range of specially designed stamps for International postage is now available.

Best Regards es 73 de John, VK3DP

Advance Notice

NERG Novice Classes

We'll be holding classes again this year, commencing mid-May. Classes are held at the club rooms in Watsonia, and run for about ten weeks.

Enquiries:

Stephen Warrillow, NERG Course Co-ordinator VK3JNH

03 9436 0435

Repeater Link

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
will2@iinet.net.au VK6UU@VK6BBR

VK6RBP

The International HF beacon VK6RBP has been showing some unusual behavior for a while, with gaps in the switched power levels between 100 watt and 0.1 watt and the callsign also missing bits from time to time. An E-mail from John W6JZH informed me that this is a fault with the TS50 and the replacement of some components should solve the problem. The parts are on the way and with the aid of a microscope and some surface mounting tools, hopefully the beacon will be back in service running as it should. For the moment, the beacon is being left on air as it is still providing some useful propagation details.

HF Gateway Delays

The license for the 40 metre HF gateway is still awaited. This saga is starting to look like the 29 MHz gateway saga of a few years ago. That one took 5 years and so far the 40 metre HF gateway saga is over two years now with requests to the ACA, of what is happening, being referred to Canberra but no response forthcoming.

Unless you have the time to ride a particular idea all the way through with constant harassment of the bureaucratic structure little happens and the years just roll on by. Time to do some harassing.

Advance Notice

ALARA Contest

Now August 25 and 26.

Details in May AR

Will's Waffle

Interesting discussions with our editor Colwyn as to changing my input to Amateur Radio magazine, from its voice repeater orientated perspective, to some other form. As readers have noticed, voice repeaters take up less and less of my time with interests diverging into many non-amateur interests. The mid life crisis time perhaps. Projects and ideas outside amateur radio have often been a frustrating, must get round to it one day, annoyance. From the age of 12 onwards I have wanted to build Tesla coils, just for the fun of it. This minor satisfaction in life has partly been realised and a great sense of, at long last. However with much more to do on the Tesla coil project and many other interests, amateur radio has to wait in line.

I do enjoy providing input to Amateur Radio magazine, but perhaps on a more diversified range of subjects. One particular interest is the WIA as an organisation. We have a long proud history, of hopefully doing what is best for the Australian amateur, with tremendous time and effort contributed by many people over many years. Just reading through the past minutes of Federal Conventions stretching back decades, you get the sense of lots of people, devoting lots of time, all for free in order to keep the WIA running.

Another interest is our history. The WIA has had many dedicated people in the position of Federal Historian, sorting large amounts of material. However after all these years just what we have is difficult to find out, and just where we are going with our history equally difficult to define. What do you want as a member when it comes to WIA and Australian amateur radio history? I can answer what I want and that is access. Be able to see what we have and even view the actual documents, minutes, motions and physical objects. It has never been possible to do this easily, but now it is, in a way ten years ago we could not imagine. In a word the Internet. All our historical documents and objects can be scanned or digitally photographed and then made available on the Internet. Further to that out audio history can be digitally recorded and stored on the Internet for all to hear. The WIA started an audio history project a few years ago and I'm endeavoring to find out where it is at.

With the Federal WIA convention coming up in the next few weeks, much of my time has been spent on preparing motions and reading other material for the convention. Being a Federal Councilor can take up a fair bit of time, and now that all divisions and Federal Councilors are E-mail connected, a lot of time is spent sending and answering E-mails. Perhaps the E-mails generate more work on their own, due to it being so easy to do business this way, but I think all councilors would agree it is a great way to conduct WIA business.

So in the future you may see a lot more waffle and a great deal less voice repeater material. I would also like to provide more information about just what the WIA is and is not doing for Australian Amateurs. A difficult task because some of the comments could be critical of the WIA, and most important, my perspective, not necessarily as it really is. However, do you want the WIA to be insulated from critical constructive comment? Hands up those who think the WIA is a s good as it could be. There is considerable interest to examine the structure of the WIA, and if it can be made better, move in that direction. If you are interested in any change to the WIA dig up Amateur Radio, April 1976 pages 7 to 12 and read the Arnold report. This extensive report was on just this subject, changing the WIA. There was no outcome from this report, it just died. The reasons for this can partly be traced by reading past WIA Federal Convention minutes, more on this next month as I waffle on.

ar

VHF/UHF AN EXPANDING WORLD

David K Minchin VK5KK
Postal PO Box 789 Salisbury South Australia 5108
E-mail: tecknolt@arcom.com.au
Web page: http://www.ozemail.com.au/~tecknolt
Fax +61 8 82346396
Phone 0403 368 066
All times are in UTC

Portable operation 144 MHz and above
In the last few years there has been a resurgence in portable operation. This seems to be both Contact related and/or for grid square activation. Going portable is one way you can combine a bit of radio with a bit of adventure, outdoors, perilous mountain climbing, a bit of public interaction even taking along the family. Even my shack mascot Clyde the Jack Russell, enjoys the odd dxpedition! In some cases, where the home QTH is challenged in a desired direction it is the only way to work the rest of the world. The following is a collection of portable reports

Dale VK5AFO reports ... 'I managed to be set up on a small hill close to home with the 12el K1FO and the 160W amp on 2m 3/3/1 from 7:30am local. The stations worked were; VK3AXH 5/1 Ian Ballarat, VK3AFW 4/1 Ron Melbourne, VK3CY 5/4 Des Wedderburn, VK3FIQ 5/2 Geoff Stawell, VK5NJ 4/1 John Mt Gambier He was using 100W to a vertical, VK3AEF 5/9 + Jim Nhill and VK3SWD 5/9 Bill Nhill, Numerous meteor pings whilst beaming to the Nth East on 144.2. Thanks to all who looked my way and made a contact." ...Dale VK5AFO

Ron Vk3AFW reports ..."This morning, 3/3/1, at 2006 hrs I worked Dale, VK5AFO, Mt Barker on 2 m. Distance about 650 km. His sig was 4x1 my rpt from him 5x1. There was a large amount of QSB. At 2015 I copied the Adelaide 2m beacon 519 but it was back in the noise 5 minutes later." ... Ron VK3AFW.

From Guy VK2KU/p ... "Log of Guy VK2KU/p for 1 March 2001 from Blackbutt Reserve, Newcastle. Lat 32deg 56.087min S, Long 151deg 41.357min E, Locator QF57ub, 01 Mar at 0044 on 144.1MHz: VK2ZAB 59,59, 01 Mar at 0047 on 432.1MHz: VK2ZAB 59,55, 01 Mar at 0048 on 1296.1MHz: VK2ZAB 55,53

From Anna Bay, Lat 32deg 47.082min S, Long 152deg 04.500min E, Locator QF67af. 01 Mar at 0249 on 144.1MHz: VK2ZAB 59,59, 01 Mar at 0252 on 432.1MHz: VK2ZAB 59,55, 01 Mar at 0257 on 1296.1MHz: VK2ZAB 55,53, 01 Mar at 0303 on 144.1MHz: VK2EM 57,57. The separate log of John VK2TK/p is very similar! Equipment: 144MHz IC821H and brick (RFC2-417), 100W, Halo (yagi not erected), 432MHz IC821H, 30W, 1x11 element yagi, 1296MHz IC1271E, 8W, 1x22 element yagi.

Comments on the Expedition: This was a lower key operation than our last expedition on the way to Albury last year. It was much nearer home and completed in a single day. John had collected all the gear from both of us a few days earlier, so we met at Hornsby station with Guy coming down from Springwood by train. The primary purpose was to activate 2 new squares (for us) on 1296MHz. We headed north from Hornsby shortly before 9am - a pretty late start for us! Mobile contact with VK2ZAB on 144MHz using the halo was more or less continuous. After coffee and Danish pastry somewhere north of Wyong (no point in roughing it), we reached Blackbutt Reserve around 11am. Lots of wet trees obscured the view south from this elevated spot, so we searched around for a more open spot. The high point was dominated by 2 huge water tanks, and it was impossible to get John's vehicle to anywhere with a clear view. Further down the hill to the south we also failed to find anywhere better, so we returned to the wet trees at the top. By this time it was raining again lightly too, so we did a swift setup without the 2m yagi, using the halo on that band. This obviously limited DX contacts on 2m. We both worked Gordon quickly on the 3 bands, and dismantled everything almost immediately before the equipment (and ourselves) got too wet. Apologies to other stations who may have wanted QF57.

Off to Anna Bay with a quick stop to buy lunch on the way. Anna Bay is a lovely spot with a million-dollar view out over the beach and Stockton Bight towards Sydney. The place was almost deserted except for a couple of 4WD ECO Tour vehicles. The sun was out by now and conditions perfect. We set up discretely at the back of the car park - not really sure why! We were half-ready when this enormous tour bus arrived and parked exactly between Sydney and us. Ah well, we figured it would leave soon. Once set up we called Gordon (through the bus) on the halo - 59 copy, so we moved up in frequency. Somewhat to our surprise 432 was excellent so we moved up to 1296. Gordon didn't seem to be able to hear us, and after a few hectic minutes we found that in packing/unpacking the IC1271E the microphone gain had got set back to zero and the mode set to split-frequency. Once this was corrected copy was excellent both ways. The yagi was about the same height as the roof of the bus, so maybe we got some ground gain from it! We stayed a while and worked Bruce VK2EM, but didn't hear anyone else.

Next trip: probably in late March to do some of QF45, QF47, QF48 and QF58. Research of possible locations is under way, and we hope to stay rather longer this time at each place. Expressions of interest for QSO's welcome." ... Guy VK2KU

John Moyle Field Day reports are scarce. From VK5 observations, virtually no propagation to be had. I managed to work approx. 400km on 144 & 432 MHz to VK5SR/P Mt Edward from Summertown (4km North of Mt Lofty). Also VK3AEF/P3 144/432 and heard only on 1296 MHz from Yanac (about 300km) and VK3III in the Northern Grampians on 144 heard on 432 MHz (about 400km again). Rain at the Mt

Edward end precluded any serious Microwave work. Only highlight was a dud Car battery (new car's don't have these problems .....), thanks to Paul VK5XPH and his trusty 747 Jumbo sized jumper leads!

50 MHz

50 MHz should be in the swing of the equinox as you read this but don't hold me to that! If you are looking towards the Northwest, operators in India have had their permission to use 50.35 - 50.55MHz extended until the end of July 2001. From most reports, 50 MHz hasn't reached the heights of the last cycle.

Scott VK4JSR reports ..."With a major storm occurring last night, 20/3/1, (09:00Z) the A index rocketed to 52 today. The US 50MHz prop logger showed good conditions from most of eastern VK this morning with FK8, TI, XE, ZF, KH6, and AH8 all being worked/ heard from QG62. Mike VK2FLR reported KH6 also this morning. 46.172MHz TV was also reported by VE7SL yesterday, was also interesting to see. A spate of VK3's clambering for JA's has just finished with the occasional JA still being heard now as I type this (11:35Z). Nice to see some F2 returning to the band." ... Scott VK4JSR

10 GHz ATV

VK5EME reports .. "I am now operational on ATV 10GHz. Have so far got through to VK5YLE at 1.5km & VK5SFA at 7km. Signals are P5 & can be variable. Trees obstruct both paths. There also seems to be propagation at night even over the 1.5km path to VK5YLE. When this happens I am able to point the dish anywhere & signals seem to be bouncing off of everything. I am running 1293.75MHz in the shack at 10mW up 10metres of RG6 cable to the multiplier & PA 10350MHz Out. I am using the 40cm dish with penny feed. I originally tried a 20dB horn but found that it was marginal. The PA is running 500mW but can be adjusted by varying the power up the cable. There does not seem to be much difference between 100mW and 1Watt. Lee & Steve are both using a Bob Platts 10GHz LNB & 60cm offset feed dish. In fact the lower power seems better sometimes when the trees are moving causing signal variations. 5GHz is next." ... Mark VK5EME

24 GHz EME!!

From the ARRL ... W5LUA Documents 24-GHz Moonbounce Echoes; QSO Planned NEWINGTON, CT, Mar 7, 2001—Noted VHF-UHF and microwave enthusiast Al Ward, W5LUA, reports that he documented echoes from the moon on 24 GHz earlier today. Although some amateurs have claimed to have heard 24 GHz echoes in the past, it's believed that this marks the first time they have been documented. Ward says he was able to hear and record the earth-moon-earth echoes on 24192.1 MHz at 0816 UTC today. "This triumphant event came after several years of optimizing the system and many failed attempts at achieving lunar echoes," Ward said. Ward, who lives in Allen, Texas (EM13), was running 20W and using a three-meter dish

VE4MA reports further ... "Tonight at about 04:30 UTC March 10 the 24 GHz EME signals of W5LUA were heard at VE4MA. Signals were weak at both ends. Al's signal here was T-M copy. I am using an 8 ft offset (14 /12 GHz) dish with a "large" diameter W2IMU feed into a DB6NT Preamp at 1.55 dB NF. I see 15 dB on Sun noise and 2.3 dB of moon noise. I had no visual moon because of clouds, but this does not appear to have affected the moon noise. The beamwidth of the antenna appeared to be slightly less critical with clouds than with clear sky. The WX here was about -1deg C (warm spell!) and about 80% humidity with snow expected overnight. And now to make a QSO!" ... Barry VE4MA

Microwave Primer Part Eleven:

Using Spread Spectrum WAN's on 2.4 & 5.7 GHz

Now for something a little different .. still Microwaves though! Enormous development has gone into "Consumer" type Wide Area Networks (WAN's) for linking PC's around an office without cable or to link two sites in close proximity. 916 MHz and 2400 MHz ISM bands have been, to date, the preferred bands. This part will pass on a few ideas to help you experiment with some of the 2.4 GHz equipment. Just what you can do, well we are now talking about Wideband data transmissions but 2 MBPS could be a highspeed Packet radio backbone, or a multichannel voice link between sites. 2MBPS is enough to pass B&W TV pictures, if you have access to encoders/decoders ... food for though anyway!

Semiconductor manufacturers have developed complete chipsets to provide 100mW of RF and Wideband receivers that achieve typical 100-metre coverage in a cluttered environment. PCMCIA card "Wireless networking adapters" allows laptops to be linked into a LAN yet be portable within an environment. The 2MBPS data transfer rate, while slow by LAN standards, is a more than acceptable compromise for portable work. Multiple clients can co-exist on one "channel". Some units have the ability to operate over multiple channels.

The more recent "Bluetooth" developments use 2.4 Ghz to provide wireless short range (10 metre) unlicensed radio links as per IEEE 802.xx standards. Typical uses go beyond PC linking to just about anything that would have used a cord to connect to something up to 10 metres away. 2nd Generation Bluetooth will take the technology to 100 metre range. Newer developments for the 5.7 GHz ISM band follow similar deliver 11 MBPS data transfer rate. If you get the picture, the true short range "Wireless" era is only just beginning!

In the next few years a lot of the 1st generation 2.4 Ghz equipment will drop out of service as the band becomes more crowded and/or consumers demand faster data rates. It is indeed a shame that we don't have an allocation around 900 MHz. The ISM band of 916 – 928 MHz would be a start, already given a plug in this column last year. The proliferation of 900 MHz ex AMPS & GSM Network equipment simply being converted into base metals is a crying shame. One rack mounted UK made 900 MHz amplifier I tested this week provided 100 watts easily with about 50 mW's input. 24 VDC requirement a minor nuisance but the devices/design just won't translate to any current amateur band. For a 100 watt 922 MHz FM ATV transmitter though it would be nice! 5.7 GHz equipment will eventually be of more interest albeit newer and perhaps less accessible (read more $$'s).

The last few months I have been playing with a pair of PMCIA 2.4 GHz Spread Spectrum WAN Cards. These are "Webgear Aviator™ 2.4 GHz" but a

number of other companies market them. Brand new they seem to start at around $150 a pair, for a little more you will get a full set plus one PCI card adapter for a Desktop PC. If you have access to a pair of Laptop's then you won't need the adapter. Typically the WAN card uses a pair of small "patch type" antenna so connected to give some path diversity. As they are they seem to work over about 100 metres in built up areas, but I've had these working across the gully here (1km) without any trouble. The temptation to fiddle to get more range was insurmountable! .

Adapting the WAN card to take an external antenna isn't too hard. The hardest part is probably getting inside the card without causing too much damage. It is then just a matter of removing the coax connections to the patch antennae and installing a short length of semi rigid coax to one of the two points. Once you find where to go you can drill small access holes to get a soldering iron in to do the work. The Semi rigid can be soldered inplace on the usual tinplate case. Terminate in a SMA or TNC connector and that is it, 100-mW data transceiver ready to go!

The only problem left is to connect to suitable dish or loop yagi. Being a PC card it is a bit hard to mount the PC at the dish (unless portable) so you will need to run a feedline of some description to your antenna. This is where it will pay to do some path loss calculations to see what will and won't work. For short paths some feedline loss may be acceptable. For longer paths you may need to counter feedline losses with a bit of extra antenna gain. I have had a couple of reports over the last 12 months of success up to 18 – 20 km's with 2 foot dishes (Pure Line of Sight). I am currently working on using a pair for a link to the SA VHF Group Water Tower (only 6km away LOS).

I made mention of 2.4 Ghz commercial equipment becoming available eventually. Some of the earlier equipment is now being updated ... some of the old equipment will no doubt be re-used but some will also fall out of service. This dedicated link equipment is usually only 40 – 100mW's. In order to comply with current regulations the EiRP is meant to be less than 1 Watt. That isn't always the case in practice, enough said! The link gear usually has a number of channels from 2400 to above 2450 MHz. For Amateur use, they would be of good interest. Commercially each end usually costs between $1-2K, hence their popularity as a cheaper form of point to point linking.

Where do you start? I don't think you can go past the WAN cards for a simple and cheap start. If you have an interest in linking amateur stations point to point then this is a far easier method than starting with Gunnplexers on 10 Ghz. 100 mW's is nothing to be sneezed at! Operation of these units into an antenna is perfectly legal as long as they are operated in accordance to our current licensing conditions.

In closing

SERG will be holding their annual convention on the Queens birthday long weekend, June 9th & 10th, 2001. Fox hunts, commercial displays and the usual annual chat for VK3 & VK5. More details next month.

And don't forget the Eastern Zone ARC will be holding the fourth Annual Gippsland Technical Conference in Churchill, Victoria, on the weekend of July 8 & 9, 2001. For further details see the Club web site at http://www.qsl.net/vk3bez/ contact the Club via email to vk3bez@qsl.net or at Eastern Zone Amateur Radio Club Inc., PO Box 459, Moe 3825, Victoria, Australia.

I'll leave you with the following thought "Is a Serial mouse one you get in a Corn Flakes packet?" Till next month

73's David VK5KK AR

Barry VK2BJ wins Peter Alexander VK2PA Award 2000

In memory of Peter Alexander, VK2PA, who was a keen CW operator and known world wide, the Oxley Region Amateur Radio Club of Port Macquarie created a special award to be presented each year to the top VK station in the Commonwealth Contest. The award is a perpetual trophy held by the ORARC and each year the winner is presented with a special plaque. In 1998 the award was presented to VK2BJ, 1999 it was VK4EMM and again in the year 2000, VK2BJ was the recipient. Barry travelled to Port Macquarie especially for the award and entertained the ORARC Club members with his experiences in contesting. The results of the 2001 Commonwealth Contest is not yet known.

It is a pity that so few VKs enter this extremely social contest. Unlike a world wide contest, and like the CQ or ARRL tests when stations make contacts at a rate exceeding 120 an hour, the Commonwealth Contest is much more relaxed and total QSOs for the 24 hour period will seldom exceed 750.

de VK2AYD

Photo : Barry VK2BJ, being presented with the plaque by Ina Alexander.

New Column

Ham Shack Computers

Alan Gibbs, VK6PG
Email: vk6pg@tpg.com.au

Getting Started

When gazing at television, magazines and newspapers these days, it's hard to find something that does not mention the word COMPUTER or the INTERNET! Society is continuously being bombarded with email and web addresses, and it seems "trendy" to carry a mobile phone to check if someone has sent you an email message when you are standing waiting for the traffic lights to change green!

For Radio Amateurs worldwide, the computer has certainly made its mark by changing the way they operate in the ham shack. Even the Amateur Radio magazines have "data" columns and features that use microprocessors and computers to do just about everything. But many Radio Amateurs are perplexed when they read that "this" and "that" could be downloaded from the "Net" and used to perform some magic function, or offer some enhanced productivity that automatically does "something" for "someone" with a computer.

This new series of articles points to a vast arena of topics, hints, tips, software and hardware. The very nature cannot fully address the needs of all readers, but it can help those who do not yet have a computer, or who might be thinking about getting a computer and want to understand some of the "jargon". In simple terms, you might just want to make a start without finding computers so daunting after all.

As for the expert readers, their support and help is also needed. It's easy to assume that everyone understands how computers work, and how they store information. However, many Radio Amateurs do not use computers, or feel that computers are much too complicated and avoid reading Computer and Data columns in the AR press.

This series is for everyone, the 'thinking of getting" and the "experts" alike. The writer cannot hope to keep everyone happy all of the time but let's work together and show just how computers can help us enjoy the wonderful hobby of Amateur Radio. After all, in the field of computer technology, there are very few real "experts" – just good people who know a little more than others but perhaps in a different field of computer technology.

Getting started with a new series like this is a daunting challenge. However, readers' suggestions are welcome. Your experiences will assist those in need and help to spread the message that Amateur Radio is still growing, healthy and a "High Tech" hobby just like other technologies in a modern world.

In days gone by, AR was considered a way towards a professional career in communications. Today things have changed, so perhaps readers might consider that – with an understanding of computers, and the way they operate, might just be an avenue towards getting into Amateur Radio. So, welcome to this new series. It will be different to articles written in popular computer magazines, and related to the hobby that we all enjoy – otherwise you would not be reading this magazine!

Ham Radio Computers

In this new millenium, computers are assisting Radio Amateurs to:

- Keep station logbooks.
- Track duplicate contacts and QSL cards going in and out for awards.
- Fully run HF/VHF transceivers.
- Plot the trajectory of satellites.
- Automatically collect messages.
- Test propagation paths.
- Design antenna systems.
- Draw circuit diagrams and design printed circuit boards.
- Automatically turn a beam antenna in the right direction when a prefix is entered into a logbook.
- Keyboard chat to one or many operators around the world ...
- and design custom QSL cards.

The list is almost endless but few operators will do, or even want to do

everything that's on offer with computers in the ham shack.

The writer's shack has three computers each playing a key role in how the hobby is enhanced and enjoyed. These are:

1. Automated packet messaging, DX cluster, and "wormhole chatting" on 2m FM.
2. Operates the station HF transceiver, keeps the logbook(s), runs RTTY, CW and PSK31 and maintains records to track awards and QSL's.
3. A "working" computer for writing these articles, Internet (Web and Email), picture scanning and image processing. Running conferencing with other operators via international repeaters around the world etc.

All three computers are interconnected via an "Intranet network" so that information can be shared and used simultaneously. Why would the writer need three computers in one shack? For the answer, keep reading this series.

Seeking Advice

Gather together a small group of Amateur Radio Operators at your next club meeting and ask them: "What type of computer would be best to use in the average Ham Shack"? If there was a group of say 12 members, then you'll get 12 different answers! That's after some lengthy period of argument, humor and much interplay amongst the group.

Some operators can afford to buy one of those modern, superfast "all singing and dancing" multi-media, whiz-bang computers complete with a colour television camera and compact Digital Video Disk with surround sound stereo speakers. Very nice but not really what is wanted in the Ham Shack. Others might be strapped for money and unable to even consider buying a computer because of large mortgage payments, the kids - and the family must come first.

For readers with a serious cash flow problem, there are many solutions to getting started. In a recent contact with one RA in Australia, he said that a visit to his local rubbish tip produced the parts to a fully working IBM™ compatible 486DX-2/50 computer and monitor! The new acquisition needed some cleaning up and a few screws to secure internal cards. A trip to a local Big-W store produced a nice new keyboard and a friend donated a mouse and power cord. The outcome was a fully working colour computer that handles the station logging, keeps his records of QSL's and awards, runs packet messaging on 2m, keeps track of correspondence, and other family duties including games!

Finding Computers

Sources of good quality second hand computers include car boot and garage sales, club junk sales, the WIA weekly broadcast disposals segment, local auctions and friends. The writer's local "computer recyclers" have modest computer packages for around $50 complete with monitor, keyboard and a mouse. Not bad if you are prepared to do some cleaning up and don't mind the odd scratch on the case and/or monitor.

Superfast computers are nice to own but not really needed in the ham shack. However, if you would like to process images and sounds, or handle complex files and functions at speed, then perhaps you will need the computing power to handle the job. Remember that other additions may be needed like a printer, scanner, high-density file back up system etc. But most RA's might not even need these devices if some thought is given beforehand. Most AR software is available for free, the start-up costs can be kept very small indeed.

Readers who feel that computers are far too complicated and should be avoided at all costs – please think again and accept the challenge. It's really quite easy to do.

If correctly setup, computers can do all those wonderful jobs mentioned earlier. If you studied hard to gain you're Amateur Radio Licence (and passed the Morse test as well), then you'll find it a breeze to add computing to your personal skills.

Talk to friends and other AR operators who use computers. Read the data columns and packet news articles. Ask how a DX cluster works or watch a PSK31 contact at your friend's shack. Visit your local club and listen to talks about using computers in every day AR applications. You'll be amazed how advanced and exciting the hobby has become over the last few years.

Which Type to Choose?

There are so many options these days it's better to start with what you would like your new (or secondhand) computer to actually do for you. Most operators start with a simple system to do word-processing and shack log-keeping duties, then work upwards driven by personal interest. Do a little planning and write down your options and desires – then see what is around the market place.

If you want to start with PSK31, then a multi-media computer with CD-ROM and stereo sound, a reasonable sized hard drive – including the cost of Microsoft Windows™ might be too expensive if you are a newcomer.

Conversely, a cheaper basic machine might be the better option, and use this machine to learn more about computers and the myriad of options available.

For simple packet, logging and general family duties, an Intel based 486DX-2 50MHz computer will do just fine. These machines are flooding the secondhand marketplace and available for less than $100 including colour monitor, mouse and all the cables and software.

Most operators are very resourceful and prepared to build their own machines, and it's very easy to do. A case, motherboard, some memory chips, disk controller card, sound card, a floppy drive and a hard drive can easily be assembled and commissioned in one evening in the shack. Avoid older "XT", "286" and perhaps early "386SX" types of computers. Use the advice gathered from your friends and club mates, and if buying secondhand, take your friend with you and ask for a demonstration before making your final purchase.

The Ultimate Goal

Like the picture shown above, the finished computer might take center stage in your custom-built shack desk where the computer does all the work for you. The new Kenwood TS2000B, due soon, has no front panel – everything is done on the computer screen!

Next month: Hardware. Looks at computer hardware with tips on building your own computer. Readers' contributions to this series are most welcome by contacting the writer shown at the heading.

Ham Tip No. 1. Plain water with a little sugar soap added on a dampened Chux Superwipe™ cleans monitors, cases, keyboards, mouses and shack rigs, beautifully. Gently finish metal painted cases with car polish, then buff gently.

73's de Alan, VK6PG

ar

GippsTech – Australia's premier technical symposium for VHF, UHF and microwaves

Chris Morley VK3KME
Secretary WIA EZ ARC
Photographs by Ralph Edgar VK3WRE
PO Box 459 Moe Vic 3825
morley@vic.australis.com.au

Approximately fifty VHF, UHF and microwave enthusiasts (and many XYLs) congregated last July at Monash University in Churchill, Gippsland (approx. 150 km East of Melbourne) to take part in two days of technical presentations, discussion and social activities. GippsTech 2000, which had amateurs in attendance from VK1, 2, 3, 4, 5, 6 & 7, was the third successive symposium; the event has been organised by the WIA Eastern Zone Amateur Radio Club each July since 1998, and *yes*, it will be on again this year. See later in the article for details.

The concept of GippsTech was first put forward by Peter Freeman VK3KAI some years ago when our Club Committee was discussing the merits of another Convention. It was felt that there was a need for bringing together the collective knowledge and experiences of those who dabbled in the bands above HF. After all, this was the area of amateur radio where there was indeed still much experimentation taking place and the boundaries were still being pushed out further. This is not to say that HF is dead – far from it in fact. The aim was to invite some amateurs to speak on a variety of interesting topics and combine this with plenty of time for informal technical discussion, demonstrations and socialising. A key feature of GippsTech has been the involvement of many partners. Pauline, XYL of Tom VK3XBG has most capably organised the other XYLs for local Gippsland tours. The success of these activities is measured by the insistence of several of the XYLs that they are going to be attending the next year's symposium!

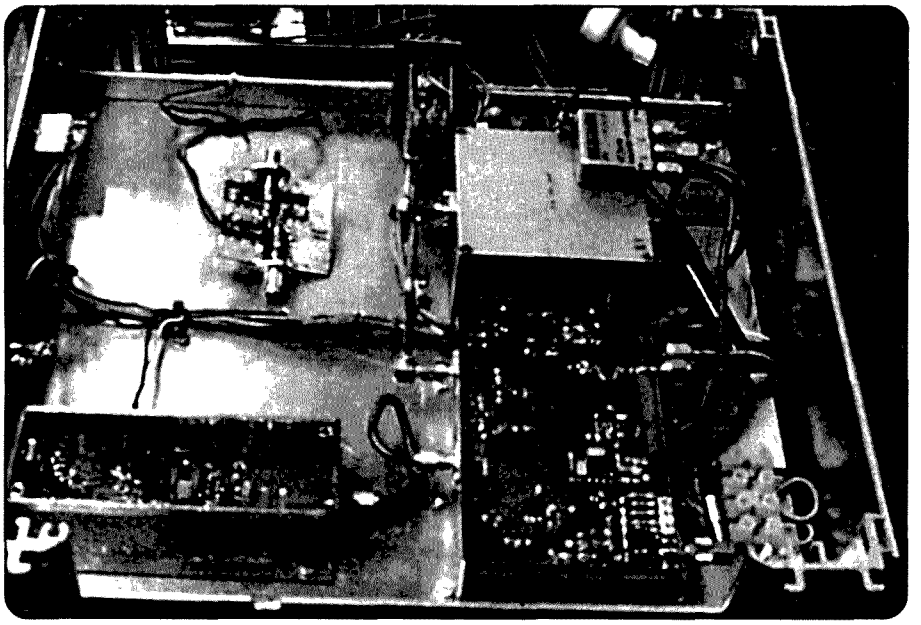
Topics have been wide and varied and have catered for both the practical experimenters and the theorists. Last year, Rex Moncur VK7MO opened the presentations with a very lively talk on *Aircraft Enhancement – Some Insights from Bistatic Radar Theory*. Rex's address was the culmination of months of research, experimentation and email group discussion on what has been a somewhat contentious topic over a number of years.

An excellent presentation on *24 GHz Equipment and Experiences* was given by Colin Hutchesson VK5DK, Trevor Niven VK5NC and Russell Lemke VK3ZQB. The exquisite manufacture and fine detail of their gear had to be seen to be believed. Ron Cook VK3AFW presented a series of 15 minute talks on general interest items for the shack (and home): *A Simple TVI Fix, An Improved Microwatt Power Meter, and Sequencing the AM17*. Jack Bramham VK3WWW explained how the internet can be used to alert us to current propagation conditions with a talk on *The DX Cluster*.

One of the most entertaining talks was that given by Wally Howse VK6KZ. He kept us all interested and asking questions with *VK6KZ Portable: Hints for VHF/UHF Portable Operation*. The clear message here was to test before you leave home and configure your equipment so that it's virtually ready to go as soon as you park your vehicle.

Both Rex VK7MO and yours truly, VK3KME each presented their experiences with DSP software. Rex offered *Some initial observations on using Spectran/Sprectrogram/Hamview and Visual Frequency Shift Keyed CW on 144 MHz* where he described the relative merits of each software program and the advantages that DSP software provides for weak signal detection. VK3KME's talk also covered weak signal detection, but focussed on using DSP software to track aircraft. Other talks included Ralph Edgar VK3WRE on *Useful Circuit Ideas For Microwave Equipment Integration*, and Peter Freeman VK3KAI on *2.4 GHz Equipment and Experiences, and Lightweight Antennas*.

Other notable talks in past years have included *The New Zealand VHF/UHF*



Some of the 2.4 GHz equipment on display at GippsTech 2000

Scene by Peter Loveridge ZL1UKG, *Predicting Tropospheric Propagation Across the Great Australian Bight* by Russel Lemke VK3ZQB, *Comet Shoemaker-Levy* and *EME Communications*, both by Doug McArthur VK3UM.

To read much more about these interesting talks, the proceedings are still available, at a nominal price, for GippsTech98 and GippsTech99. Please contact me via one of the means listed above to arrange your copy. Proceedings from GippsTech2000 will be published soon.

GippsTech2001 is being held on 7-8 July and promises to be another successful meeting of those amateurs who are interested in the top half of the spectrum. We are still looking for speakers for this year's event so if you would like to present a topic, please email either Peter Freeman (peter.freeman@sci.monash.edu.au) or contact myself (details above) with details of your proposal. More details of this year's event will be published over the coming months.

ar

Rex Moncur VK7MO at GippsTech 2000

Some of the crowd in the lecture theatre at GippsTech 2000

Pounding Brass

S.P. Smith VK2SPS
4/6 Taranto Rd, Marsfield NSW 2122
Email vk2sps@one.net.au
(H) 02 9876 8264 (M) 0419 602 520

Technology has finally caught up with me and I am now possess an email address, see above, this will make correspondence faster. If you are not connected please keep the letters coming and I'll get to you as quickly as possible.

Trevor VK3PP sent me an interesting letter recently in regards to Maritime Traffic and Coast Stations still operating, here is an extract from Trevor's letter.

...Here are a few call-signs of Maritime Mobile CW Coast Stations still operating, or that I have logged in the last 2 months or so. Mostly it is a call type inviting ships to send traffic, or sending call-signs of ships that the Coast Station has traffic for. Very occasionally I actually hear Coast Stations working a ship. Some Coast Stations still send weather in English.

Here are some of the stations logged, which might interest readers of your column.

011055Z Jan 01 8694KHZ XSZ (Dairen, China)

Commences with "hr wx on 463 6333-5 and 8694KHZ".

Weather forecast and gale warnings followed.

031045Z Dec 008573KHZ CLA21 (Habana, Cuba)

"CQ de CLA QSX C/11 8638/12552 TX 8573/123673.5 QSW CLA 20 32

QRJ C/809 K"

230156 Nov 00 17103.2KHZ XSG (Shanghai, China)

CQ followed by "pls up 648"

The following call-signs frequently heard and now silent are:-

GKL Portishead. UK
LGW Rogoland. Norway
PKX Jarkata. Indonesia
URL/UFN Russia

Thank you Trevor for your interesting letter, you might be interested to know that "LGW" shut down on 1st December 2000 at 000Z, Rogaland made its final CW broadcast on.

4 MHZ (LGW) 8 MHZ (LGB) 12 MHZ (LGJ)

The transmission reads as follows:

CQ de LGW LGB LGJ = QTC1 =

The time has come to take a last farewell with CW here at LGB. With a little bit of nostalgia we bury our morse keys and may they R.I.P.

NW QRU TU BI BI de LGB CL CL AR VA VA VA de LGB.

If anybody has any information on the above let me know and I'll pass it onto Trevor VK3PP

A technical look at sounder will continue on next month, meantime I'll be burning the midnight candle looking at Telegraph Sites on the Internet and will report my findings in later issues.

Until then 73. See you on the air

Steve VK2SPS

ar

HF Predictions

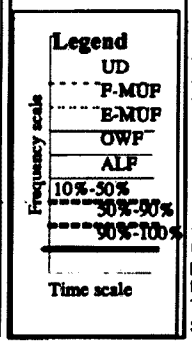
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation ot key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

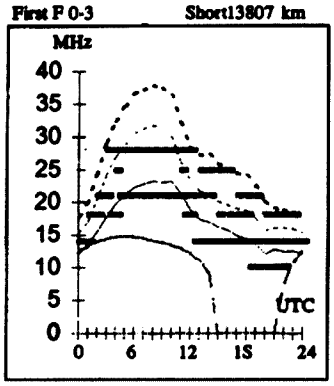
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

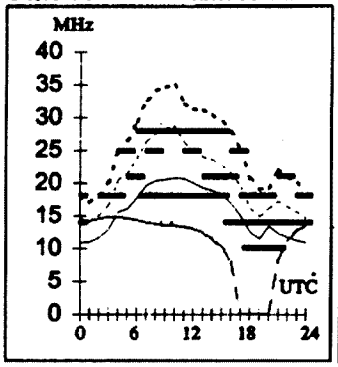
April 2001
T index: 114



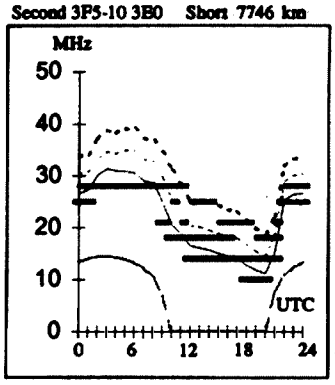
Adelaide-Moscow 318
First F 0-3 Short 13807 km



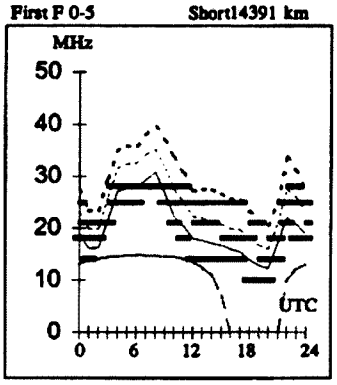
Brisbane-Berlin 321
First F 0-5 Short 15678 km



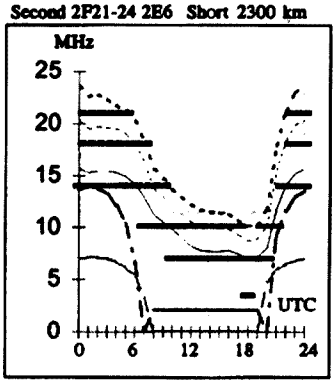
Adelaide-Osaka 357
Second 3F5-10 3E0 Short 7746 km



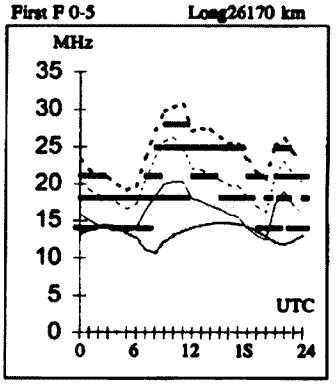
Brisbane-Cairo 288
First F 0-5 Short 14391 km



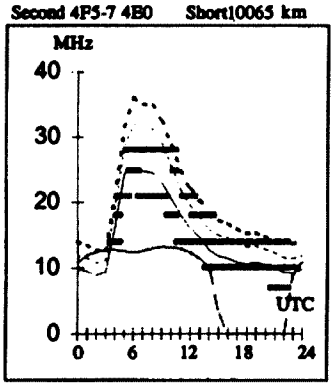
Canberra-Auckland 102
Second 2F21-24 2E6 Short 2300 km



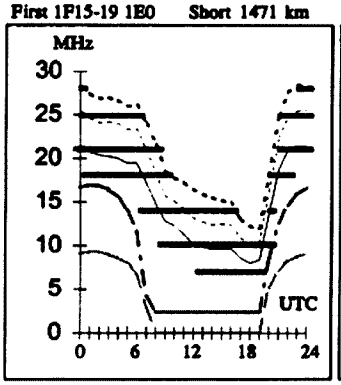
Darwin-London 145
First F 0-5 Long 26170 km



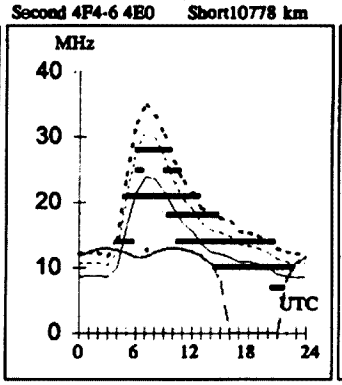
Adelaide-Pretoria 238
Second 4F5-7 4E0 Short 10065 km



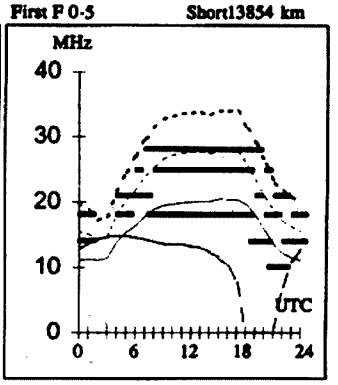
Brisbane-Noumea 70
First 1F15-19 1E0 Short 1471 km



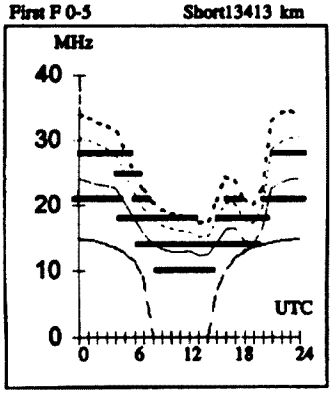
Canberra-Capetown 219
Second 4F4-6 4E0 Short 10778 km



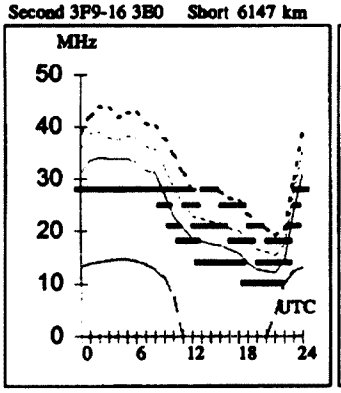
Darwin-London 325
First F 0-5 Short 13854 km



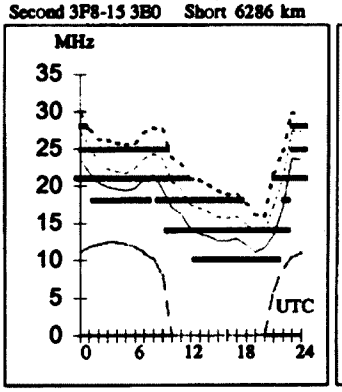
Adelaide-Seattle 51
First F 0-5 Short 13413 km



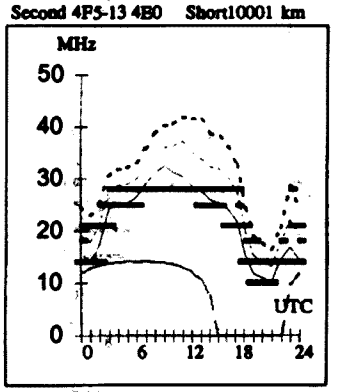
Brisbane-Singapore 293
Second 3F9-16 3E0 Short 6147 km



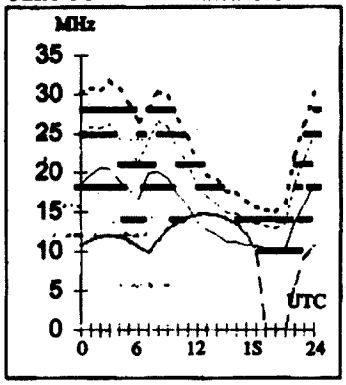
Canberra-Manila 327
Second 3F8-15 3E0 Short 6286 km



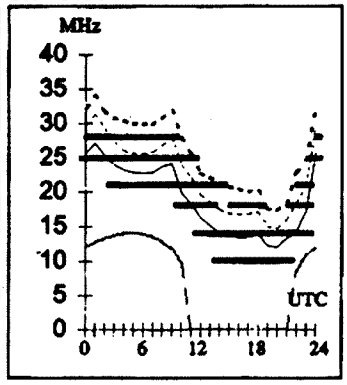
Darwin-Riyadh 295
Second 4F5-13 4E0 Short 10001 km



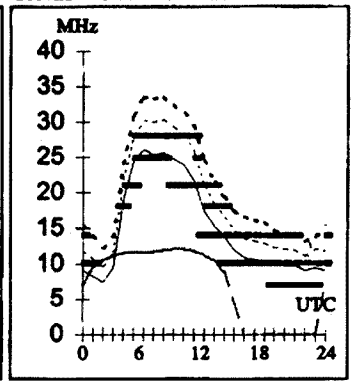
Hobart-Dakar 209
First F 0-5 Short16556 km



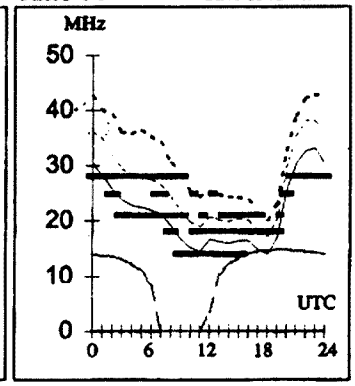
Melbourne-Bangkok 312
Second 3F6-11 3E0 Short 7372 km



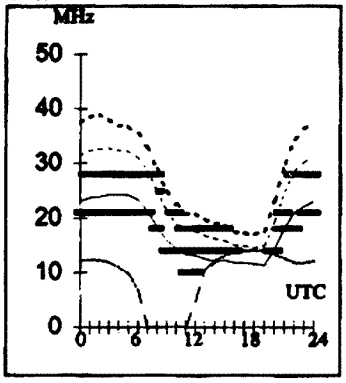
Perth-Harare 257
Second 4F8-11 4E0 Short 8496 km



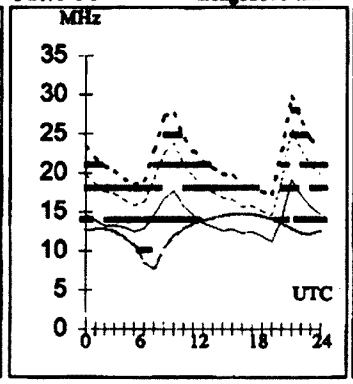
Sydney-Miami 86
First F 0-5 Short15027 km



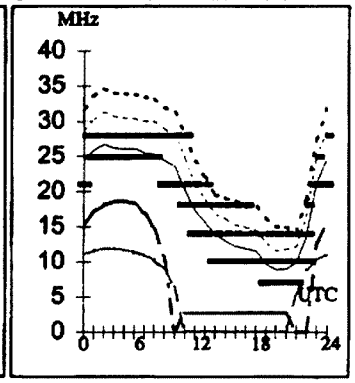
Hobart-Llma 133
First F 0-5 Short12420 km



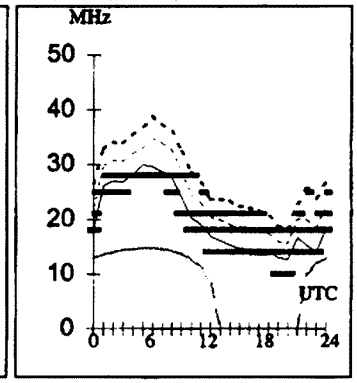
Melbourne-London 131
First F 0-5 Long32118 km



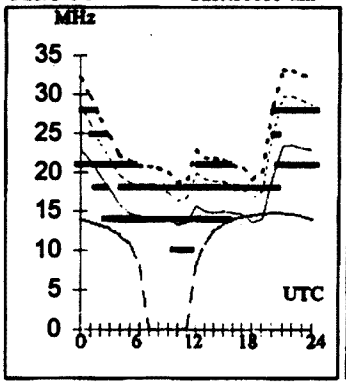
Perth-Port Moresby 59
First 2F9-12 2E0 Short 4073 km



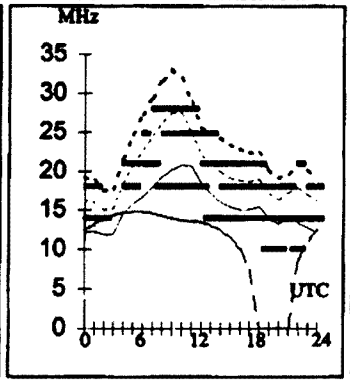
Sydney-New Delhi 302
Second 4F5-10 4E0 Short10419 km



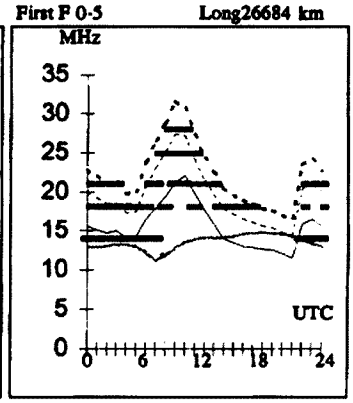
Hobart-New York 80
First F 0-5 Short16610 km



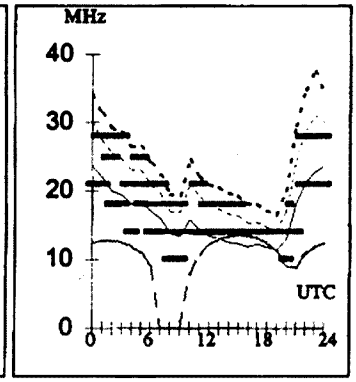
Melbourne-London 311
First F 0-5 Short16906 km



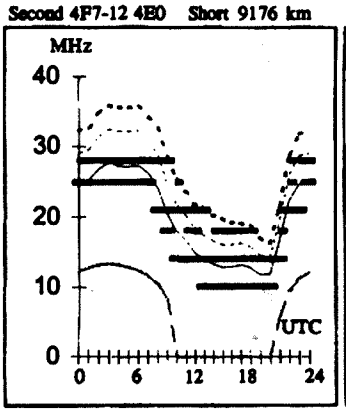
Perth-Rome 123
First F 0-5 Long26684 km



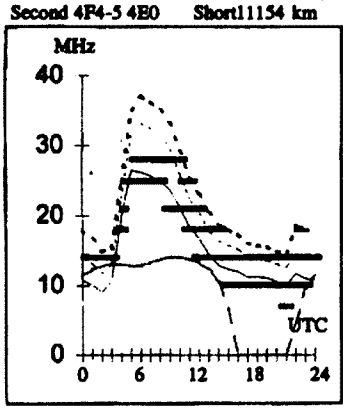
Sydney-Rio de Janeir 164
First F 0-5 Short13519 km



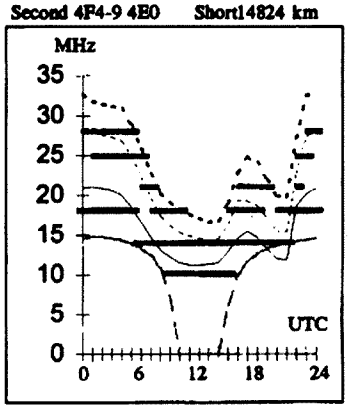
Hobart-Seoul 344
Second 4F7-12 4E0 Short 9176 km



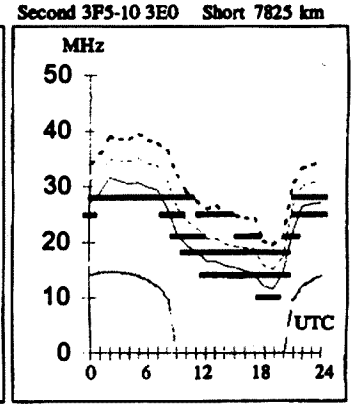
Melbourne-Lusaka 241
Second 4F4-5 4E0 Short11154 km



Perth-Vancouver 50
Second 4F4-9 4E0 Short14824 km



Sydney-Tokyo 350
Second 3F5-10 3E0 Short 7825 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsl@webtime.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE - NSW

• ARs, 50 years $125 and National Geographic, 21 years $150. Jim VK2PM 02 9958 4817

• YAESU FT-101E $350. YAESU FT-920 $2200. Alinco DR-135, 2 metre $600. Jaytech power supply $300. GAP Challenger Aerial. Still in box, $600. All in excellent condition. I will consider all reasonable offers. Glenn 02 4965 7727

• Kenwood TS520S Xcvr s/n840558 with DG-5 digital frequency display. s/n660382 and turner +3B desk mic. Wired to suit. Together with manuals, schematics and all cabling E.C. Bargain. Will not separate. $550. John VK2SWR QTHR 02 6556 7161 johnvand@turboweb.net.au

• Free to a good home: one Telonic SM2000 sweep generator/signal generator circa 1967 with 0.5 - 450MHz, 0.2-12 MHz, 0-25kHz plugins. Working order, with handbooks, but the wife objects to unused large electronic objects! Contact Bill Holliday, 02 9569 4956 (H) (Leichhardt) wmh@eng.uts.edu.au

WANTED NSW

• Collins 32S-3 transmitter and/or matching accessories. Phone Glen VK2FC 02 4982 6570

FOR SALE VIC

• Valves, large collection. Southern Peninsula Amateur Radio Club. Telephone: 03 5985 2671

• Hallicrafters SX28 receiver 0.5-42 MHz. Trio 9R-59DS receiver, both hamband bandspread handbooks. No. 22 set transceiver 2-8 MHz handbook. BC433 receiver 100 kHz-1.4 MHz. BC733 receiver 108-110 MHz. Both with circuits. All best offer. Peter Cosway 03 9379 3626

• Yaesu 70 cm Mobile radio transceiver FT712 RH 1/35 watts with manual and circuitry serial No 21570162 $175. Lindsay VK3IQ Ph 03 5672 2563 Email vk3iq@telstra.email.com.au

• Yaesu FT-8000R. Dual- Band FM Mobile Transceiver. 2m/70cm. 50W/35W. Cross-Band Repeater capability built in. 108 Memory Channels. Rx coverage 110-550MHz. Cellular Phone frequencies blocked out. Perfect condition with Operating Instructions and original packaging. $699. VK3CJA John: 03 5866 2551 (All hrs). Email: vk3cja@cnl.com.au

• Ameritron AL- 811 HF Amplifier. Coverage 160m – 10m. 600W output. Svetlana valves. This unit which has been replaced by a PC and has had little use. It comes with Operating Instructions, original packaging, and is in as new condition. I am keen to sell and will not refuse a reasonable offer. So please phone or Email your offer to VK3CJA John. Tel: 03 5866 2551 Email: vk3cja@cnl.com.au

• Kenwood TS-830S including MC-50 base mike and service manual $400 Kenwood VFO-230 ext VFO $200 Damien VK3RX 03 5427 3121

• Shack Sale & Workshop Clearance • 1x Yaesu FT-480R 2m All Mode Mobile $ 500 • 1x Icom IC-271H 2m High Power All Mode Base $ 900 • 1x Icom IC-471H 70cm High Power All Mode Base $ 1000 • 1x Icom IC-22S 2m Mobile - Broken - Parts Only $50 • 1x Philips FM-93 70cm UHF Mobile - $100 • 19x Motorola Maxar 80 VHF Mobiles $30 Each • 2x Commercial UHF Repeaters Philips PRF15 (430 - 500 MHz) $ 1600/ Pair • 1x Commercial VHF Repeater - needs minor repairs $250 • 1x Tektronix WFM-1480 Video Waveform Monitor - VGC $400 • 1x Tektronix 465 Oscilloscope VGC $ 800 • 1x Bosch HQ Composite Video Decoder to RGB/ YUV $ 500 • 3x Compaq Deskpro-4100 486DX4/ 100 PCs With 16 Mb Ram $100 Each • (No Keyboards, mice or monitors) • 2x Dataproducts LZR-895 Lazer Printers $200 each • 1x APC Smart-ups 400 Power Supply - $150 • 2x Kantronics KPC-1296 9600/1200 TNCs with KNET Firmware $300 Each • 1x 300 watt Stereo Audio Power Amplifier - Rack Mount VGC $250. All offers considered! Paul VK3KHZ (Ex VK3VRD/VK3YWD) QTHR Phone 0412 302 939

WANTED VIC

• Power supplies for Wireless set No. 11 any condition also varometer for No 19 set RF amplifier. A good clear copy of the circuit for the English MK3. No. 19 set would also be appreciated. Clem Jarvis VK3CYD ph (03) 5126 2064, wildwombat@telstra.easymail.com.au

FOR SALE SA

• Sell Yaesu FT 747 Xcvrs S/N 9M250532 $ 700, FT 757 S/N IL590094 $725 both good condx. Philips FM 900 Remote head, $120. R.M.Gebhardt VK5RI, Tel. 08 8893 4001, Email mokota@rbe.net.au

• Deceased Estate of the late Mr Eric Hauber VK5EZ. (1) Rease SWR & power meter, model FSI-5. (2) Yaesu 2m FM transceiver FT-23 (palmate). (3) (Home built) battery charger for the above. Asking price, $200 ONO for the lot. Call Mr L Hauber on 08 9374 3138 or 0413 604 467

FOR SALE WA

• Collins/Rockwell KWM 380 transceiver in perfect order. Offers. Collins airborne 548LAA linear amplifier with homebrew 3 phase power supply. Perfect KW rig. $500. VK6IK 08 9691 9128 Box 515 Kalamunda 6076

FOR SALE TAS

• JRC NRD515 receiver NSD515 transmitter including WARC. Built in ATU. NBD515 power supply, mem515 unit, computer 515. As new, hardly used Kenwood TS130S including narrow SSB & CW filters. Mint condition Kenwood TR9000 BO9 Barood 2 metre mobile. Allen VK7AN 03 6327 1171 or 0417 354 410

• Kenwood TR9000 & BO9 $280. YAESU FT411 H/held, Icom IC2A H/held. Spare batteries. Icom IC25A 2m Mobiles. Diamond voice scrambler VS1000. DAIWA RX110G 2 metre preamp. Kenwood VOX3 vox unit. SOAR FC841 freq. counter YAESU narrow CW filter suit FRG100. Icom HM7, HM14, HM10 mics. Allen VK7AN 03 6327 1171 or 0417 354 410

WANTED TAS

• Circuit diagram for HP 202H AM-FM sig gen; all costs covered. Bob,VK7ZRF Ph/Fax 03 6376 3477 Email grant_rf@telstra.easymail.com.au.

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

ADVERTISERS INDEX

TRADE ADS

Answers to WIA Quiz (page 20)

1. C - The contests are the John Moyle Field Day, the Ross Hull VHF/UHF Contest and the Harry Angel Memorial Sprint.
2. B – Though it was largely unreported, the WIA actually turned 90 in March this year. Let's hope there is more widespread recognition of our centenary in 2010.
3. A - Tony Shaw. Alan Jordan often deals with the WIA on amateur issues, but is not CEO. Christine Goode managed the old Spectrum Management Agency and Michael Owen has been active in WIA affairs for many years.
4. D – Using AM in any of the frequency ranges given would be very silly and contravene amateur band plans, but only on a section of six metres (in some states) is it prohibited.
5. B - VK6WIA NewsWest from the VK6 Division. The bulletin is relayed by Don VK6DY.
6. D – Melbourne. If you picked C, you were probably confusing it with the IARU Region 3 meeting in Darwin.
7. B – Jack VK3WWW. However both VK4BRG and VK4DO have been active in promoting ARDF. VK6UU writes the *Repeater Link* column.
8. D is correct. Long-time readers will also remember Eric as 'the Voice in the Hills', when he resided in Forreston.
9. A – The 'Apple Isle' has successfully built on previous years' activity to maintain its winning streak in 1999.
10. A – Victoria. Moorabbin is a southern suburb of Melbourne.
11. D – Streamline Press. If you doubt this, turn to Page 1!
12. B – June is correct. If you picked D, you were probably confusing it with the John Moyle, which is held each March.
13. A – Study Hamads more carefully in future if you got this one wrong.
14. D – Like Europe, South Africa is in Region 1.
15. C – Amateur Radio Publications Committee. The Award is awarded for service to amateur radio generally, not necessarily to the magazine. It honours long-time AR publisher Ron Higginbotham VK3RN.
16. A – See Page 2. Most of the others mentioned are current or former employees of the Federal organisation or the larger Divisions.
17. C is correct. B was proposed before the 2000 Federal Convention, but lacked the required support. A is wrong – Federal Executive implements policy as set by Federal Council. D is also incorrect – Divisions are autonomous, self-governing bodies which exist under their own rules of incorporation.
18. D – Yes, they're all volunteers. Knockers please note!
19. B – Have another look at your membership certificate – you'll find it's from a state/territory division. As for D, the age of many members may make it appear so, but it's not the answer we were looking for.
20. A – The WIA can even claim to be a founding member. B and C are wrong – though the WIA maintains ties with these organsiations, it is not a member of them. If you ticked D, you were conned – that organisation was invented only to confuse the reader!
21. C – 25 years. However, you do not need to have been continuously licensed over this entire period to be eligible for membership.
22. B – None of these frequencies are designated as calling frequencies in the Australian Band Plans. All the frequencies in A, B and D are. See your Callbook for full details of band plans and calling frequencies.
23. D - All of the above. And you thought that all you got was a magazine?
24. A – Getting this right proves that you read the inside-front cover of this magazine each month!
25. C is correct. Listener numbers seldom appear in *Amateur Radio* magazine these days, but you'll find them listed in the WIA Yearbook.
26. A. A trick question. The only members of the Federal Body are the seven state/territory Divisions. However if you ticked B, you correctly guessed the combined membership of all WIA Divisions in Australia. D is close to the total number of amateur licensees in Australia.
27. B is correct. Some of the others would be desirable, but have not been achieved at the time this quiz was set. Stronger support from existing and new members will increase the chance of extensions in amateur operating privileges and the removal of outdated restrictions.
28. D is the answer we were looking for – see page 12 of the 2000 Yearbook.
29. D – Bill Rice served as Editor for 15 years and 7 months, retiring in December 1999. Tom Hogan was next longest, serving from 1941 to 1956.
30. A is correct. Have you visited lately?

Assessment

Score 1 point per correct answer.

30 points: PASS. You are either an exceptionally diligent student of WIA affairs or a cheat! If the former, consider nominating for Historian at the next Divisional or Federal AGM.

21 – 29 points: PASS. You are an informed WIA member who keeps abreast of developments. You can speak with authority about the WIA at club meetings and other gatherings and are a great asset to the organisation. There should be many more like you.

11 – 20 points: FAIL. Much room for improvement. You are only moderately informed about the activities of your own organisation. Purchasing a WIA Callbook 2001, reading *Amateur Radio* each month, and listening to your weekly Divisional news transmission are good ways to increase your knowledge.

0 – 10 points: FAIL. Unless you've only recently become interested in amateur radio, a mark in this range demonstrates that you have been less than assiduous in keeping up with WIA happenings. See the previous paragraph for ideas on becoming a more informed member.

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published

The Wireless Institute of Australia into the 21st Century - Report No1 March 2001

Over 200 responses to the original paper have now been received. A summary report is contained on the website at www.amateurradio.org.au. where there is a copy of the original report.

All respondents agreed that a national body that is owned by the members, who then elect their own officers, would be better than the current state based WIA. Interestingly, very few thought it was possible to make that change against the power of "vested interests".

It was a surprise to find how many people have been working for the WIA, tried to make changes, got frustrated and left. I knew the WIA wasted human talent I had not realised the scale of it until now.

My proposed structure made special provision for representation from country members. Correspondence has emphasised how disenfranchised the country members feel. Not only distant country members but also those living on the city fringe. Country members feel that attendees at general meetings, usually city based, have been given much too much voice in the affairs of the WIA.

Much debate has been generated around what ways to structure the WIA below the national body. There are advocates for all possible alternatives.

- Continue to use states as a representative area
- Divide the nation into regions which can be represented. This is the way that ARRL(USA) and RSGB(Britain) do it.
- Use the affiliated radio clubs as regional bases
- Ignore regions or geographical boundaries and divide up by amateur radio interest. E.g HF or VHF or digital.

I like some combination of the last two. The major interest and focus should be national and on Amateur Radio. We can ensure a national coordination for local issues like planning regulations.

Member communications are also an area that has received a lot of comment from both members and non-members. In Australia it will always be true that a national body will appear to be remote from some distant parts of the country costs of travel preclude face to face meetings. As some correspondents have pointed out; what is really required is that members believe that the organisation is listening and interested in what ALL members have to say.

For the future this is an area that should receive a lot of attention. The State based divisions have clearly failed in this area which was the principle reason for their existence.

I am seeking more good ideas on this area of debate.

What next?

I am getting together a small group of people who can put together some future plans to make the national body a reality. The steps are:

- Establish a set of principals and goals for the new organisation. (I hope there will be some of this done before the WIA Federal Council meeting at the end of April)
- Establish the design of at least one organisational structure that will satisfy the need.
- Look at ways that the present WIA structure can be moved into the desired structure.

I have been very heartened by the response so far. I believe that the WIA will now seek to reform itself. I am happy to do all that I can to facilitate that happening I encourage all Amateur Radio Operators to give their support to a new National WIA.

Thanks to all Amateurs for their support. Please keep sending me your ideas.

Martin Luther VK5GN

Future Directions for the WIA

I am writing after reading the interesting paper produced by Mr Martin Luther on this subject. My concern is not only that I disagree with Mr Luther but also that his views will lead to wasting time and keeping our eyes off the real issues. A copy of my letter to Martin is enclosed.

I believe the organisational culture errors facing the WIA are ;

1. Distraction - a failure to keep the organisational eye on the business of the Organisation. Thoughts such as being promoted by Mr Luther are an example of the distraction that keeps WIA from getting on with its core business.
2. Forgetfulness - a failure it keep in the front of our minds the lessons leamt over the years with the result that people wander off offering suggestions to solve problems that have already been worked over and solutions found - but forgotten.

Over the years we have seen the development of good plans of action defining the business of the WIA and the lines of action we should be undertaking but after some years they are forgotten in the light of some new distraction. Then a few years later some bright spark comes forward with the idea that what we really need is reorganisation . Don't worry that, because we didn't keep our eye on the ball, we didn't get around to carrying out the perfectly good plans laid down a few years before .

Mr Luther's suggestion that another body be set up outside the WIA but with the same objectives of representing the members of the Amateur Radio Service (ARS) is divisive and will produce no benefit to the Organisation of the ARS .

I hope that you will use you best efforts to scuttle ideas of the kind of reorganisation offered by Mr Luther and help the present Organisation work more effectively and efficiently within its present constitution. I have no doubt that the WIA can be improved without revolutionary approaches.

But don't let's get distracted and don't let's forget. Keep the eye on the donut and not the hole!

Ken Fuller VK4KF. Member WIAQ

Address Letters to:
The Editor, Amateur Radio
34 Hawker Crescent, Elizabeth East SA 5112

YAESU'S DONE IT AGAIN

THE YAESU FT-1500M HEAVY DUTY 2M FM MOBILE

Yaesu's new FT-1500M represents a breakthrough in 2m mobile transceiver design, blending an extremely efficient transmitter with an almost bullet-proof receiver front end, and all packaged in a super-rugged die-cast aluminium casing that measures just 127 x 35 x 126mm. You get a powerful 50W RF output transmitter, direct keypad frequency entry, Alpha-numeric memory labelling, easy data interfacing, and much, much more.

- Transceiver coverage of the 2m Amateur band (144-148MHz), with extended receiver coverage of the 137-174MHz range.
- 50W RF output, with selectable 5, 10, or 25W lower power levels. The efficient PA stage only draws 8A at 13.8V DC for full RF power output.
- High-performance receiver front-end circuitry using Yaesu's renowned Advanced Track Tuning (ATT) tracking bandpass filter design for greatly reduced interference from strong out-of-band signals.
- Includes MH-48B6J DTMF microphone for direct keypad frequency entry. Includes rear panel mini-DIN socket for easy 1200/9600 baud connection to your TNC for Packet operation.
- A total of 149 memories are provided, with 130 regular memories, 9 pairs of sub-band memories, and an instant recall "Home" memory. Regular memories can store either a frequency or an alpha-numeric based name.
- Convenient programming Menu with 35 "set and forget" functions.
- Smart Search™ feature uses a bank of 31 special memories to store active channels as the FT-1500M searches a portion or the whole of the 2m band.
- Additional features: Supply Voltage Display, transmit Time-Out Timer, Auto Power Off, and S-meter RF Squelch.
- Can be connected to a PC for easier memory programming using the optional ADMS-2F Interface/software package.

D 3638

$399

SAVE $37

Offer expires 30/4/2001.

2 YEAR WARRANTY

YAESU

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

DICK SMITH ELECTRONICS

That's where you go!

2373 IBC 4 col

MORE GREAT GEAR FROM ICOM

IC-T81A NEW!

A remarkably compact quad bander.

· VHF/UHF Multiband FM transceiver · 2M, 6M, 70cm, 23cm
· Water resistant
· 124 alphanumeric memory channels · Ni-MH battery
· tone squelch, "joy stick" switch

IC-910H NEW!

The new dimension in the VHF/UHF World!

Tri band multimode transceiver • 2M, 75W, 70CM, (optional 23CM,10W) • 9600GPS packet operation • Satelite communication • Reverse/normal tracking doppler shift compensation • CIV capability for PC control

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional AF DSP capabilities, including noise reduction and auto notch function. It's versatile, compact and loaded with features.

IC-756PRO The HF & 6mm multimode professional performer.

100 watts of power, newly designed 32 bit floating DSP for noise reduction and auto notch function, and AGC loop operation for wider dynamic range. Plus digital IF filter, built-in RTTY Demodulator/Dual Peak APF, and a whole lot more.

IC-706MKIIG

The amazing evolution of the legendary 706.

Frequency coverage is expanded to the 70cm band and output power is increased for the 2m band. You get base station performance and features in a mobile rig-sized package.

ICOM
Clearly Ahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

2 YR WARRANTY

May 2001
Volume 69 No 5

Amateur Radio

The ULTIMATE Antenna Mast

Regular Columns

'Is there a future for WIA?'

Opinion: Martin Luther VK5GN

Unlikely Projects — Charlie's Toys: NO 2. DC/DC Converter

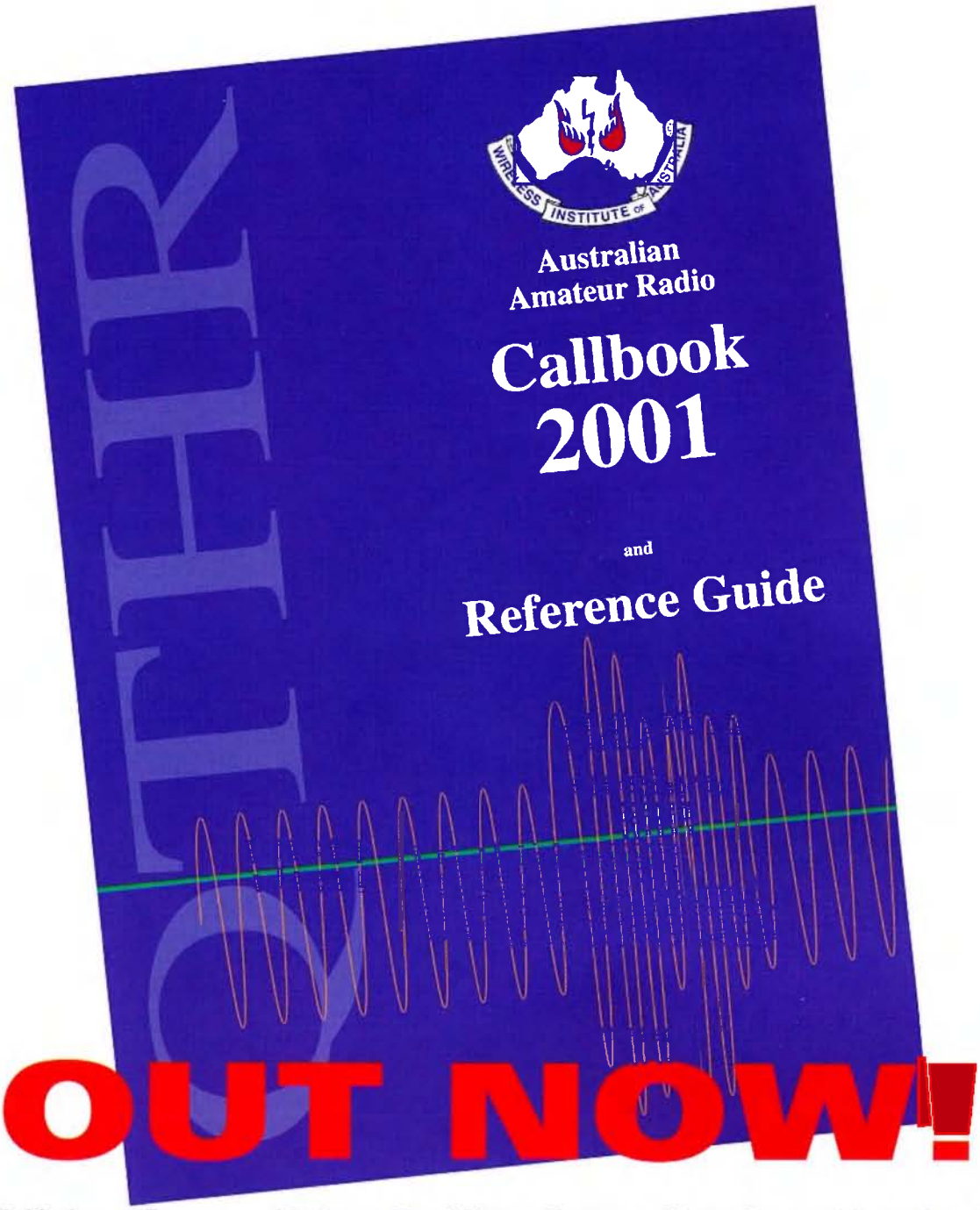
'Kit Workers'

- An RF-actuated CW Monitor and Practice Oscillator
  Drew Diamond, VK3XU
- Satellite Tracking Antenna

The history of **Packet Radio** in Australia

Novice Notes: More Crystal Sets

Technical Abstracts:
- Pseudo Stereo CW Reception
- Preamp Suppiys Current Limiter
- CAT Interface
- Optoislolated Icom CI-V Bus Interface



Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies
and more!

The "WIA Call Book 2001" is now available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 5
May 2001

General

Technical

Columns

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members
Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: t.b.a
e-mail: *newsl@webtime.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191
Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Our cover this month

Kit building activity at the Summerland Amateur Radio Club recently

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues
Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9526 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Editorial Comment

Colwyn Low VK5UE

The Federal Convention has come and gone...

The baton has been passed and we have four new Directors, Ernie Hocking VK1LK President, David Pilley VK2AYD, Brenda Edmonds VK3KT and Don Wilschefski VK4BY. This provides a good regional coverage and the ability to spread the load. All the co-ordinators were re-appointed but there are three vacancies Contests, WICEN and Intruder Watch. Peter Naish is now Federal Secretary. We thank Peter for being President over several trying years and more recently carrying a disproportionate share of the responsibility and work of the Federal WIA. Thank you Peter.

The new Directors bring a variety of talent and experience and we wish them well in their new positions. We need to do some bridge building between the Directors and the ordinary members, for no matter what the legal set up is, the ordinary members pay the memberships, which keep the WIA afloat at all levels. It is not enough to say the Directors are only responsible to the shareholders, the Divisions. A National Society cannot run and attract members with this separation between the rank and file and the Executive. I hope to publish a fuller report on the Federal WIA Convention in the June AR.

The Convention has asked that AR appear earlier in the month, now while I consider this an academic question, the production house and I have been working towards this, slowly. One major cause of delay is lack of material. Now that I have some articles in hand I can plan content for several months ahead and the production house can work on more than one issue at a time. So I still need material. How about something on ATV ? I also need good evenly lit contrasty photographs for the cover. People activities with people predominant and equipment are popular subjects. This months cover appeared very late in April and was the chosen because of the subject (people and activity) and the contrast range. I have some good Convention photos for June but I need a good Remembrance Day subject for the RD Contest and ALARA has promised a cover to go with the ALARA Contest new date 25/26 August.

Other than that I have only been able to make four contacts in this year's Harry Angle Sprint. The Adelaide Hills ARS have decided not to have the Australian Sprints this year due to lack of interest. JOTA is 20/21st October this year and WICEN across the country is supporting many sporting activities with people, horses, bicycles and cars. Drew Diamond VK3XU has published Vol 2 of of his practical projects book, I hope to publish a review next month Contact Drew for a copy about $20.

Finally Amateur Radio frequency allocations are continually under pressure these days especially the UHF bands. It is hard to justify keeping them if we do not use them. My local 70cm repeater would be lucky if it got used 30 minutes a day !!!!!!! If we do not have a strong WIA with membership in excess of half the Amateur population to negotiate with the ACA we will be walked over. Who would organise the individual Amateurs if we did not have a WIA?

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of March 2001

L21185 MR A BALLANTINE
L21186 MR G B WOODWARD
L21187 MR M FAED
L60XXX MR R C W JUNCKERSTORFF
VK2HUP MR J FEGAN
VK3DJM MR J H MILLER
VK4OC MR D S A PEAKE
VK7ZAC MR A CORDWELL
VK8GW MR G T WOODS

Opinion

Is there a future for WIA?

Martin Luther VK5GN

Five Basic Principles on which change in the WIA should be based

Since I wrote my original paper on reforming the WIA I have had interesting discussions with many radio amateurs regarding the proposed organisation. In the course of these debates it has become clear that there are a few basic principles which underlie everything we are trying to achieve. We may argue about this or that detail. We may argue about why and how we arrived at our present state.

However, for those of us who believe there is a better way then these fundamental principles seem to provide a good starting point.

Members to "own" the organisation

The essence of most re-organisations lies in getting responsibility, authority and power (with accountability) aligned so as to achieve the goals of the organisation.

The Federal/National office holders must have the power and authority to carry out their responsibilities. They do not have that at present and any change to the present organisation that does not correct the situation will fail, and will be seen by members as merely "window dressing".

All power comes from the members. In the present organisation that power has been taken by the state divisions and wielded in a way that still holds the federal executive responsible but denies them the authority and power to carry out that responsibility. The crude way in which the power derived from a large grouping of members in VK2 and VK3 has been used with threats of withdrawal and legal action is only the gross surface evidence of a deep rooted failure in the structure of the present organisation.

That is a grand way of saying that without the members becoming the owners of the Federal/National body and voting directly for their representatives and officers there will be no real change.

In that way the Federal/National officers take their power directly from the members. They will answer to the membership not a small elite of divisional officers. Once elected they will have the authority and power to carry out their responsibilities. They will be seen by the membership at large as responsible and accountable.

The change must be "significant"

Over the past few decades attempts have been made to dress up the present organisational structure as relevant and effective. They have all failed to convince the membership and amateur radio operators at large. Membership has continued to decline.

Those failures now make it imperative that the change carried out now is seen as a major change in direction.

It should be a complete break from the past

If it is not, if all that happens is a minor re- adjustment, then it will fail to motivate the Amateur Radio operators of Australia to give their support to a reinvigorated WIA.

Services are important but, in general, do not motivate people to join

The WIA has sold itself for many years on the provision of services, magazine, QSL bureaus, in some states repeaters, in some states packet networks etc. The officers of the WIA, including myself, have been consistently frustrated by the apparent indifference to our efforts.

Members say they are important but despite this there appears to be no correlation between more and better services and increased membership percentages.

I have now formed the view that services for the WIA are like management hygiene factors. An absence of services will cause people to leave. However, many good services will not cause people to join or stay!

There must be other significant factors at work causing people to join, leave or stay.

Put Amateur Radio back into the WIA

My thanks to many correspondents and also members attending the March VK5 WIA general meeting for helping to focus ideas in this area.

The glue that holds us together is amateur radio. Without amateur radio there would be no WIA and no need for the WIA. Yet the WIA as an organisation seems to have forgotten this.

I alluded to this in my original paper when I spoke about the movement of Amateur Radio meetings and activities from the WIA divisional meetings to the local radio club and the changing character of the WIA that resulted. I am now convinced this has gone too far into concentration on administration or what has been described to me as "the business of amateur radio". Look through the minutes of WIA meetings from the national convention on down and they are all about administration. What happened to Amateur Radio?

Continued on page 16

An RF-actuated CW Monitor and Practice Oscillator

Drew Diamond, VK3XU,
45 Gatters Rd.,
Wonga Park, 3115.

When sending CW Morse by hand-key, an ability to hear the dots and dashes as they are made is a highly desirable feature. And when using an electronic keyer, or 'bug' key- a side-tone monitor is essential. If separate transmitter and receiver are used, then the receiver (assuming that it is not overloaded) provides an ideal sending and signal-quality monitor.

It seems that most operators now prefer 'transceive' action, where the receiver is muted, or silenced during transmit, in which case a separate side-tone monitor, or oscillator, is required when sending Morse. However, for many of the transmitter circuits we see in radio journals, the designer, in an attempt to simplify the project may not have included a side-tone monitor for CW (I'm guilty here), and leaves the provision of monitoring to the cleverness of the individual builder.

One traditional fix is to have a simple RF-actuated monitor right there near the operating position. Whenever a signal is put to air, the monitor 'beeps' in response to the key(er). But I find that the simpler RF-actuated and powered monitors have two serious drawbacks; they are rather 'deaf', in that a fairly high-powered (more than about 10 W on HF) is required to make the device respond, and secondly, the tone obtained rather depends on the vagaries of the received signal strength, sometimes resulting in a chirpy and unpleasant note. A more ideal monitor would respond to the 'RF in the shack', even from a QRP transmitter, and emit a pleasant sounding tone, free of chirps, clicks and squarks.

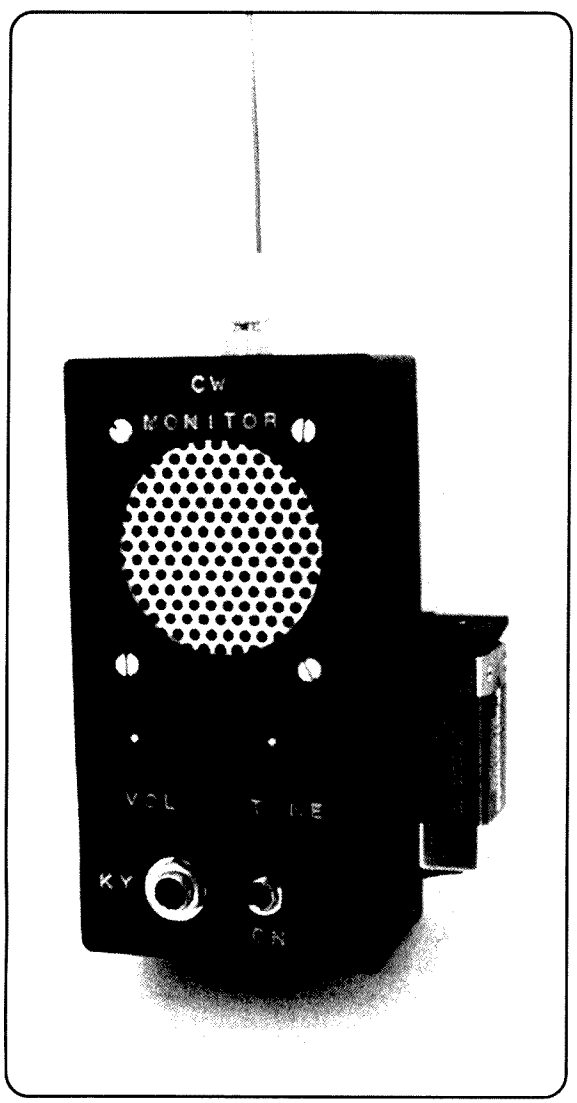


Photo 1

Here is a monitor which can detect the field from an elevated dipole at power levels as low as about 2 W between 1.8 and 50 MHz. There is only a very small 'grey-area' where erratic operation is obtained. That is, the device either gives a good clear note when there is sufficient signal, or no note where the signal is too small. The tone frequency may be varied from about 700 to 1500 Hz as desired. A short pick-up wire or rod of only about 300 mm is required.

Circuit

See Fig. 1. An ordinary NE-555 timer chip is wired as an astable oscillator. The timing components, mainly the 100k tone pot and 10 n capacitor determine the oscillation frequency. 10 n capacitors are connected between -ve rail (chassis ground) and the output pin 3, and Vc pin 5 to discourage false triggering of the chip. The '555 will not oscillate unless reset pin 4 is allowed to go 'high' when transistor Q3 is turned off. When no signal is present, Q3 is biased on via the 100k resistor, thus holding pin 4 'low'.

In order to respond to energy from a QRP transmitter, a substantial amount of RF gain is required, which is provided by broad-band amplifier Q1, a dual-gate FET. Drain current is supplied via a 100 microhenry radio frequency choke (R.F.C.), which allows the stage to develop considerable gain throughout HF, yet has less gain at MF broadcast frequencies, thus discouraging false triggering from local BC transmitters.

Signal at the drain of Q1 is applied to a voltage doubler detector comprised of a pair of germanium diodes. When the detected d.c. signal is sufficiently strong, Q2 will turn on, which turns off Q3, thus allowing the '555 to oscillate. For use as a Morse practice oscillator, base of Q3 is pulled low at key closure, thus turning off Q3.

Construction

The monitor may be housed in a metal or plastic case. That shown is a black plastic 'zippy' box measuring 130 x 68 x 44 mm available from Jaycar, DSE and others. A rectangle of single-sided circuit board accommodates the bulk of the components 'Paddyboard' style (Ref. 2). A suggested layout is shown in Fig. 2.

The circuit is not particularly critical, so any fabrication method that you prefer, even 'ugly' or 'dead-bug' should work

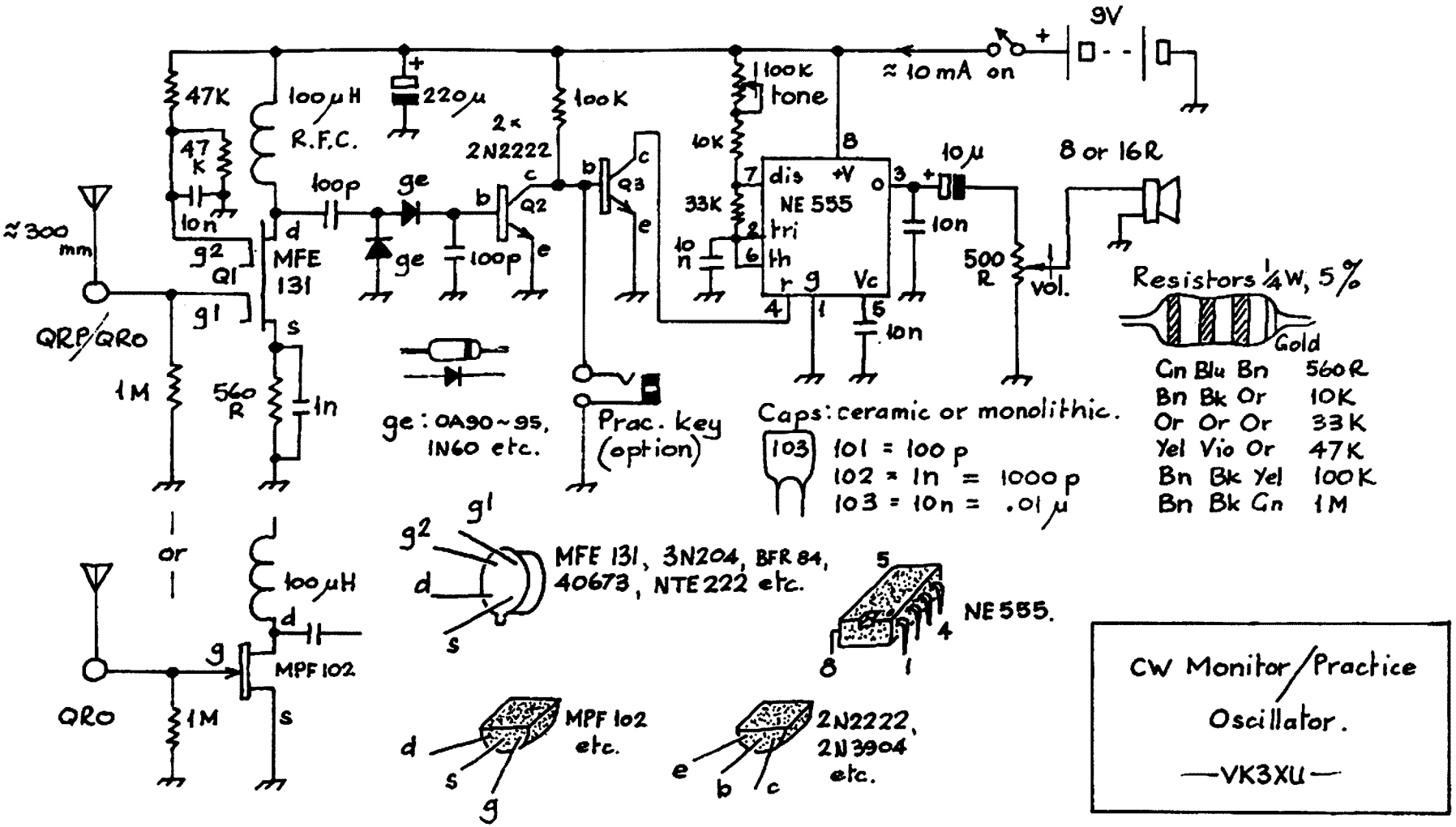


Fig 1

Figure 1

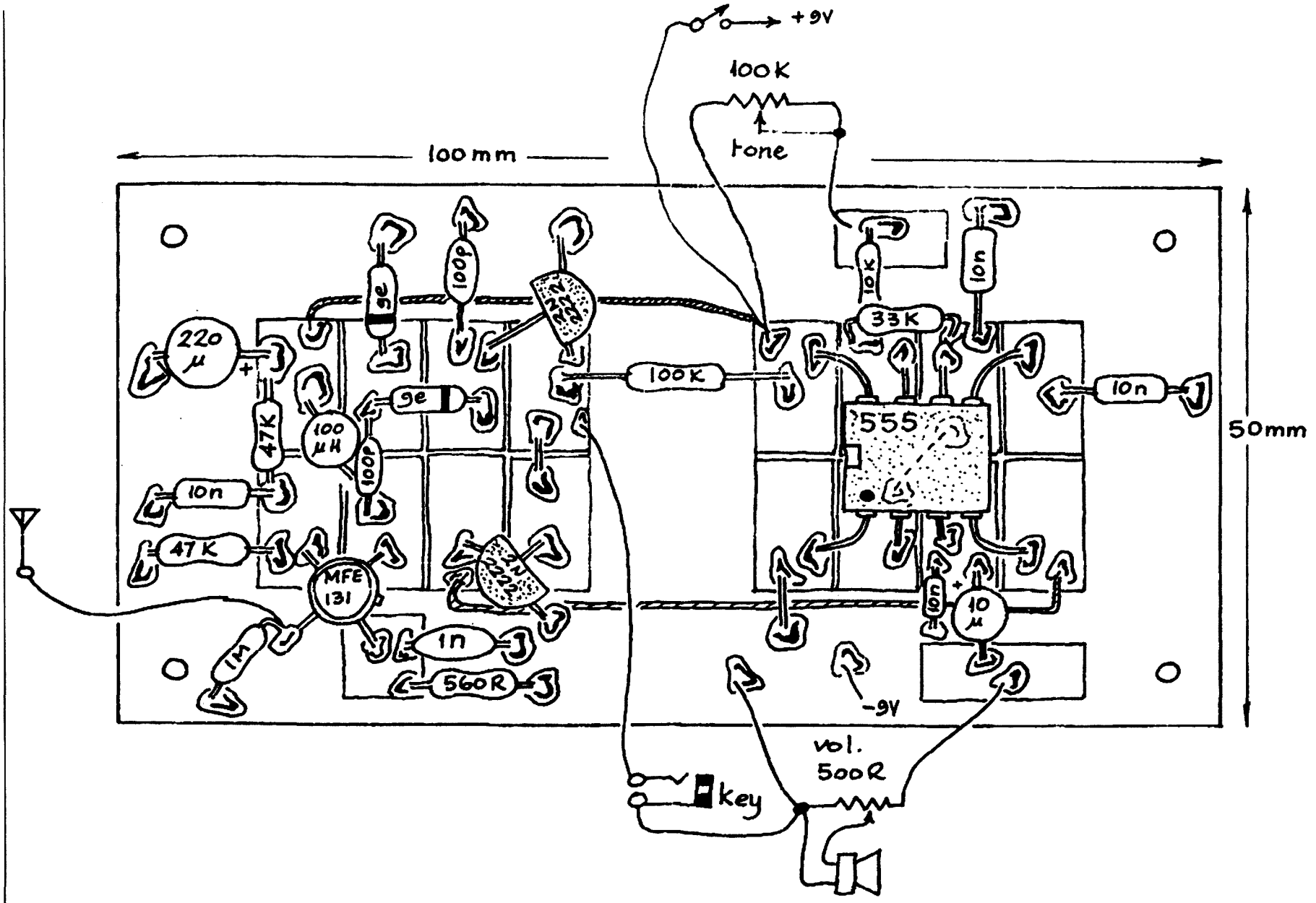


Fig. 2

Figure 2

satisfactorily, provided that component leads are reasonably short. It is suggested that the '555 be fitted into an I.C. socket with fine tinned leads soldered to each pin, which in turn is soldered upon a paddyboard substrate, then super-glued to the main board. The substrate is made from a rectangle of single-sided board with lands produced with a junior hack-saw as described in Ref. 2. The connection between pins 2 and 6 is made under the '555 socket (shown dotted in Fig. 2). To reduce capacitive loading of the input signal, note that g1 of Q1 does not attach to a pad, but is wired ugly style to the 1 M resistor, and to the pick-up terminal/binding post atop the box. Use your long-nose pliers as heatsink-between part and solder when fitting the germanium diodes (hot-carrier diodes will also serve).

If the monitor will only be used with fairly high power transmissions, then an ordinary (and cheaper) MPF 102 may be used as RF amplifier. The alternative amplifier is shown on the circuit in Fig. 1.

Current demand from the 9 V 'transistor' battery is about 10 mA. The battery may be fitted inside (with difficulty) or outside the box- as desired.

Operation

Double check all wiring and component locations. Set the tone and vol. pots to about mid travel. Switch on. Apart perhaps from a brief click, there should be no tone audible. If you have fitted a key socket for Morse practice, closure of the key should produce a tone output. Verify operation of the tone and volume pots. Insert a wire or rod (if using a rod, fit a suitable knob to the end to prevent eye poking accidents) of about 300 mm into the input terminal. Key your transmitter on air, which should cause the monitor to output a corresponding tone.

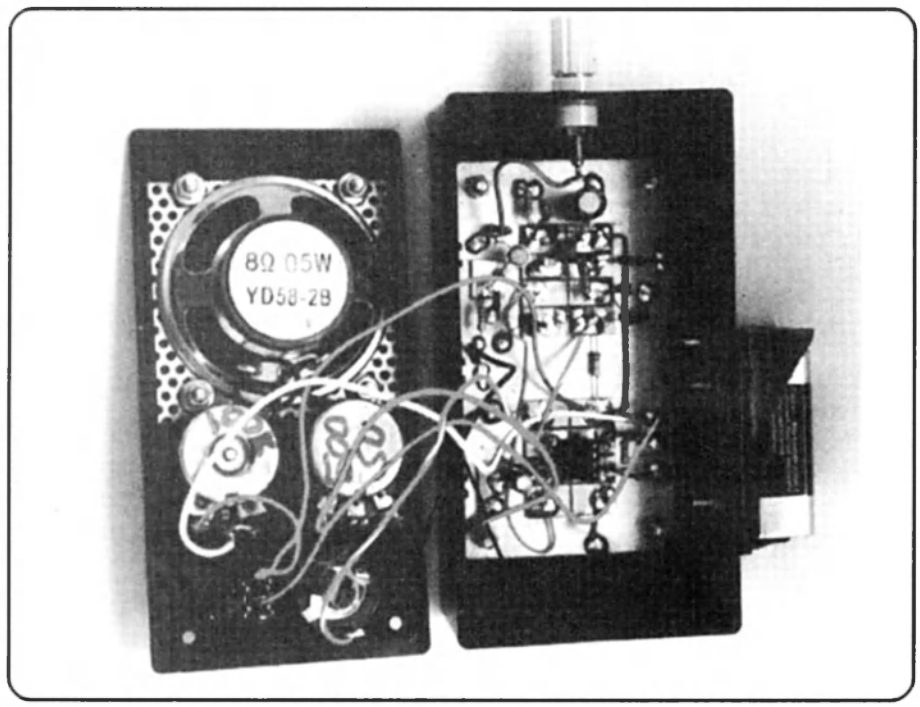


Photo 2

Parts

Apart from the MFE131 dual-gate FET, all the components should be available from the usual parts vendors, including Altronics, All Electronic Components, Dick Smith Electronics, Electronic World, Jaycar and Radio Parts. At writing, MFE131's are available from Rockby's Electronics (039562 8559) at about $4 each. If you have trouble obtaining an MFE131 (or BFR84 or 3N204 or 40673), an NTE-222 will drop straight in (same pin-outs for all these devices). You may find NTE brand semi's are stocked by your local TV spare parts supplier.

References and Further Reading

1. I.C. Timer Cookbook; Walter Jung, Howard W. Sams.
2. 'Paddyboard' Circuit Construction; Diamond, AR Feb. '95.
3. Engineer's Notebook II; Forrest Mims, Archer/Radio Shack.

ar

Silent Key

Arthur John Brown VK2IK

After a long brave battle with illness, Arthur Brown VK2IK died in Sydney on 24 February 2001 at the age of 86. A memorial service was held in the Epping Uniting Church 28 February. Arthur had been a member of this church for most of his life.

Arthur started work as the first electrical apprentice at Bushells Teas in 1930. He retired as Head Teacher, School of TV and Electronics, Sydney Technical College, Ultimo.

His ware time service involved acceptance testing of radar and other special equipment for the RAAF. Apart from the break during the war, he was always active from his shack in Gretchen Avenue Earlwood, then for the last few years from the Alan Walker Retirement Village at Carlingford, NSW where providing the HF antenna was quite a challenge.

Arthur was a great traveller. He stayed with relatives in London just before World War II. He went with a cousin on a motorbike tour of Europe and the pair came close to being arrested in Germany.

After the war, Arthur had overseas trips connected with teacher exchange and other matters. These trips took in USA, Canada, China and Europe; initially with first wife, Phyllis and later with second wife, Dorothy. Phyllis died in 1981 after 39 years of happy marriage. A lot of travelling was in a radio-equipped camper van with a special antenna designed and constructed by Arthur.

Arthur is survived by his son Graham, two daughters, Adrienne and Denise and nine grandchildren. Dorothy has also survived him with her five children, fourteen grandchildren and four great grandchildren. The two families have combined in a wonderful way.

Arthur was a great achiever and a valued radio friend

John VK4MX and Charles VK2DH

Satellite Tracking Antenna

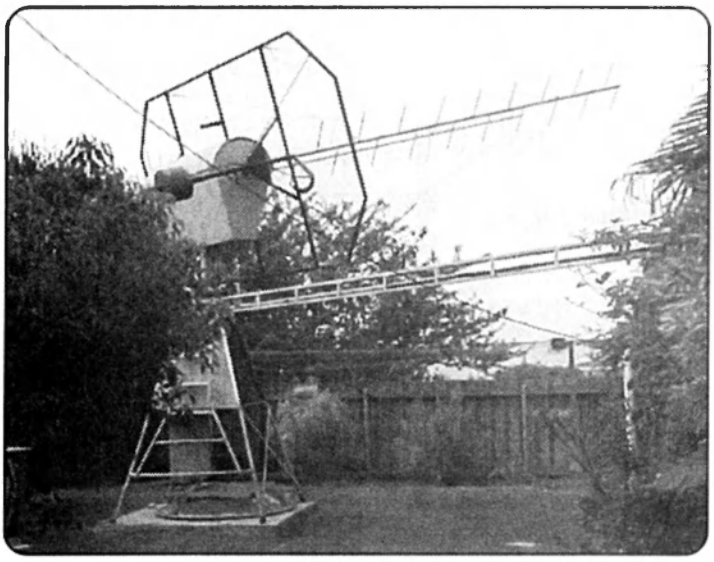
VK5ZAI's Satellite Tracking Antenna (Home Brewed)

A rugged motorized satellite antenna tracking system for construction by the home handyman

Tony Hutchison VK5ZAI

Following numerous requests for details of my home brewed satellite tracking system I have finally got around to writing an article on it, with a photograph or two, hoping it's of interest to others. It has been in operation now for around 8 years and for several of those years going 24 hrs a day monitoring the 9600 bd birds with virtually no problems.

Although I am using a "Sattrak 3" tracking computer to automate the tracking, the basic mechanics that I will describe can be adapted to most methods of control that use electric motors.



View of antenna in back garden

View shows "tower" base with cross bracing and ladder. Overhead gantry supports cables leading through shade house to the shack. Under the tower can be seen the 1.2m dish shortly to go up between the two beams for 2.4GHz. Shrubs for a 5m radius around the tower are trimmed to a max. height of a little over 2m. The elevation pivot is approx. 3m above the ground, another metre higher may be of help if houses nearby have high roofs but it gets harder to change antennas if this is required to be done often and the higher the more wind loading problems.

Provided that your QTH is not surrounded by high trees or multi-story buildings I would consider this an ideal Sat. antenna system for the following reasons.

Points in favour

1. No high tower required.
2. Every thing can be worked on from the ground with the aid of a good stepladder.
3. Antennas can be changed with relative ease. (Allows you to compare antennas easily)
4. Less problems in high wind areas
5. Far more rugged than commercial Satellite rotator systems available
6. 12 volt operation.
7. Cheaper that commercial units of comparable strength.
8. A lot of satisfaction when completed

Points against

1. Not practical in areas adjacent to high rise buildings or large trees
2. Requires a larger area in the back garden, typically a 10m diameter circle with no shrubs or buildings much above 2m within this area.

Tools required

It is assumed that the constructor has a reasonable knowledge of mechanics and has a welder, angle grinder and drills etc. at his disposal.

Construction

In the construction of my antenna system I used some materials that happened to be on hand to save extra cost, so don't be afraid to change things a bit if you are in the same position. Also use the diagrams and photos as a guide with the text.

Main tower Assembly.

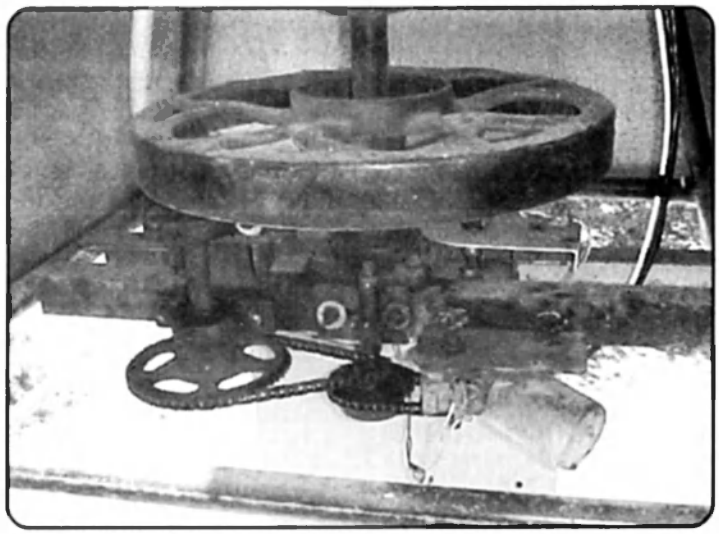
The main tower assembly is built of 1" water pipe, it is four legged and shaped like a pyramid with a flat top. The base is 1.5m square, tapering to 300mm sq. at the top and is 2m high. The top has a 300mm square x 3mm thick steel plate welded to it, in which a 31/2" inside diameter collar is welded to form a bush bearing to take the vertical shaft, which is approx. 33/8" O/S diameter. The sides of the "tower" are covered with 22# iron from the top to approx. half way down to protect the drive from the weather. Although the "tower" is only 2m high I found it necessary to weld cross braces to it, as it was flexing, this being caused by inertia when the Az. drive was starting and stopping. I also attached a ladder to one side to make it easier to service the El. drive and pre-amps, which are located in the rotating elevation head assembly.

The "tower" which stands around 2m above the ground. Note the bull gear with the pinion driving it on the left side. All the major shafts run on ball races and all have sliding adjustments to tighten the chains. W/wiper motor is on the right below the cross member that supports the bottom thrust bearing on the main shaft. Above the motor can be seen the position sensing pot. The motor and bearings housings on all counter shafts are slotted so that the drive chains can be tightened when necessary.

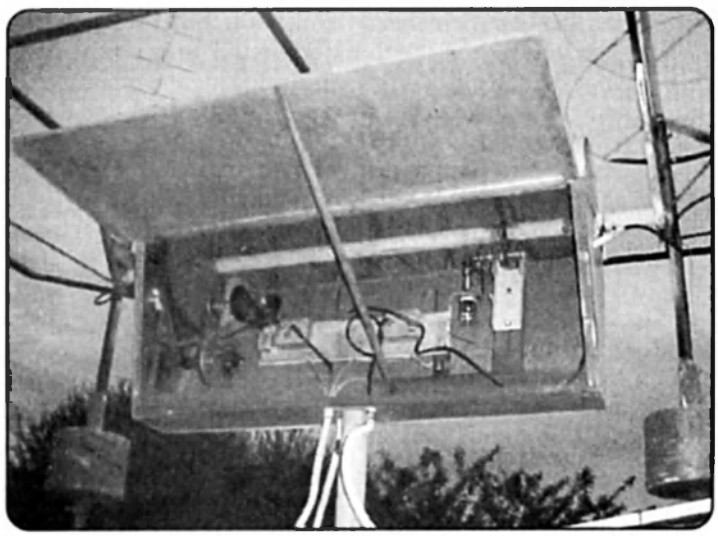
Elevation Head Assembly.

The main vertical shaft is made of thick walled pipe approx. 3 3/8" o/s diameter. The bottom end has a piece of 11/2" diameter shafting 300mm long welded onto it to take the bull gear and a 11/2" ball bearing race on the bottom that takes the thrust. On the top of this 3 3/8" vertical pipe shaft is attached another piece of 3 3/8" pipe at right angles. This is 1.6m long and is welded in the middle to the vertical shaft to form a "T", this forming the main horizontal support for the head assembly. On both ends of the horizontal support weld 700 mm of 100 x 3mm thick channel section extending upwards. Weld into each of these 75mm from the top a bush around 70mm long and large enough to take the horizontal pivot shaft which is made from 2" water pipe. These 2 bushes as well as the vertical one should have grease nipples fitted as the shafts are exposed to the weather. This whole head assembly is enclosed with iron; the top rounded section was made from a 44-gallon drum cut down the middle end on, and joined together. One side panel is hinged from this to allow access to the elevation drive and pre amps etc. (See photos).

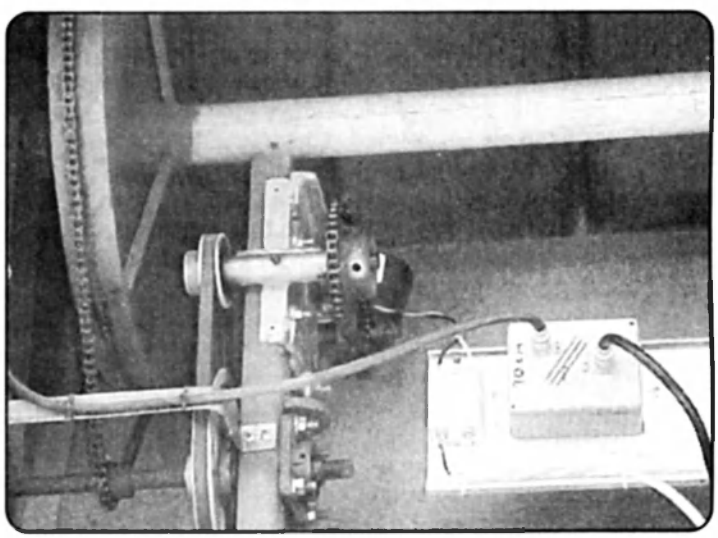
The Elevation Head Assembly with the lid open showing the antennas pointing at nearly 90 degree the reflector can be seen above, along with the counter weights. Inside the housing can be seen the El. drive on the left with the pre-amps in the middle area and the position feedback pot assembly on the right. This potentiometer is driven of a small chain wrapped around the 2" shaft. The counter weights slide up along the pipe that the antennas mount in and are locked in place with 2 bolts. WARNING !! On the end of these pipes drill a 3/8" hole through both sides and put a bolt through with a nut on it. This will stop the concrete counter weight slipping off and possibly causing a bad injury should the locking bolt come loose.



Inside the "tower"



Inside the head unit



Close up of elevation drive

A close up of the El. drive showing the motor in the background, the main drive drum and the 70cm Pre-amp on the right. The smaller box to the left of the pre-amp is a filter for the 12 volt motor supply. When the motor started it was

creating a very slight hash so I fitted a filter which cured the problem. Note the ball bearing races on the lower shaft and the V belt instead of a 3/8" chain. A chain would be better but I had the pulleys and belt so I used them, it's OK but it has to be kept tight. One day I may replace it with a chain. To keep things standard all the chains that are used are 3/8". The speed of the drive motors can be changed quite a bit by varying the supply between 8 - 16 volts; also most wiper motors are dual speed.

Drive Motors and Gearing

The ideal speed for tracking is around 1 revolution per min for both El. and Az. drives so a reduction is required. The two drive motors are Bosch windscreen wiper motors, ex the local car a wrecking yard. Make sure that you get ones with a permanent magnet field, as it is only necessary to reverse the voltage to get a reverse rotation with these. I dismantled them and re lubricated the gearbox as well as removing the auto-park bits, washer components, and crank. On the shaft I fitted a 9 tooth 3/8" chain sprocket, this drives a 36 tooth sprocket giving a reduction of 4:1 This goes through another reduction before it drives a pinion that in turn drives the bull gear on the main Az. shaft. A word about the Bull gear, I used one from an old ground drive tractor drawn grass mower. It is cast and is 500 mm in diameter and the matching pinion is 95 mm diameter. The bull gear has internal teeth so the pinion runs on the inside. This is what I happened to find in the junk heap, it is probably an overkill but it won't wear out. You could use another chain and big sprocket but big sprockets are expensive. I would suggest that you find a friendly farmer or tractor agent and ask if they know of any very old tractors that have been wrecked and get the final drive gear and pinion out of that. The main drive on the elevation shaft is again a little different. I made up a disc 500-mm diameter and welded a flat 25-mm. band around it to take the chain and as this shaft only turns 180 degree. I put a bolt through the chain on the opposite side to lock it to the home made pulley. Once again you could use a commercially available sprocket if cost is no problem. Like the azimuth drive the elevation gearing goes through 3 stages to reduce the speed. Another approach would be to couple the w/ wiper motors to a reduction worm and gear drive (again $$$). The whole rotating system may seem a little heavy but the antenna array is quite large and I have a 1.2m dish to fit to it as well shortly which will add to the wind loading.

Control Setup

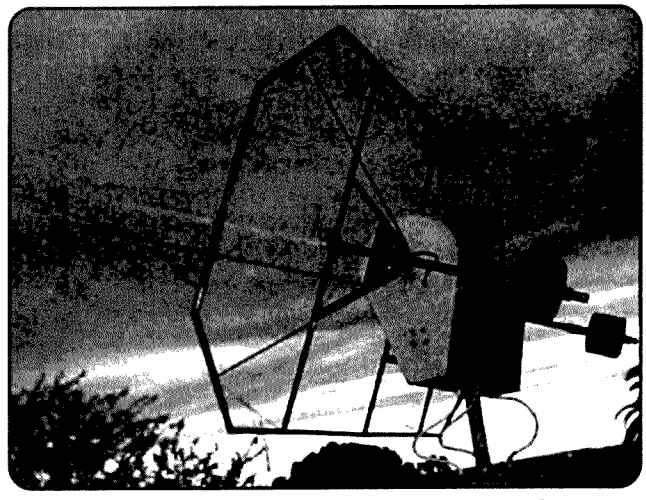
As stated earlier I am using computer controlled auto tracking but the same rotating system could be used by manually switching the El. & Az. motors with 12v DC of the appropriate polarity. I have coupled to the El. & Az. shafts 2 good quality 2,000 ohm W/W potentiometers that supply the position indication voltage back to the tracking computer but these could easily be connected to a couple of meters to indicate antenna direction. If manually controlling the rotation it may be a good idea to fit stops to the Az. shaft in case of over run in fact it would probably be a good idea if I fitted them for auto operation as well, touch wood I have never an over run yet. Don't think it would do the LDF-550 co-ax a lot of good wrapped around a 3 1/2" diameter shaft!

Antenna Setup

My antenna setup consists of a 10-turn helix for 2m and a 21 x 21 crossed Yagi on 70cm, both of these antennae are approx. 5m long, the booms are made from 1.6mm 25mm square steel tube. They are supported from the ends which slide into a heavy walled tube attached to either end of the elevation pivot shaft. The Ant. booms are locked onto the tubes with grub screws. On the rear end of these tubes are two counterweights made from concrete poured in a 20 litre drum with a pipe through the middle so they can slide onto outside and opposite ends of the antenna support tubes. Behind the antennas is a reflector measuring 4m x 2m, the frame made from 25mm square steel tube covered with 25mm mesh. This was originally done to try to shield out the local TV station on 137MHz as it was desensitizing my RX. It is also necessary to have a reflector behind a Helix antenna. As the beams are around 15' long and mounted at one end I have supported the front end with some thin nylon cord back to the reflector, this is not strictly necessary but it stops them whipping as the tracker starts and stops.

Performance

The antenna system has been in use now for around eight years auto tracking UO-22, KO-23, and KO-25 along with AO-13 (deceased) AO-10 MIR, STS missions and the current FM birds without any problems apart from an occasional greasing, and the changing of a feed back potentiometer. I am using pre-amps on both 2m and 70cm Located in the elevation head assembly. Cable to the shack is approx. 60 ft of LDF-550. The Antennas are in the back yard on a township block just a little larger than average with houses on all sides. Using Wisp on the 9600bd Satellites. I have had downloads up to 1 Mb. Per pass. I have compared this antenna setup with the 10 el. 2m and 16 el. 70cm Yagi's up the 60ft tower and once the Satellite is above around 5 degree the satellite system is superior, which proves to me that height is not important provided that the antennas are not obstructed



Another view of the antenna silhouetted against the evening sky

A view of the Head with the antennas, reflector and counterweights showing. Note the crossed Yagi on 70cm and the Helix on 2m. I did have a crossed Yagi on 2m. However I found that the helix gave less fading on AO-13 although I don't think that the overall gain was as great.

ar

History of
Packet Radio
in Australia

Steve Blanche, VK2KFJ
Email: vk2kfj@qsl.net

Twentythree years from its inception and only eighteen years from go to now in Australia and packet radio is a fixture in the local amateur scene

Let us start with amateur packet radio, prior to its starting in Australia.

In the spring of 1978, a group of amateurs in Canada's Montreal Radio Club started discussions on developing packet radio. In the autumn (fall), in Vancouver, a further group of amateurs started discussions on developing packet radio.

This group included one instrumental person, Doug Lockhart, VE7APU, who I believe was a computer systems engineer with IBM, involved with computer communications.

Doug, along with another computer person, a now ex-patriot Canadian, Jim Swetlikoe, VK2BVD, who at time was VE7ABH, went onto form the Vancouver Amateur Digital Communications Group (VADCG) who produced a working packet controller board called a Terminal Node Controller (TNC) in late 1979.

What was interesting was the fact that the Canadian amateurs had a friend in high places.

Dr. John deMercado had worked on the ALOHA project with the University of Hawaii back in 1970. This was not an amateur network, but involved the linking of campuses and buildings using packet technology across radio links.

Dr. deMercado would later become the Director General of Telecommunications Regulations, for the Canadian Department of Communications (DoC). The DoC of in early 1978 gave permission for Canadian amateurs to operate wide band digital transmissions.

With experiments starting in Vancouver, their US neighbours across the border in Seattle, Washington watched with envy. After hosting an ARRL conference in 1980, they opened the door to getting the FCC in US to follow Canada, and permit the emerging technologies. A digital communications group led by Ken Slauso WB7SFO, was formed in Seattle soon after and packet radio spread like wildfire through USA.

In Australia, Peter Deutsch, VK3DMV wrote an article about packet radio for another Australian amateur radio magazine at either end of 1981, or early 1982. Unfortunately he was unable to find others involved at this time.

In late 1982, Jim VK2BVD received a newsletter from his old friend Doug VE7APU in Canada, produced by the VADCG group. Jim then gave a talk about this packet radio technology, to our local radio club (Manly Warringah Radio Society) here in Sydney. At this time, I was working along with Peter VK2ZJO (now VK2WPJ) with a small Australian computer company. Peter at that time was designing ethernet networking interfaces for our computer equipment, so this packet radio technology overlapped with what we were playing with at work.

My task was computer servicing which involved servicing of our computer equipment for Telecom Australia (now Telstra).

By chance, I had been carrying a photocopy of the newsletter from Jim VK2BVD, one of my customers.

At Telecom, Ian Binnie, VK2ZIU spotted the newsletter in my toolbag, realised that I was a fellow amateur radio operator, and asked to photocopy the newsletter. Within a week or so, copies of this newsletter had been distributed throughout the network of amateurs within Telecom.

The newsletter had Jim VK2BVD's callsign written on the top of it, so Jim was receiving phone calls from various amateurs all over Australia, wanting more information. Immediately I realised that, unknowingly, I had been dealing with many people from a work perspective who fact were also amateur radio operators.

Many of the early pioneers in packet in Australia had already been playing with RTTY, prior to packet radio arriving, so the progression to packet radio was only natural.

I thought it was long overdue to do an article on the history of packet radio in Australia. I had intended on putting something together about 8 years ago, to mark the 10th year of packeteering in Australia, but I became distracted by starting a family with my XYL.

Late last year, I realised the need to produce some articles on packet radio, so after assembling some topics, I thought it appropriate to lead into them with a history of what has happened so far.

Perhaps, when 2002 comes around, I can put some further in depth tribulations to print, to mark the 20th anniversary. *VK2KFJ Steve*

At end of 1982 we were organising to import some TNC kits from VADCG in Canada, then at the Gosford Field Day on 20th February 1983, John Tanner VK2ZXQ had his TNC on air and beaconing test packets, from Gosford on 2 metres.

A week later, John and I had created our first packet QSO between North Gosford and Beacon Hill in Sydney on 147.600 MHz. A further week passed and Jim VK2BVD at Frenchs Forest was also on air. March 1983, the inaugural meeting to form the Sydney Amateur Digital Communications group (SADCG).

On 9th April, 1983, I set my TNC as a rather crude packet repeater. I would have to remove an EPROM (2708 1kbyte) and load another EPROM to act as a repeater, so that Jim VK2BVD could connect to John VK2ZXQ, as there was no direct path between them. Soon after, Peter VK2ZJO was on air from Dee Why. None of the other three had a path between them, so it would require them to call me first, to change my EPROM to repeater mode.

On 20th May 1983, John VK2ZXQ connected his CP/M computer (CP/M was an operating system that preceded MS-DOS) Jim VK2BVD and Peter VK2ZJO could connect to John

VK2ZXQ's remote CP/M system, using my station as a repeater. Jim VK2BVD had found some second hand computer terminals, which we connected to our packet TNCs, running 1200 bps AFSK radio modems, also from VADCG. The modems were designed and built by VADCG and used the XR2206 and XR2211 chipset to produce the Bell 202, 1200 bps modem standard.

The first packet community, BBS started on 21st May 1983 on John VK2ZXQ's CP/M computer, using BBS software from Stu Beal, VE3MWM.

Soon after a more permanent packet repeater was setup with Ross VK2ZRQ at Berowra, which allowed connections from Sydney to the VK2ZXQ remote BBS at North Gosford, others came to air before end of 1983, such as David VK2AYD, Paul VK2AQG, Geoff VK2ZAZ, Peter VK2XAD and Dave VK2YME.

We occasionally could work Tony VK2BOA at Newcastle who was running a packet simulation software on a TRS-80 computer. December 1983, packet goes portable, Dave VK2YME and myself, operate packet portable from a mountaintop in western Blue Mountains, back to Paul VK2AQG operating near Gosford.

In 1984, packet groups had also started in Brisbane and Melbourne, John VK2XY goes on air with a TAPR TNC, unfortunately, John can see the packets produced by our VADCG TNCs, but the VADCG TNCs do not decode the packets from the TAPR TNCs. Later, we found that the so called "Vancouver" packet software has many variations, so the software supplied by VADCG and the software supplied by TAPR is not compatible.

There are several architectural versions of the "Vancouver" protocol, the version used on VADCG TNCs in Australia was version 1.3, the same situation applied for the Vancouver V2 and V3 protocols, which were architecturally different to each other and incompatible between versions. Also in 1984, the SADCG design a 300/1200 bps radio modem, with board layout done by Bob VK2ZTN, using the AMD 7910 modem chip.

I think TAPR TNCs, well, at least most of the early TAPR TNCs came to members of the Hornsby club (HADARC), which tried and preferred the new AX.25 protocol.

This was also supplied on the TAPR TNCs, this group moved onto 147.575 and later created the TAPR Users group (TUG), which in later years went onto become the Australian Amateur Packet Radio Group (AAPRA) The early pioneers using the TAPR/AX.25 combination were John VK2XY, Brian VK2KTQ (now VK2JE) and VK2ENC were all on air by November, 1984.

The first packet gateway from HF to VHF occurred on 1st September, 1984.

This linked ZL1AOX in Auckland and ZL3QL in Christchurch to connect via VK2BVD on 14 MHz and gateway onto 147.600 to access the VK2ZXQ remote BBS in Gosford, and also provided keyboard to keyboard contacts to other VHF packet stations in Sydney.

One of the popular computers used this year was the Texas Intruments TI-99, Dave VK2YME developed a combined terminal and mailbox program called RCOM, the terminal program included encryption mode for private keyboard to keyboard contacts.

November 1984: tests begin on the Vancouver V2 protocol and the implementation of a digital repeater, with some intelligence and interaction. Bruce VK2BFO develops and runs a TRS-80 based BBS. Several surplused Xerox 820 computer boards end up on packet in Sydney area.

Later, these Xerox 820, which were CP/M based, where the basis for NOS (TCP/IP) development, by Phil Karn KA9Q. Bernie VK2KAD develops some packet decoding software for the Microbee, VZ-200 and ZX-80 computers.

In early 1985, we start seeing packet software for the Commodore C64 and also terminal programs for the IBM PC appearing and start seeing more radio modems using the AMD 7910 modem chip. Many of us started buying IBM XT PC clones for use on packet. Dave VK2YME ports his RCOM program across to the IBM PC.

April, the formation of TUG happens (TAPR User Group) here in Sydney. The first AX.25 digipeater was licensed in November, as VK2RPH. Paul VK2AQG and Geoff VK2ZAZ did experimental packeting to North America via AMSAT satellites.

1986 saw the porting of AX.25 protocol for the VADCG TNCs, along with EPROM and memory expansion boards, this provides users of the VADCG TNCs with a choice of protocol for either Vancouver V2 or AX.25. The TAPR TNCs and TAPR clones now only offer AX.25 protocol only.

There are now various software packages for Commodore C64 and VIC-20 computers. Kantronics is another popular TNC from USA. The W0RLI HF/VHF gateway software begins development in USA. TUG now has over 100 members. TUG now changes name to AAPRA. MPRG get their first digipeater for Melbourne on air.

January 1987:

The HAPN 4800 bps modems were tested for the first time in Australia, these modems were designed and produced by the Hamilton Area Packet Network group in Canada. Also there was the new bandplan for 2 metre packet allocations, opening up an additional segment from 144.800 to 144.900. The SADCG produces a 1200/300 bps (VHF/HF) radio modem board, using the AMD 7910 modem chip. A new digipeater comes onto the scene - NET/ROM.

Late 1987 saw a Australian made TNC kit, from the Shepparton packet group, called the TNC220+, by Ray, VK3YNV. There are now fifteen AX.25 digipeaters between Sydney and Melbourne.

John VK2XY started operation of the W0RLI HF store and forward BBS software, forwarding packet mail between Los Angeles, Hawaii, Tokyo, Brisbane, Perth, Adelaide and New Zealand. By end of 1987, NET/ROM was installed and under test at VK2RPH in Sydney and also VK2RPN Newcastle and VK2RPS. There were now fifty of the 4800 HAPN modems operational in Sydney, Canberra and Melbourne. The WIA NSW Division established a packet BBS at Dural on 147.600 MHz. TAPR announced their new 1200 bps PSK modem for satellite use. The WA4DSY 56kbps RF modem was announced in U.S, giving a high speed modem for LANs, using 70 kHz bandwidth. This was fine for U.S. and Canada, as both countries had allocations on 220 MHz for wide band digital transmissions. Pac-Comm has the new TNC-220 TNC from USA. MFJ are also selling HF & VHF TNCs. AAPRA now has over 250 members.

1988 experimentation with ROSE networking protocol was developed by the RATS group in USA, in particular Tom, W2VY.

ROSE nodes were built and spread throughout NSW under the guidance of Barry VK2AAB. Two simultaneous networks were developing in Australia NETROM & ROSE. There was a packet

terminal software package developed for the Microbee computer. MSYS is now another popular BBS program. Packet frequencies are allocated for 6 metres. Paul VK2AQG starts experimenting with NOS (TCP/IP) package. NOS (Network Operating System) is a software package for the IBM PC, from Phil Karn KA9Q.

In 1989, the Commodore Amiga was seen on packet radio, with its own user group, formed by Larry VK6CP.

There were now six ROSE nodes accessible from Sydney. AAPRA had now supplied eighteen digipeaters across Australia. Gordon VK2AGE and Brian VK4AHD experimenting with AMTOR to packet gateways (HF to VHF). Australia saw the G3RUH 9600 bps modem.

1990 saw the MBL BBS, from Jeffrey WA7MBL, in action on several BBS stations. Jeffrey was also known for YAPP protocol, a popular software used by packeteers for transferring files over a packet radio connection.

ROSE nodes now numbered thirteen across Australia. PacComm Tiny-2 TNC, from U.S. was released. Nat, VK2OP is running a C64 BBS system.

1991, AAPRA was running a ROSE server, VK2IN. TAPR had the TNC-320 TNC. The packet DX-Cluster made its appearance, the DX-cluster allowed fast dissemination of HF DX reports worldwide, using packet radio. The latest version of *Paket*, a PC based packet terminal program was produced by Tony, VK2DHU.

Warren, VK1XWT presented a paper on NOS (TCP/IP) to a symposium in Canberra, this creates a major turning point for packet radio.

By 1992, AAPRA had set up and assisted with thirty nine digipeaters across Australia. The BAYCOMM modem and packet program from DL8MBT and DG3RBU starts another mini revolution amongst the packet fraternity.

By mid-year there were twenty seven ROSE nodes operating across Australia.

The 1990s brought strings of both coastal and inland digipeater links across the eastern states, from north Queensland to Tasmania. These were a mixture of Netrom, ROSE and AX25 digipeater networks and small pockets of TCP/IP activity.

TCP/IP gained momentum with the development of AX-IP and IP-IP encapsulation to provide connections between localised amateur TCP/IP networks, across Australia and rest of the world, using the Internet as a transparent transport, known as wormholes.

The wormhole opened up a world of FTP (File Transfer Protocol) activity, converse bridges, enhanced realtime packet DX-Clusters. The wormholes also allowed for gateway and interfacing to NETROM and ROSE networks, thereby extending the borders of these protocols, by connecting them to their counterparts interstate and overseas.

There were also permanent ROSE links via satellite from Sydney to Perth, opening instant connections using the ROSE network across the country. A multitude of Windows based terminal and BBS packet programs emerged, offering an immense amount of facilities for packet operation. Sound cards started being used for decoding and encoding of packet and other digital modes, such as PSK31, within PCs.

So within 18 years of amateur packet radio in Australia, many changes have occurred within this particular facet of our hobby of amateur radio.

The next article will cover sources of information relating to packet radio and using the internet as a tool for finding that information.

ar

AMSAT

Editors Note. The AMSAT Column for April got mislaid. Here is the more urgent material. The other topics will be covered in future AMSAT Coulmns. Sorry VK5UE

The Shape of Things to Come

With AO-40 undergoing commissioning and final orbit positioning, it is not too soon to look to the future. The Board of Directors of AMSAT-NA met in February to consider a number of items, specifically the format and nature of the next AMSAT satellite project(s). The meeting took note of the fact that it would be some time before a full evaluation of AO-40's potential would be completed. It was also recognized that it takes several years from initial concept to launch for any new satellite project, and that the year 2001 is the right time to start the planning and design process for the next series of satellites.

Several members of the AMSAT-NA project committee were present at the meeting. Their proposals were made based on two guiding principles: 1) input from AMSAT membership about the type of spacecraft, frequencies and operating requirements 2) the desire of the AMSAT technical membership to keep advancing the state-of-the-art and providing new solutions for improving satellite communications.

The Board of Directors considered and approved the following three projects.

1/ a new satellite to be placed into a geostationary transfer orbit. The proposed satellite project would feature communications at 2-metres, 70-centimetres, 1.2, 2.4 and 5.4 GHz, with actual uplink/downlink frequencies to be determined. The satellite would weigh a maximum of 100 kg in mass and would have a power consumption of about 100 watts. Stabilization would be provided by spinning the spacecraft.

2/ the Directors approved the idea of designing, building and testing a new Internal Housekeeping Unit (IHU) for use in future AMSAT satellites. The existing design, although very stable, uses components that are very hard to find. A new unit design would use improved techniques and more readily available components.

3/ the Board approved design, construction and demonstration of a new mode using digital modulation techniques. This would improve communications under very poor conditions or, alternatively, permit the use of lower power and/or simple antennas.

It is anticipated that both the second and third projects would be ready to be a part of the main satellite project, so that a digital modulation system could ride along with traditional SSB/CW modulation techniques.

ar

Novice Notes

Peter Parker VK3YE
12/8 Walnut Street, Carnegie, Victoria, 3163
E-mail: parkerp@alphalink.com.au
Novice Notes Online: http://
www.alphalink.com.au/~parkerp/nonline.htm

More Crystal Sets

Response to December's column was so favourable that we return to crystal sets and allied topics this month. Keep reading to find out how to improve your AM broadcast reception, make your crystal set deliver hi-fi audio and set a fashion trend with the all-new 'wearable wireless' pedestrian mobile crystal set.

A frame antenna for AM radio reception

Portable AM broadcast receivers normally have no external antenna connection and are not designed for long-distance reception. However the addition of a directional antenna can greatly improve reception, even on cheap receivers.

Figure One shows a rotatable frame antenna that can be used with any portable receiver. It consists of a large pick-up coil wound around a cardboard box or plastic storage box. The receiver is placed inside the box. A variable capacitor brings the antenna to resonance on the frequency of reception.

To construct, wind about 27 metres of insulated wire around the box, which should be around 400 millimetres square. No spacing between the coil turns is required. Make a pair of holes or use adhesive tape to anchor each end of the winding. Connect the coil to an old 10 - 415 pF air-spaced variable capacitor. One side of the coil should go the capacitor's case (which is electrically connected to the moving plates) and the other to one of the gangs. As discussed in December, a plastic dielectric variable capacitor can also be used, but at the expense of tuning range.

To use, tune the radio to a weak AM signal near the middle of the band. Then place it inside the box. The windings on the set's ferrite rod should be parallel to the windings on the box. Carefully adjust the variable capacitor until an increase in signal is noted. Then rotate the box until the signal level peaks. The received strength should be very much greater than when the receiver was outside the box. Note that the tuning on the box antenna is very sharp – re-tune with every receiver frequency adjustment.

When turning the box, you will find nulls, where the signal level falls dramatically. This directivity can be used to null out interference from power lines or electrical equipment. Also when tuning to a weak signal adjacent to the frequency of a local station, rotating the box to null out the local station can be helpful in reducing adjacent-channel interference. In some cases, the null can be sharp enough to allow two stations using the one frequency to be separated, just by rotating the box.

If you find the frame antenna does not cover the whole broadcast band (do tests about every 100 kHz between 530 and 1600 kHz to verify this), change its coverage by adding or removing coil turns. Adding turns reduces frequency and removing turns increases frequency. Use an alligator clip and install a tap near the middle of the coil if extended high-end coverage is desired. This could be useful for reception of the narrowcast stations above 1602 kHz and 160 metre AM operators. Another modification is adding an extra winding of a few turns near the main winding. This allows the frame antenna to be used with receivers that have external antenna sockets, such as communications receivers.

Despite its small size, the rotatable frame antenna dramatically improves AM reception. It does this by increasing sensitivity and selectivity while reducing interference. Signals marginal without the antenna become pleasant listening with it. Even during the day you will be amazed at what can be heard

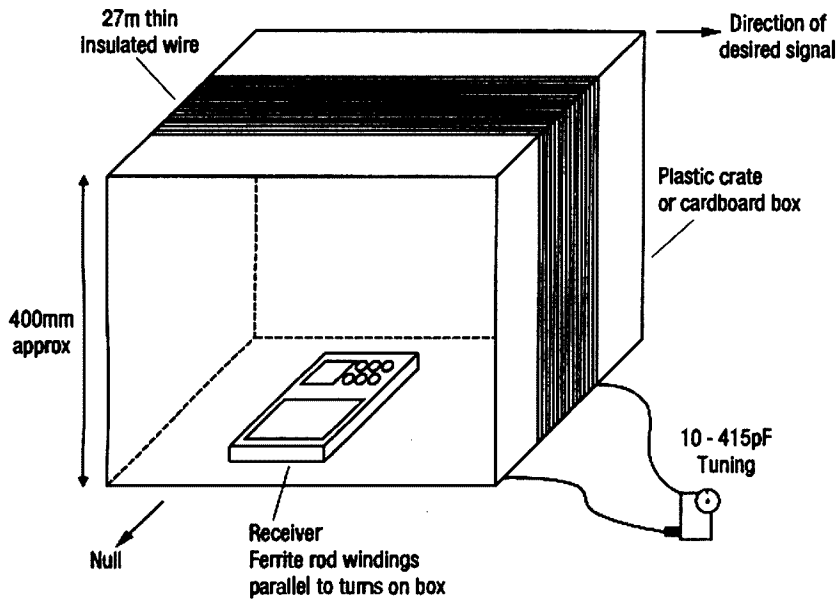


Figure One: Frame antenna for AM reception

on a cheap receiver assisted by a frame antenna. Build it and hear for yourself!

A frame antenna crystal set

Nearly all published crystal sets designs require at least an outside antenna to operate. This one is different. Its larger than average coil picks up signals with no antenna and earth connection required, particularly in urban areas.

The portable crystal set shown in Figures Two and Three is identical to the frame antenna described above except for the addition of a diode detector, capacitor and headphones. Use is similar to the frame antenna – tune in a station and rotate the loop for maximum signal strength. Again the prototype was constructed on a spare plastic packing crate about 40 centimetres square, though a cardboard box would perform equally well.

The receiver was tested in suburban Melbourne. Approximately ten stations were received, but at low volume. This was gratifying considering its relatively small size. However, unless you live near the local AM broadcast stations, this receiver is only really suitable for use in a quiet room.

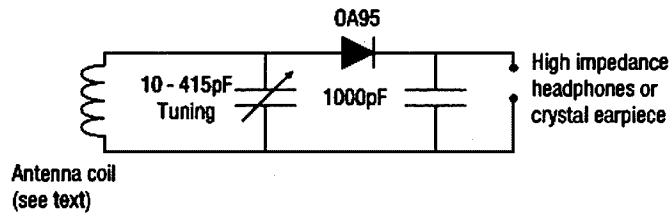


Figure Two: Frame crystal set schematic diagram

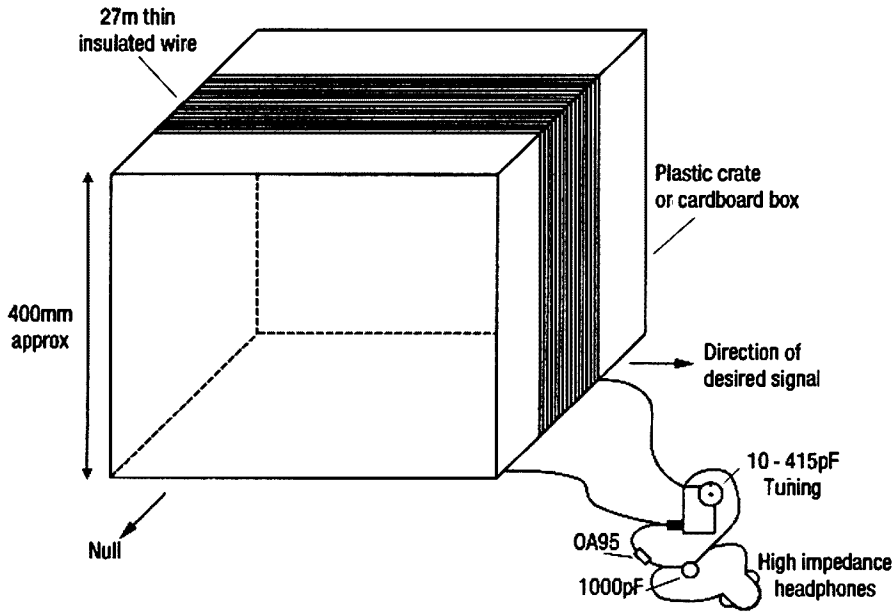


Figure Three: Frame crystal set

The 'Wearable Wireless' - an improved frame antenna crystal set

After the encouraging results with the frame crystal set, an improved version was constructed (Figure Four). Its main difference is the much larger area enclosed by the coil. This resulted in greatly increased volume with no loss of selectivity.

The design concept was of a wearable 'pedestrian mobile' receiver, wholly powered by the signal of the incoming station. It was originally built for a local hamfest crystal set competition and would have almost certainly won the 'most unusual entry' prize, had it been completed in time!

The Wearable Wireless looks like a single-element quad loop antenna for about 70 MHz. The circuit is identical to the set described above (Figure Two) but the physical construction is different due to the larger coil. As with the receiver described in the December issue, a polyethylene chopping board forms the heart of the set. Extending from the corners are wooden spreaders 600 mm long. In the centre of the board is a plastic box that houses the tuning capacitor and diode detector. Four banana sockets are used for the coil and headphone connections. An old hot water bottle provides padding for the wearer. If necessary this can be stuffed with old newspaper or other filling to further improve comfort. A discarded belt is attached to the chopping board to allow the set to be tethered to the listener. For most convenient operation, the set should be worn so that the hot water bottle fits in the small of the user's back.

Clothes pegs are glued in the far end of each spreader to hold the windings. With the 60/160pF tuning capacitor used ('O' and 'A' terminals wired together) 6 turns were required to provide broadcast band coverage. Again this requires 27 metres of thin insulated wire. Heatshrink tubing or insulating tape can be used to keep the wires bunched together.

Though not quite as loud as a crystal set with a good antenna, the set works remarkably well. Selectivity is good, and is all that is required for reception of local signals. The set has two main shortcomings. The first is that changing the station requires one to have the skills of a contortionist in order to reach the tuning knob behind your back. Secondly the antenna's sharp null means that you may lose reception when going around a corner. Though the Wearable Wireless will not necessarily be your most used receiver, its construction will challenge your ingenuity, have great novelty value and make you the centre of attention at the next radio club meeting or hamfest!

Observations on crystal sets from Felix VK4FUQ

Felix VK4FUQ has been experimenting recently with crystal sets. Along with a very informative letter and article from the local 'Backscatter' club newsletter, he sent *Novice Notes* a cassette recording of reception from his latest crystal set. Overall fidelity was excellent and, to my ears at least, comparable to FM radio.

Felix made the following observations:

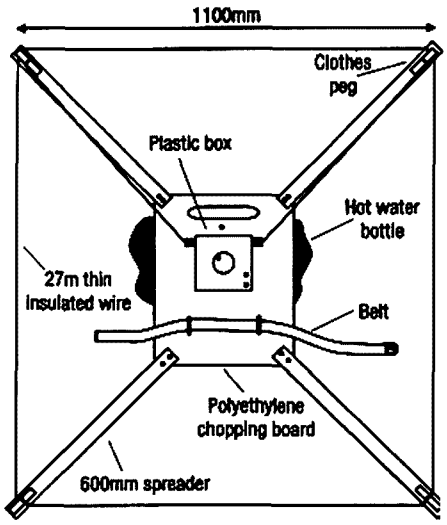


Figure Four: Frame crystal set – improved version

A double tuned circuit always dramatically improves selectivity, regardless of coil tappings.

Gold bonded germanium diodes (e.g. 0A47) provide outstanding clarity and efficiency.

Voltage doubler detectors using two diodes do work, but produce somewhat muddy and ill-defined audio, as confirmed by listening tests and spectrum analyser measurements.

No improvement has been noted when adding bias to germanium diode detectors. However bias applied to detectors using silicon diodes (1N914, etc) is highly beneficial.

It is important to have a DC load on the diode detector. Felix used a 10k potentiometer.

When using the crystal set as a tuner for a stereo amplifier, it is a good idea to add a one transistor audio preamplifier. Use a BC549C and metal film resistors to minimise noise. Feed output to both left and right stereo inputs tied together.

Correction to December's Novice Notes

Constructors using plastic dielectric variable capacitors should bridge the 'A' and 'O' tabs to increase maximum capacitance, rather than the 'G' and 'O' connections suggested. Also if a crystal earpiece is being used it may be necessary to wire a 220k resistor (not critical) across the earpiece for correct operation.

ar

Is there a future for WIA?

Continued from page 3

The focus of the WIA should be on radio, supported by competent administration.

Administration such as budgets, accounts, constitutions etc are merely tools we use to achieve the goals of our organisation. There are some, at the most influential levels in the WIA, who have made these things into holy writ to an extent that the admin tail seems to have been wagging the amateur radio dog.

As this debate has progressed I have become more certain that we should replace our state level of administration with a set of technical committees or interest groups operating on the national level. They can foster their part of the hobby, involve newcomers in it as well as publicising new activities, modes and processes.

The new organisation should be taken as a way to streamline and make easier the work of the many volunteers in our hobby. That also means keeping the formal structures, processes and administration to an essential minimum. As well as making sure members have clearly defined lines of communications into the organisation.

The WIA must also be seen to be optimistic about the future of Amateur Radio and fostering the spirit of excitement about new things.

We should put Amateur Radio first. Once we have decided what we should do then we can look at how it can or should be administered. Changes that may be required to budgets, accounts, or constitutions can then be worked out and recommended by the executive.

I cannot state this strongly enough. We must decide what is best for our hobby. Then, and only then, should we consider the needs of business administration.

The WIA should be an open organisation.

The members "own" the organisation and have a right to be involved in its processes. There should be clear avenues for members to send and receive information on anything happening in the WIA.

The past years have tended more and more to secrecy and confidentiality. There is no need; the need is the opposite. Inclusion and consultation should be the way of doing business in a members based organisation. The members need to feel that their views are taken note of and acted upon where appropriate.

Commercial in confidence stuff applies to a couple of things the organisation does. Like negotiating conditions with staff, or letting a contract. Even in these areas there is room for consultation prior to negotiations.

Two or three people acting on their own should never take very significant decisions behind closed doors.

Debates on important topics in radio should be held in the widest possible forums. Mechanisms for excellence in WIA communication should be determined as part of the creation of the new organisation

Conclusion

None of these principles is, by itself, sufficient to stem the decline of the WIA. Accepted as a package and then implemented through a new streamlined and responsive organisation will, I am sure, lead to a better future for both the WIA and Amateur Radio in Australia.

Martin Luther VK5GN **April 2001**

ar

The Ultimate Antenna Mast

Dave Smith VK2DAL
and Dave Pilley VK2AYD

As we get older, our mast climbing capabilities come into question and we tend to look for something a little easier to service than a 25m tower. I've been retired for a few years now and having had a new hip replacement plus some heart surgery I find neither are exactly conducive to climbing masts and adjusting antennas.

Another local ham and I decided we would like a tilt-over 15m tower. Something that we could lower and adjust the antenna after the parrots had eaten away the insulation on the traps and let the water in and changed the swr. Trying to purchase such a mast in Australia can be very frustrating as no one advertises such items. After a long search I found a supplier in Melbourne, about 900km away. Yes, they had them, but you had to make your own arrangements for transport, installation, etc. They were really keen not to sell a couple of towers - perhaps it looked better on their inventory lists!

In the process of looking I heard about an Amateur in Queensland, about 850km north of us, who was using two utility posts spliced together to give him a height of about 50m. His antenna was transportable from the base to the top by means of a tramway. Easy to service and easy to lower when the cyclones came through. I took a drive up and had a look at this installation and decided this is it - the ideal system for the ancient retiree!

A talk with the local Power Company and yes, they could sell me a 16.5m pole and yes, they would be delighted to install it for me.

It all seemed feasible so out came the drawing board. As some 2.5m would be in the ground, I was only left with 14m to play with. I decided to use two tram tracks 12m long, supported on the mast by struts at 1.8m intervals. The tram tracks had to be strong enough to support a tram unit that would comprise the rotator and a 3.6m H.T. Aluminium 50mm mast for the 3 element yagi. The tram would be manufactured from heavy duty aluminum.

A locking system was necessary at the top (just in case the cable broke). The hoist cable system would be controlled by a 12V marine winch located about 60cm above the ground. The battery would be housed at the base and charged by solar cells. Sunshine was something we have lots of here.

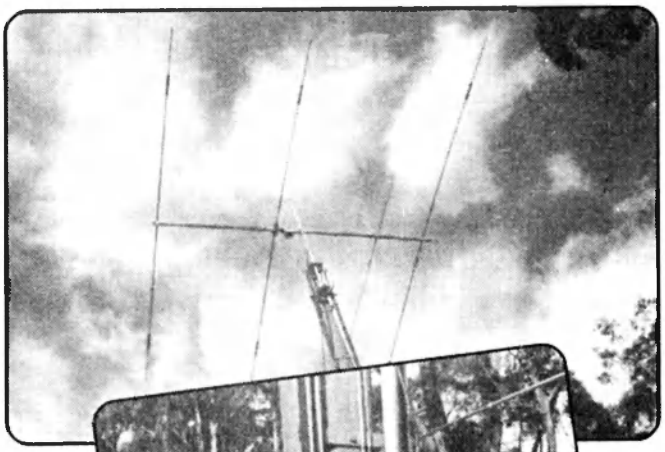
So my design was finalized, now for the hardware. We went to the local Power Company and, with the help of a very knowledgeable power employee, chose a pole, about 60cm diameter and 16.5m long that was straight and had a good surface. A few days later this was delivered and laid in the back yard. In the meantime I had been searching for suitable tracks and eventually chose the heavy duty tracks used for factory doors. These were in 4.8m sections, which meant some very good

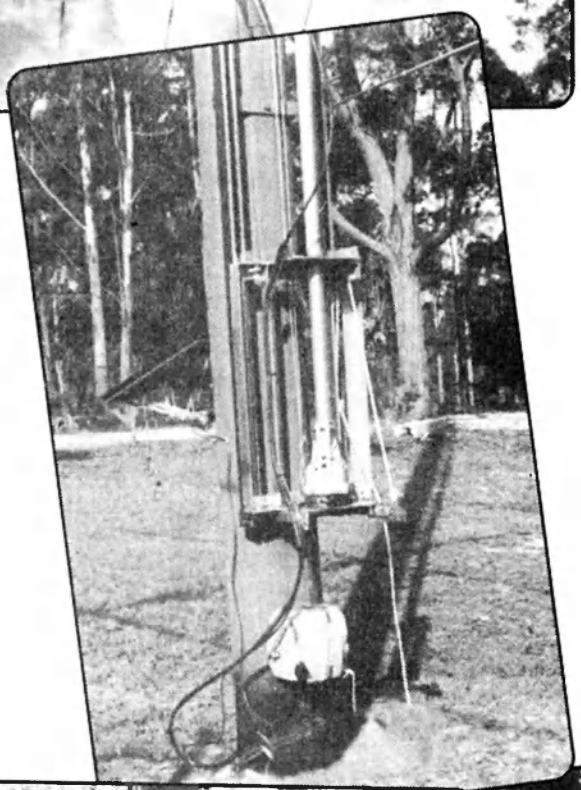
From TOP:

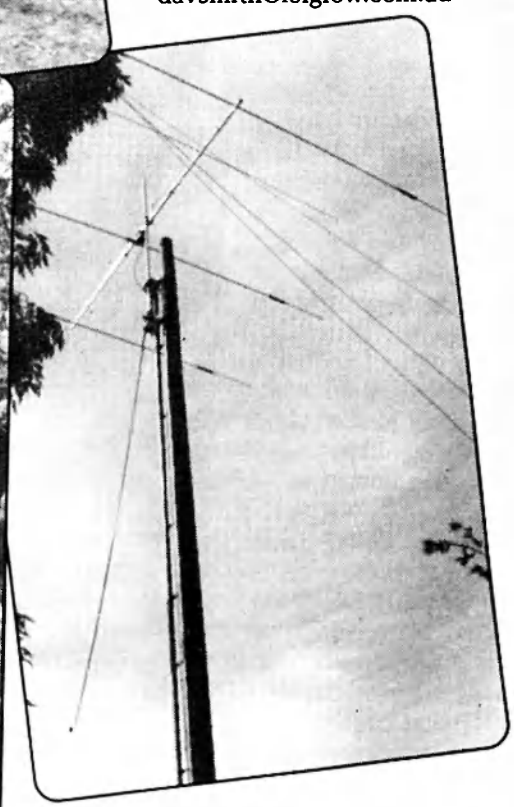
1. Drilling the hole

2. Dropping the mast into position

3. Pole in position (VK2DAL on right)







welding was necessary to join them so that the roller wheels on the tram would run smoothly.

Before installing the tram tracks, I gave the mast a few coats of protective paint (green so that it would blend in with the trees). The bottom 3m was creosoted and oiled to protect against the very fierce white ants that roam the local woodlands.

At the top I installed a simple locking system that will lock the tram in the operating position. This would be controlled by a separate line (rope) that has to be released before the tram can descend. The tram turned out to be a little larger than I first envisaged as it would be under some pretty heavy strain at the top with the aluminium mast supporting the antenna. The rotator/mast had to be at least a 30cm away from the mast so that the antenna can be easily raised and lowered. Basically the tram is a "U" section with strut support both axially and radially.

Once the hardware was complete the Power Company returned and in a very short time, drilled a hole some 2 to 2.5m deep, lifted the pole up and set it in place. It's so easy when you have the right equipment.

The rest of work was not difficult. Of course the tram got a work out before the antenna was attached, as there was a small learning curve to be absorbed. The antenna can only be lowered when its in a certain position— if it's not in the correct position and the boom or an element catches on the mast, the consequences could be drastic—need I say more!!

It all works wonderfully well. When I want to lower the antenna, I use the hand line to release the safety latch and the winch does the rest. In a minute the antenna is at ground level and easy to work on. It's totally self supporting, no guys and looks real good.

If you would like more information feel free to contact me, David Smith, VK2DAL by e-mail: davsmith@felglow.com.au

ar

Anticlockwise from TOP:

4. Antenna in position.

5. The Tram with rotor and winch

6. Pole in position (VK2DAL on right)

7. Antenna and mast.

Unlikely Projects —

Charlie's Toys

or

How I muddled through and survived

NO 2. DC/DC Converter

Charlie Sims VK2ABF QTHR
Email chasims@ozemail.com.au
Fax by arrangement only 02 9635 9937
Voice line 02 9635 9937
M/Hd QF56LE

Why?

No reason really, but when stated more accurately as a DC power supply for the FT200 (Transceiver), the following points contribute to the feasibility of the project—pity!

I have two FT200s, one of which being a gift from Cyril, VK2ACQ, a member of our 40 metre net. Frequent boasts that I have made on QSOs of the net concerning my numerous projects rendered me liable to put up or go QRU. One dream concerned the wish to surprise other members with a mobile call from outside their QTH on sked night. Home brew power supply - of course. Publications of the ZL-FT200 club of which I was a member featured a number of such projects comprising two modules to provide the various voltages for the rig.

The FT200 requires the following voltages:- 600v @ 250 + mA, 300v @ 50 mA, 150v @ 130 mA, 100v neg. 5 mA, 12.6v @ 5.5 A

Now, Dave, ZL1BJP, John, ZL1BBU, Jamie, ZL2NN and typiste- Mrs. J. Carpenter- to name a few stalwarts- are to be highly commended for their dedication in sustaining such a club and producing valuable hard copy technical guidance for their members. Trouble is, I could not get past the first module without being disheartened by early endeavours. e.g. No more than 40 watt could be squeezed out of the first module tried. Initial checks indicated that the primary winding at 16 gauge was capable of only 3.6 amp according to wire tables. I subsequently identified as limitation No. 1.

Which core ?

Well, I had already chosen a core from a TV line transformer. These seemed to be spaceous enough to accommodate all the windings in one module and the cross-sectional area seemed to be adequate when compared to pot cores etc. With this size core it seemed *likely* that one could use 10 gauge wire for the input winding and luckily, I was able to fit 10 +10 turns - not bi-filar, but first soldering the flattened centre tap around the exact middle and winding each way of centre. An "AA" dry cell served as a mandrel after shrinking tubing over the bare wire. Four and a bit turns each end had to be reverse wound-second layer. This brought the three "ends" out at the centre, conveniently allowing a base for the 150 volt winding, also the 6 turn (centre tapped) exciter winding for the transistor bases. For 10 turns and 12 volt, the windings become set at 8.33 turns per volt, and so about 120 watt overall output is expected less the efficiency factor.

Other windings(300v & 100v neg.) went on the far arm of the core. It was proposed to utilise doubler tactics to obtain 600 volt for the P.A. tubes.

Timely warning!

These things can be horribly lethal, so take extra care when testing it- you know the drill- warn the kids or other intruders especially if you use a power diode plus electrolytic for DC measurements. Yes, I received one whack! Note:A perspex cover is under construction.

Circuitry.

Solid-state devices used were 2N3055s, 1N4007s all round, but a 2 amp diode for the snap-back pulse around the primary. Wire size— well, I used what I could find in the scrap box- after checking the wire tables for current carrying ability, I suggest you check with projects in A.R.R.L. or R.S.G.B. publications.

A simple doubler circuit got me up to 600 volt with 80 Mfd electrolytics and taking 300 volt from the centre of the pile. The 150 volt supply needed restraint as it was inclined to go pretty high during warm-up and stand-by. (280 volt on the screens of the finals isn't a good thing.)

Two 75 volt neons in series across the line-with 150 ohm if you like- kept the lid on it. A 350 mA. torch globe has been used for a fuse in the HT. line in case the 100 V. bias supply fell too quickly at switch off.

Hardware mount

It is a short piece of hollow aluminium security door stile. The moulded heat sink was screwed to one edge of it after making a gap in one ridge.

On the other end.a square block 11 hole valve type socket has been fitted side by side with the heat sink. 11 pin sockets are pretty rare,let alone the square block moulded type. I was lucky to have one which mated with my FT200 power cable. Some ingenuity will be needed to replicate this.

Capacitors

Mine are 80Mfd. X 450 volt obtained 30 years ago at 40 cents each. These are also pretty rare now and quite costly. Being single ended, they sit - toes up- into round holes cut to size in the space along from the transformer assembly which is bolted down. One hole is a bit bigger to allow for an insulating wrap around the 600 V capacitor. The cut-off base of a plastic pill bottle sits under it, and a plastic lemonade bottle provided the wrap for the full height.

10 Mfd. X 350V capacitors sufficed for both the 150V and the neg. 100V supplies.

Initial trials

Slightly disappointing- really:-

No IC flowed and bias adjustments didn't help. Heaters were a bit pale because of the series diode which I put there to protect them from a possible 14.2 V. from the charger. (not to worry as there is enough drop in the 3 core cable). The HT flew up to about 900 V. and stayed there. (no load - silly).

Other voltages were about 15% low of their mark. (it was only a five cell battery and a four amp charger.). The charger thought it was a welder (hot!) I mention these points for future reference.

Do I hear someone say "not _... likely-om" Well, if this is published. I could have it corrected by then. Just wait and see!

Diagnostics

Before abandoning the whole thing, it was only fair to put it through casualty and intensive care with about as many meters and blinking lights. With a few adjustments it became possible to obtain good receiver service. Switch to transmit in order to set the standing bias and strange things happened: It seemed to me that the current drawn by the H.T. was robbing the negative bias supply of valuable volts- which -in turn- caused more I.C. to flow and it—— in short it looked like a runaway situation. Starvation at the far end of the core ??? Well yes, because the whole H.T. plus 300V line dropped to zero. Meantime, the 150 volt service went mighty high. A frequency counter showed that the system was fibrillating- it was even counting the spikes! The C.R.O. showed a lot of unintelligible whiskers - but the device was still working.

Disconnect and re-connect the battery but nothing happened. After waiting about 35 second and re-connecting again we were back in business, but the same. A time dependant problem somewhere, but what ?? Weird really!

Don't give up

Just before scrapping the device, a sub-concious piece of reverie suggested why not try doubling to 300 volt in the 150V winding? after all, it was at the near end of the core, and the wire had half-amp capacity. This would allow full-wave rectification of 300 volt at the far end, and it could be sat upon 300Vat the near end- providing a substantial 600V instead of a shaky 740V as before.

Promising!

Voltages are now nearer to normal, viz H.T is 618V and steady, 150 is at 128, 300 is at 248 but whilst the battery terminals read 12.2 volts, it shows only 8.5V at the unit. The above voltages are insufficient to pull in the relays which is why the transmitter shrinks away from D.X. contacts.

Luckily, I have a secret winding unused which will bring those voltages up to scratch except for the 12V line. Possibly better and shorter cables, better battery and try feeding the final's heaters from another source. (2.5amp here)

Unlikely?

Current practice at the time of the F.T.200 heyday was to go for two modules – looking at 25 amp from the car battery. In fact, the ZL chaps who actually did this, some at least talked about having an extra battery on the same charging circuit and produced nifty circuits to achieve it. My objective, apart from that stated at the beginning of my article is to get the consumption below 20 amp which to my thinking is more conducive to a single battery in one car.

Give me a 1975 vintage station waggon with "normal" ignition and timing system and I'd be tempted to call on my friends one dark night at sked time. However, there's no way that I'd dabble with the electrics of a modern car for the sake of one occasion of one-upmanship with my contacts. Sure, there are many mobileers on H.F. using suitable rigs- but the FT200!

?????? — not #@$!%!! likely!. Any ideas as to what to do with this? PLEASE BUZZ ME.

73s de Charlie.

ar

AO-40 Responds to New control Measures

The news coming from the AO-40 control team continues to be promising. The sun-sensors have once again 'captured' the Sun. They had temporarily lost the Sun but seasonal changes have meant that the satellite attitude can be more closely monitored and the very high spin rate corrected. During the past several days of magnatorquing the spin rate has been reduced from nearly 18 RPM down to 13 RPM. This represents a reduction of about 0.74 RPM per perigee which means that AO-40 should be spun down to the target of about 5 RPM in a bit over a week. The next job will be to bring the spacecraft into the proper orientation to test-fire the Arcjet with no electrical power and gaseous ammonia only. The test firing will be used to check the Arcjet control electronics and valves. Even without the Arcjet "burning", the thrust from the test firing will be enough to raise the perigee by about 100km. Independent analysis has confirmed that the current orbit will be stable for many years, i.e. more than the anticipated lifetime of the spacecraft. However, it is later planned to optimize the current orbit with a full running Arcjet. This will follow on after testing of the 3-axis momentum wheels, which will be used to re-orient the spacecraft during these maneuvers. If the 3-axis momentum wheels work as hoped, the satellite will be de-spun completely and then remain in an attitude which will have the antennas earth-pointing at all times.

ar

Club News

Adelaide Hills Amateur Radio Society

Well, did we speak to you during the Field Day? If not, Why not? It is a very good club activity. We are fortunate in having a site where we can sleep comfortably but be out in the field for all the operating.

As it was intended, the John Moyle Memorial Field Day gives us excellent practice in the use of mobile, totally portable radio equipment, such as might be needed in the event of some emergency.

John Moyle, long time editor of "Radio and Hobbies" magazine (the same magazine we now buy as "Electronics Australia") was very keen on the idea that as radio amateurs we should all be able to operate under extreme conditions. We should have equipment that could be operated from batteries or portable generators and we should be able to erect antennas capable of allowing our signals to be heard around the world.

Amateurs have often been the "news" sources from places that have suffered storm damage or earthquakes. If it hadn't been for a radio amateur it could have been several hours before anyone knew that Darwin had been flattened by Cyclone Tracy. The cyclone was being watched by the weather bureaux but was not expected to pass over Darwin at all.

Amateurs sent out the first news from the Alaskan earthquake in 1963 and kept the world in touch with Fiji when it suffered cyclone damage a year or so ago as well as from many countries suffering the trauma of armed conflict. These amateurs could have had their first experience of mobile operation in a contest such as the John Moyle Field day.

Although AHARS has operated in the Field Day from the same site for several years each time some of the radio equipment is different and each time some of the aerials are different. In this way the members participating can find out how well or poorly their transceivers or aerials work from a battery or generator. This year three new aerials were tried (and one found wanting due to poor connectors) and two newly bought "rigs" which all worked efficiently.

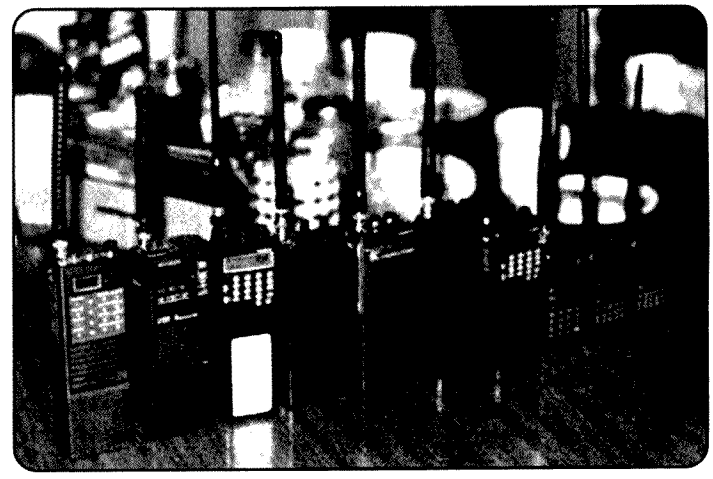
All the operators commented that the number of stations heard was down on last year. Perhaps this was due to the fact that the results of last year's contest had not been published before this year's weekend exercise, perhaps not. It is an incentive to know how your group compared with the others but it is not essential.

AHARS operates for 24 hours in the multi-operator section on HF only. The locations we use is not in a suitable place for VHF contacts so, despite their higher scoring points we cannot participate in the Open section. We were pleased that a number of our members at home operated in the 6-hour sections and made contact with us. We also enjoyed making repeat contacts with other 24 hour stations. Like most other groups participating in the Field Day we had the chance to explain the idea of the contest to a number of people around the world. All in all we had a great weekend in almost perfect weather for outdoor activities.

The first photo (of Steve VK5ZHT) shows him operating during the evening on 80 metres from a tent out in the scrub. Although Steve has a limited licence he can use HF as a club member. Maybe the experience on HF in the Field Days will encourage him to upgrade.

The other photo is a bit of a giggle. Although we were an all HF station for the contest there were a surprising number of handheld radios on site – used to tell everyone when the kettle was hot, of course.

If you are in Adelaide for the third Thursday of any month why not come to a meeting of AHARS? It is held at the Blackwood High School in Seymour Avenue and starts at 7.30. We will make you welcome.



News from the Moorabbin & District Radio Club

MDRC hamfest

By the time you're reading this, the MDRC Hamfest will be history. Thanks to those who set up, packed up and manned stalls to make the day a success.

Thanks VK3ALE

After many years of service, Paul VK3ALE has decided to take a break from club activities. Paul has left a big gap that will be difficult to fill, and we wish him well for the future.

Changes for APC Newsletter

Paul's departure meant that the positions of secretary and APC newsletter editor became vacant. At the time of writing the former is vacant, but the APC editorship has fallen to yours truly.

I hope that under my stewardship the standard of APC can be maintained and improved. The committee has decided that we will have six newsletters per year. These will be published in February, April, June, August, October and December, to reach members just before that month's general meeting.

APC includes club news, general and practical articles on many aspects of amateur radio and is another membership service of MDRC. Articles for inclusion can be sent to the address at the bottom of this column.

MDRC In local paper

Amateur radio received some publicity in a local paper last month. The occasion was the John Moyle Field Day, for which we established a portable station.

The article appeared in the Moorabbin Standard for April 3. A good picture was published. The article explained the John Moyle Field Day well and pointed out our back-up role in providing emergency communication.

Unfortunately the article, titled *Hamming up the waves*, included time-worn clichés that did not portray us in an entirely positive light. Examples include: 'In this electronic age of Internet and e-mail, radio operators may be seen as old hat. But a dedicated band of enthusiasts proved that radio still rules the waves', and (the MDRC) 'attracts a broad range of enthusiasts, particularly people who have served as communications specialists in the army'. The photo was captioned 'Is there anybody there', as if we were trying to talk to extra terrestrials!

Despite the article not being entirely as we would have liked, we are firmly of the view that the cure to fixing the common misperceptions of amateur radio (as reflected in the article) is more publicity, not less.

Peter Parker VK3YE
Publicity Officer
Moorabbin & District Radio Club
parkerp@alphalink.com.au
(03) 9569 6751

South East Radio Group - Convention 2001

37th Annual Amateur Radio Convention & Australian Fox-Hunting Championships

Queen's Birthday Weekend 9th – 10th June 2001

A&H Showhall, Pick Avenue, Mount Gambier

For full information including
the complete FoxHunt program which has been updated to include a
NEW A.R.D.F. EVENT
Access SERG URL:- http://serg.mountgambier.org

For further information including bookings of tablespace for traders, exhibitors or individuals, please contact Convention Coordinator Wayne VK5ZX

Tel (08) 87254335 or mobile (0407) 718908

Radio Amateurs Old Timers Club

Associate Membership Qualification change

In November 2000 the Radio Amateurs Old Timers Club Australia changed its rules to allow a new grade of membership, Associate Membership, to all radio amateurs aged 60 years or more who have held, or been qualified to hold, an amateur operator's licence for a minimum of 10 years.

Subsequently, as a result of submissions, the committee has further discussed the qualifications for associate membership and agreed that, for a number of reasons, the age 60 qualification should be deleted.

Therefore, effective immediately, Associate Membership of the Radio Amateur Old Timers Club Australia is open to all radio amateurs who have held, or been qualified to hold, an amateur operator's licence for a minimum of 10 years.

Current subscriptions, which fall due on 1 April each year are: Joining fee $2.50; and annual subscription $8.00 (or $15.00 for two years). Life Membership is available for $100.00.

Application forms, complete with details of the Club's Constitution are available from the Honorary Secretary, Arthur Evans VK3VQ, 3/237 Bluff Road, Sandringham Vic 3191 on receipt of a stamped, self-addressed envelope.

Telephone enquiries will be welcomed by the Secretary, Arthur VK3VQ on 03 9598 4262, or President, Allan Doble VK3AMD, on 03 9570 4610

RAOTC Committee Re-elected

At the annual general meeting, and luncheon, held on 9th March 2001, the RAOTC Committee was re-elected unopposed.

The committee for the ensuing year is Allan Doble VK3AMD, President; Bill Roper VK3BR, Vice President and Membership Secretary; Arthur Evans VK3VQ, Secretary and Treasurer; Stewart Day VK3ESD, OTN Magazine producer; Ron Fisher VK3OM, Broadcast Co-ordinator; Bill Clarke VK3ZLN; Alan Cook VK3AUC; and John Fullagar VK3AVY.

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

The ALARA Contest — new date

As was forecast in this column the ALARA Contest will be held on a new date this year in the hope that conditions will be better.

The Contest will be on Saturday 25th August through to Sunday 26th August. It will start at 6.30 UTC and run till 1159 UTC on the Sunday. For those on EST the contest will start at 4.30 pm Saturday and run till 10.30pm on Sunday. In VK5 and VK8 start will be 4.00 pm and close at 10.00 pm the next day. In the West it will be from 2.30pm Saturday to 8.30 Sunday, while in New Zealand the times will be from 6 00 Saturday evening to a minute before midnight on Sunday night. As we did last year we will be able to have repeat contacts with the same station as long as there has been a lapse of an hour since the previous one.

We hope that the longer contest will encourage more stations to take part. We also hope that falling so soon after the Remembrance Day Contest everyone will have their rigs all prepared and ready to run. A Contest that runs for 36 hours is an innovation but with members of ALARA scattered all over the globe it is hoped that this way, for all of them there will be an operating time that suits them, and with two evenings on 80 *metres* the VK stations will have two chances instead of just one to make contact.

Let us make this the best ALARA Contest ever. If not, it may be a case of "use it or lose it" as we have been very disappointed in the number of participants and the number of logs submitted in the last few years.

It is a friendly contest; everyone has time to chat. Please participate.

Computer problems

Having had computer problems over the last few months this list of 'definitions' was apropos.

Log on - make the barbie hotter
Log off - don't add any more wood
Monitor - keeping an eye on the barbie
Download - get the firewood from the ute
Floppy disk - what you get if you lift too much firewood at a time
Window - what you shut when it is cold
Screen - what you use to keep the mozzies out
Byte - what the mozzies do
Bit - what the mozzies did
Megabyte - what the Townsville mozzies do
Chip - a bar snack
Microchip - what is left in the bag after you have eaten the chips
Laptop - where the cat sleeps
Software - plastic knives and forks to save the washing up
Hardware - real stainless steel knives and forks
Mainframe - what holds the shed up
Mouse - what eats the boxes in the shed
Web - what the spiders in the shed make
Web site - the shed or under the verandah
Cursor - the old bloke that swears a lot
User - the neighbour who keeps borrowing things
Server - the person who tells you when the barbie is ready
Mail server - the OM who tells you when the barbie is ready
On line - when you get the laundry hung out
Off line - when the wind blows the clothes off the line
Search engine - what you do when the car won't go
Upgrade - a steep hill

The John Moyle Field Day

Each year in March a number of VK5 YLs who are also members of the Adelaide Hills Amateur Radio Society participate in the Field Day. Although we do spend most of our time on kitchen duties we do also have the opportunity to operate as the photo of Tina VK5TMC on the 40 metre rig shows. Tina's favorite time is in the early morning session before breakfast. Because the Field Day is divided into three hour segments it is important to make some contacts in the 5.30am to 8.30am time slot.

Not everyone likes our Vegemite

In the DL-YL newsletter there was an article written by Gertrud DK8LQ about her first taste of our famous breakfast treat.

Oh dear, she did not like it al all!!

She said it looked like "Nutella" but definitely didn't taste at all like that,

Gertrud was introduced to the delicacy by June VK4SJ who had taken over a basket of Aussie goodies like honey and marmalade, and "Vegemite" for Gertrud and Horst to experience.

We cannot understand why people from the other side of the world do not like our favorite breakfast toast spread, can we?

continued on page 33

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Pseudo Stereo CW Reception

A technique for enabling an operator to separate CW signals by means of stereo like effects has been experimented with for over 40 years.

Those working on the technique have included G6CJ (SK),PA0CX, and G3OTK.

In the Technical Topics column of Pat Hawker G3VA in Rad Com February 2001 Chas Fletcher G3DXZ provided a simple circuit for a pseudo stereo adaptor using a single TL074 quad op amp. The circuit makes use of a pair of self powered computer stereo speakers for the audio output.

The circuit is shown in Fig 1. and it consists of a pair of Sallen Key filters. The filters have a turn over frequency of 600 Hz. There is one low pass filter and one high pass filter. An inverting amplifier is included in one side so as the 600 Hz tones from each side add. The active speaker power supply was used to power the circuit.

The speakers were setup so as to be at two corners of an equilateral triangle with the operator at the third corner. Tones above and below 600 Hz appear to come from the sides with the centre being the 600 Hz beat note of the desired signal. Headphones could be used if desired.

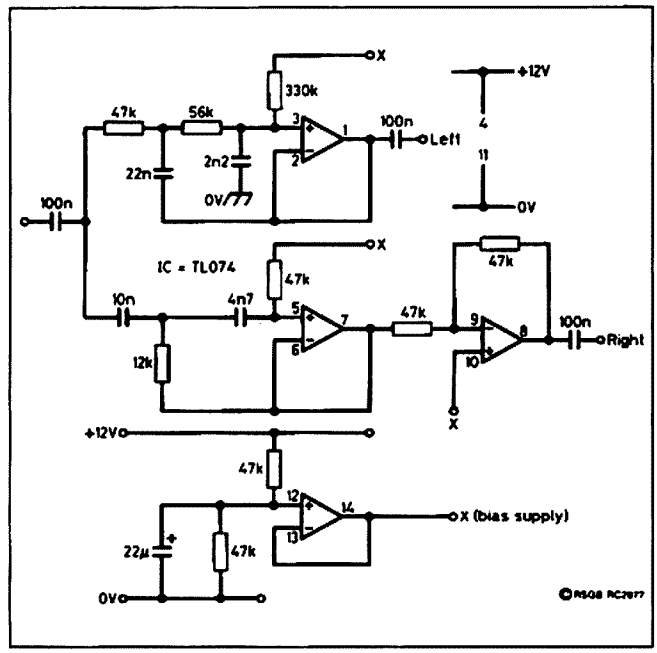


Fig 1. Pseudo Stereo Adaptor.

Preamp Supply Current Limiter

Masthead preamps are often supplied with power through the coax which minimises the cabling required.

However the supply can be a problem if accidentally shorted out when making adjustments. In CQ TV February 2001 John Lawrence GW3JGA described a current limiter circuit for a masthead preamp.

The limiter circuit is shown in Fig 2. The values of L1 and C1 are given for use on the 1296 MHz band. L1 is made from 6 cm of 28 swg enamelled copper wire wound on a 3 mm former so that it is only slightly longer than its diameter.

To set the current limit RV1 is adjusted to a point just before a drop in output voltage is detected. When a short is applied the current will then be limited to only a small amount greater than the preamp draws normally. The circuit resets itself when the short is removed.

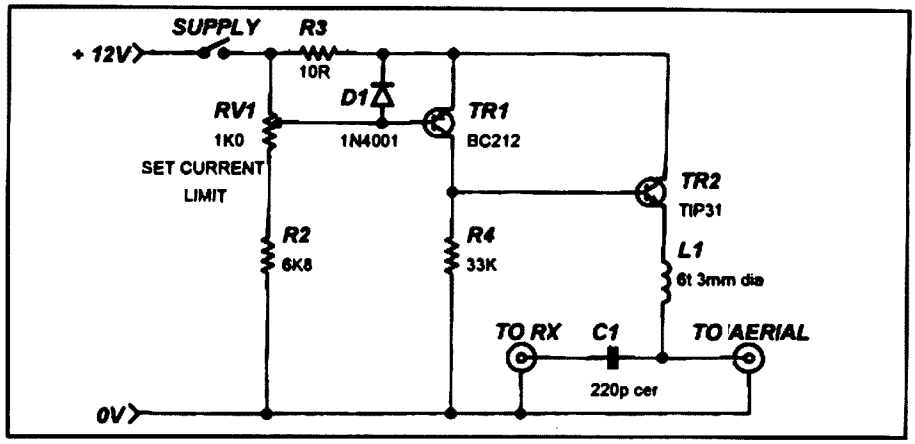


Fig 2. Current Limiter

CAT Interface

A CAT interface for Yaesu transceivers appeared in the October 2000 edition of CQ DL. The author was Hubert Appenmaier DL9GAY. The CAT system is used with many recent Yaesu transceivers such as the FT1000 (not MP) ,FT890, FT840, FT757 GX11 and others. While a Yaesu interface is available you may like to make your own.

The circuit of the interface is given in Fig 3. The interface is a simple circuit which goes between the computer serial port and the transceiver CAT socket. A control program is required to allow control of the transceiver from the computer.

The capacitors are 10 mF electrolytics and tantalum electrolytics with a working voltage of 16 Volts or greater would be suitable. The other components are all standard parts and should present no difficulty.

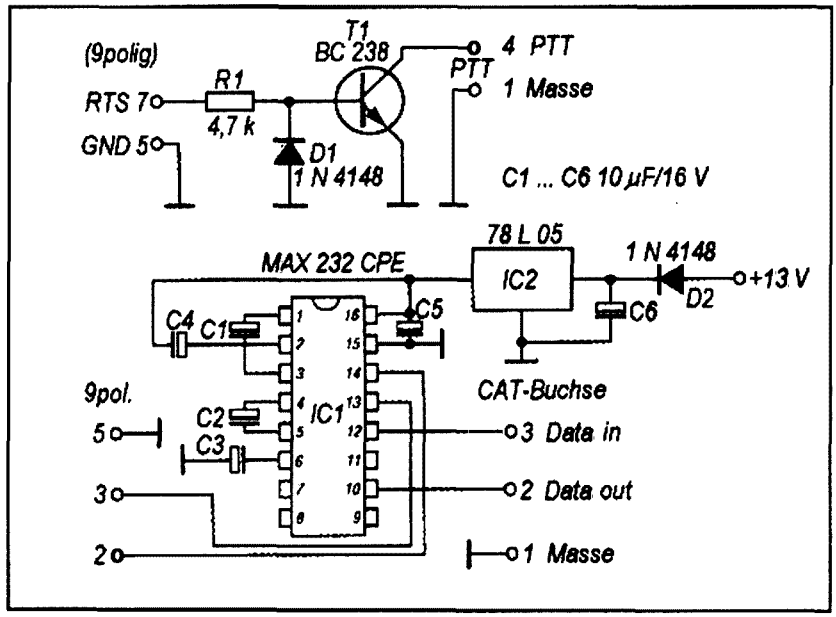


Fig 3. CAT Interface.

Optoisolated Icom CI-V Bus Interface

An interface circuit for the Icom CI-V bus appeared in the January 2001 edition of CQ DL. The author was Bernie Arndt DF4NR. The circuit features optoisolation between the transceiver and the computer serial port.

The circuit is shown in Fig 4. The parts used are all commonly available and those not given in Fig 4 are given in Table 1. Substitutions should not be a problem.

Table 1

C1	1mF 25VW
D1,D2	1N4148
D3	4.7 V Zener
IC1	74HCT04
R1,R4	390 Ohm
R2	3.9 KOhm
R3	4.7 KOhm
OK1, OK2	4N35, CNY17-4

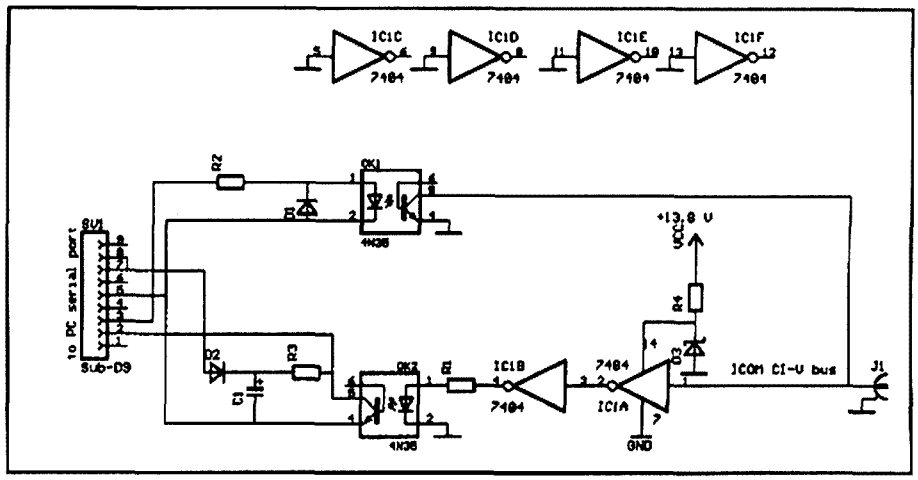


Fig 4. Optoisolated CI-V Bus Interface.

Federal Awards

***G.A. Taylor Award* for service to Amateur Radio to**

Neil Penfold VK6NC (Neil Penfold VK6NE)...correction

***Ron Wilkinson Achievement Award* to**

Trevor Niven VK5NC, Russell Lemkie VK3ZQB and Colin Hutchinson VK5DK for their experimental work at 25GHz

AMSAT

Bill Magnusson VK3JT

Renewed Interest in Oscar-10

AMSAT's new high-orbit "flag-ship" Amsat-Oscar-40 has stolen the limelight recently but it's as well to remember that the old faithful Oscar-10 is still up and running and providing some good DX for those willing to study and comply with its idiosyncrasies.

AO-10 caused great excitement when it was successfully launched in June 1983 and opened for general use a short time later. All previous amateur radio satellites had been in Low Earth Orbit (LEO). Twenty minutes access time was considered to be excellent.

Oscar-7 held the record at that time. Its LEO orbit allowed a maximum access time of about 26 minutes on an overhead pass. The high altitude, highly elliptical orbit of Oscar-10 meant we had to re-think our operating practices. Until that time most operators did not have a computer. We predicted when a satellite was due to rise by simply adding 90 or so minutes to the last rise time and had little idea where it was in the sky except that the passes advanced from east through overhead to west.

Chart-like devices with transparent overlays such as the "Oscar-Locator" were useful but limited. Oscar-10 forced us to consider squint angles, transponder schedules, mutual DX footprints, better tracking and prediction methods and higher gain antennas. The rewards were many. Access times measured in hours instead of minutes. Strong, fade-free signals from overseas stations. Oscar-10's performance surpassed even the most optimistic predictions. For one test I used a 22 element cross-yagi on 145 MHz for reception and an uplink power of only 100 milliwatts into a 435 MHz, 20 turn helix antenna.

This 'flea-power' was not guess work Graeme VK3NE was with me at our favorite holiday location near Eden, NSW. We fed a measured 10 W into the antenna via Graeme's professionally calibrated 20dB attenuator which was valid to 4GHz. Ten Watts was as low as I could crank my power level down and with that much power going directly to the antenna, the signal was booming back louder than the beacon, too loud. I was in danger of overloading the satellite receiver's AGC.

We tried 10dB attenuation first and with only one watt of uplink power the return signal was still louder than the beacon. The 20dB of attenuation did the trick and the return signal was about S-5 and perfectly readable. And Oscar-10 was near apogee and over 40 000 km away, "hovering' in the sky, requiring only infrequent manual corrections to the antenna direction. You could easily have a 15 minute DX contact anywhere into its giant, almost hemisphere-wide footprint without shifting the beams. In those heady days AO-10 was still under full control and the squint angle was optimal at apogee. That is, the satellite's antennas were looking straight at us, the squint angle was zero degrees.

Many home-brew stations used equipment built from kits with power outputs as low as a watt or two.

Oscar-10's "mode-L" transponder was a real ground breaker too. It introduced many amateur radio satellite operators to the exciting world of microwave communications. It would be another 5 years before Oscar-13 was to take the microwave scene one step further to "mode-S", 2.4GHz. The French satellite Arsene briefly provided a similar opportunity a couple of years later. AO-10, AO-13 and Arsene were responsible for a huge upsurge of interest in the microwave region among amateur radio satellite buffs. This is receiving a further boost today in AO-40.

Although I had a flutter on AO-10's mode-L, my first serious venture into microwave work was with AO-13 and then later Arsene. Their 2.4 GHz transmitters provided good signal strengths to well equipped stations. I used a 1.6 metre dish with a G3RUH designed two and a quarter turn helix feed. The 0.8dB noise figure pre-amp was fixed directly to the helix resulting in a system that could hear about 6dB of sun-noise in CW mode and the "S" mode transponder signals were around S-9 with an overall system noise floor of about S 2-3. The dish is still in use on AO-40. When its mode L/S system is activated, indications are that signals will be even stronger than those of the previous high orbit satellites. My dish is still ground mounted and manually aimed but this presents no problem when the satellite is at or near apogee and DX opportunity greatest. The satellite is barely moving in the sky., so manual pointing is an effective option. The 3-axis stabilization on AO-40 will make it more desirable to have a tracking system for the dish but, for the moment it will be staying on the ground. It's hard to describe just how good "S" band is as a downlink. There is no man-made noise or atmospheric static. Just a gentle hiss coming from the loudspeaker. The signals stand right out and even quite weak ones are readily readable.

Due to a launch problem, Oscar-10 spent more time than planned where it

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA. 5001.
Graham's email address is:
vk5agr@amsat.org

suffered seriously from radiation damage. Finally after 3 years of service, the main computer memory gave up as more and more memory cells were corrupted and the ground stations lost control. The batteries ran down because AO-10's solar panels could no longer be oriented to the Sun. Since that time AO-10 has been at the mercy of the natural drifting of its orbit and its attitude. It "goes to sleep" when the solar panels are not lit and comes back to life when they are once again in sunlight. The batteries have long since lost their ability to store energy so this switching often happens rather quickly.

Oscar-10's situation puts severe limitations on the times effective communications can be achieved. You have to be prepared to study and recognize these if you are to do any good . But it can be done and many good DX contacts are being held daily. There are two main tests you can do. First, listen for the beacon transmitter around 145.810MHz. The beacon should be well above your noise floor and if so, you will notice a slow rhythmic fading. The satellite's spin rate has dropped to almost zero and it will probably be the pitching and yawing which will be causing the fades. The second important thing is to listen carefully for any signs of a change in the frequency of the beacon. The most likely cause of this will be uplink signals causing the voltage to drop to the downlink transmitter at times when the solar panels are barely supplying the transponder with enough power. The effect is called FM-ing because to some extent it frequency-modulates the beacon and all signals in the passband. If you hear this effect in operation or if it happens when you uplink a signal yourself, please do not use Oscar-10. The presence of another signal in the uplink passband can only make matters worse. Try another time. If you can hear the beacon loud, clear and steady (it is an un-modulated carrier most of the time) then it may be OK to try uplinking a signal and listening for your downlink.

The attitude of the spacecraft is unknown. It could be pointing anywhere, and probably not directly at you. Oscar-10 is half a metre thick and roughly triangular. Most of the antennas are on one of its 'triangular' surfaces which used to be directed at Earth when AO-10 was under control. There are two antenna systems for 2 metre operation. An omni-directional whip and a high-gain system consisting of 3 mono-poles with reflectors. The mono-poles are too big to be located with the other antennas and they stick out around the circumference of the spacecraft on the points of the 'triangle'. Effectively this means that you can "see" the two metre antennas at most times whatever the attitude of AO-10 and whichever system, omni or high gain happens to be randomly turned on. The 70cm receiving antenna however could be on the other side of AO-10 when you are listening, so you would receive a good signal from the beacon but not be able to "get-into" AO-10 even with very high power.

Another odd effect is due to AO-10 presenting a different aspect or attitude to widely separated stations. Operators in America or Europe for example would probably not "see" AO-10 in the same attitude as those in Australia. Operating conditions would be quite different. One station may be able to hear their own signal and that of the DX station (and the beacon) quite well and yet the DX station, even though hearing you strongly, may not be able to make themselves heard through the satellite at all. Occasionally AO-10 will be in the right attitude to service both ends of a contact equally well. Then it is a pleasure to operate on Oscar-10 but the conditions can change rapidly. So be prepared. Listen carefully to the beacon first and then scan over the passband. Don't waste your time if you can't hear the beacon or your own downlink. If you persevere you will be rewarded with some fine DX contacts on the ol' faithful Oscar-10 ... still going strong in space since June-16, 1983. The only mode in operation is the old "Mode-B", that is 70cm band uplink and two-metre band downlink. The uplink passband (your transmitting band) extends from 435.030 to 435.180 MHz. The downlink passband (your listening band) extends from 145.825 to 145.975 MHz.

One other point to remember. The transponder inverts the uplink passband. This means that a signal near the bottom end of the uplink band would appear near the top end of the downlink band. Most QSOs start around the middle of the passband for this reason and this is as good a place as any to begin listening for signals. Another effect of the inversion is that a lower sideband SSB uplink signal will appear in the downlink as an upper sideband signal. This is the preferred operating mode, LSB up and therefore USB down. Expect to hear upper sideband signals in the two metre downlink passband. SSB and CW are the preferred operating modes on AO-10. Continuous modes like FM and AM should not be used. More exotic continuous modes like SSTV, RTTY or PSK31 would be pushing things a bit now that AO-10's batteries are defunct and it is reliant on a constant supply of sunshine for its operation. Actually they were never encouraged on AO-10 or on AO-13. Inversion of the passband is a common practice on amateur radio satellites. It is used to partially counteract the effects of Doppler shift. At nearly 18 years of age, Oscar-10 is the oldest amateur radio satellite still in operation. It has outlasted many of its younger companions in orbit. Next in line is UO-11, launched the following year and still going strong. As Oscar-10 moves closer to its 20 year anniversary it is nice to see a resurgence of activity on this remarkable, veteran amateur radio satellite. Try it yourself. It would be a nice way of saying thank you to the team of amateurs who conceived, designed, built, tested, launched, commissioned and maintained Amsat-Oscar-10 so long ago...but, don't expect to do it using 100 mW !!

Oscar-40 Developments.

The commissioning of Oscar -40 is moving quickly and critical events occur almost daily. The information is available on the Internet and on the Packet Network, but the latter requires someone to do the transfer from the Internet source. So if you are serious subscribe to the AMSAT-BB email service on the AMSAT-NA website, http://www.amsat.org, or just regularly check this web site. One of the satellite's transponder combinations should be opened for experimental service soon. This will most likely be mode L/S, 1.2GHz up and 2.4GHz down. Given the discussion on the AMSAT-BB, mode L/S will be very popular. There has been much swapping of ideas on aerials, pre-amps, converters and radios for use on these frequencies recently. I'll devote some space in next month's column to details of my own preparations for this mode and some other people's thoughts on this topic.

ar

DON'T MISS THE ACTION!

NEW FOR 2001

YAESU

Yaesu FT-1000MP Mark V Deluxe HF Base Station

Yaesu is proud to enter a new chapter in the history books with the release of the new premier-class MARK-V FT-1000MP. Offering new features such as 200W PEP RF output, a Class-A RF power amplifier, interlocked Digital Bandwidth Tracking, a variable RF front-end preselector filter and improved control layouts, the MARK-V represents the highest overall performance ever offered in a Yaesu HF transceiver. Whether your interest is in ragchewing or contest operation, the MARK-V's outstanding hybrid analogue/DSP receiver IF chain incorporating a new 10 pole Collins SSB filter and the use of Enhanced Digital Signal Processing (EDSP) with improved front panel access provides dramatic improvements in readability under tough conditions. For ease of use, the new MARK-V uses an external FP-29 power supply which can be mounted next to the transceiver, or under your operating desk. Yaesu's IF-based EDSP system provides noise-reduction protocols, audio enhancement with equalisation programs for Tx and Rx use and an automatic notch filter which identifies and eliminates multiple interfering carriers. The MARK-V FT-1000MP also features selectable receiver front-ends, High-stability Reference Oscillator, an internal high-power auto antenna tuner, two main antenna sockets, selectable tuning steps as small as 0.625Hz, dual-mode noise blankers, 500Hz and 6kHz IF filters, an RS-232C computer interface, plus easy digital mode interfacing. With so many new and improved features, why not ask for a copy of the 8 page colour brochure today to learn more about this amazing new transceiver.

D 3450

On display at selected PowerHouse stores only. Please call for details.

$6500

2508 DPS S/COL

DON'T MISS THE ACTION!

YAESU VX-150 5W 2m handheld

Compact yet incredibly rugged, the new Yaesu VX-150 2m handheld is designed to perform under the most demanding conditions. The VX-150's diecast aluminium case provides excellent transmitter heatsinking, allowing 5W RF output as standard, while assisting the radio to meet the tough US MIL-STD 810D/E shock and vibration ratings. A large high-output speaker, heavy-duty belt-clip plus illuminated keypad and LCD screen make the VX-150 a pleasure to use.

Features:

- Tx: 144-148MHz, Rx: 140-174MHz • RF Output: 5W with supplied 700mA/h NiCad pack
- Direct keypad frequency entry, CTCSS and DCS encode/decode, battery voltage metering
- Simple Menu system • Over 200 memories • 7 digit Alpha-numeric memory labelling
- Tx and Rx Battery Savers • Case measures just 58 x 108.5 x 26.5mm WHD
- Comes with FNB-64 7.2V 700mA/h NiCad, flexible antenna, and overnight AC charger

D 3648

2 year warranty

$345

NEW FOR 2001

NEW FOR 2001

YAESU FT-1500M Heavy Duty 2m FM Mobile

Another Yaesu transceiver breakthrough, the new FT-1500M blends an efficient transmitter with an almost bullet-proof receiver front end, and is packaged in rugged die-cast aluminium casing. You get powerful 50W RF output, direct keypad frequency entry, Alpha-numeric memory labelling, easy data interfacing, and much, much more.

- Transceiver coverage of the 2m Amateur band (144-148MHz), with extended receiver coverage of the 137-174MHz range.
- 50W RF output, with selectable 5, 10, or 25W lower power levels. The efficient PA stage only draws 8A at 13.8V DC for full RF power output.
- High-performance receiver front-end circuitry using Yaesu's renowned Advanced Track Tuning (ATT) tracking bandpass filter design.
- Includes MH-48B6J DTMF microphone for direct keypad frequency entry, plus convenient Menus with 35 "set and forget" functions.
- 149 memories are provided, with 130 regular memories, 9 pairs of sub-band memories, and an instant recall "Home" memory.
- Additional features: Supply Voltage Display, transmit Time-Out Timer, Auto Power Off, and S-meter RF Squelch.

D 3638

2 year warranty

$399

SAVE $37

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

PHONE FAX AND MAIL ORDERS

direct link

PHONE: Within Australia: 1300 366 644 (Local call charge)

FAX: (02) 9642 9155 within Australia and (+612) 9642 9155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 500, PO Box 500, Regents Park DC NSW 2143 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 30/6/2001. All prices shown are in Australian dollars and are inclusive of GST.

2508 DPS S:COL

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK2 Division News South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Bany White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9289
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Bany Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Colin Gladstone	VK4ACG
Secretary	David Jones	VK4OF
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
web:*http://www.sant.wia.org.au*

President	David Minchin	VK5KK
Secretary	t.b.a.	
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@linet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http://www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.30pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $56.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East. 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 14€ 700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $69.00 Pensioner or student $59.00. Without *Amateur Radio* $38.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $88.00 Pensioner or student $75.00. Without *Amateur Radio* $55.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

Division News

VK2 Notes

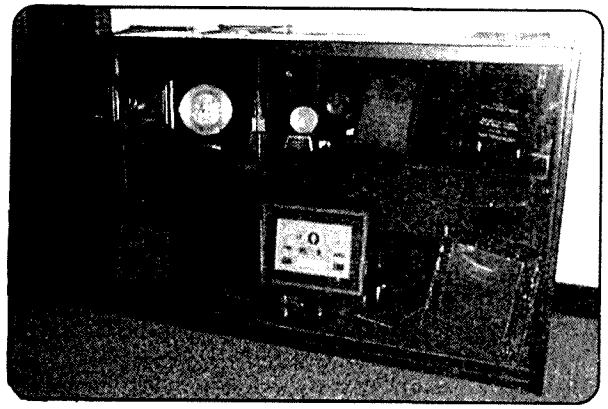
Pat Leeper VK2JPA

By the time this gets to print there will be a new VK2 Divisional Council. There was no need for an election as only nine members nominated for the nine Council positions.

The new councillors are : Terry Davies VK2KDK, Brian Kelly VK2WBK, Patricia Leeper VK2JPA, Geoff McGrorey-Clark VK2EO, Chris Minahan VK2EJ, Andrew Scott VK2TWO, John Turner VK2WRT, Ken Westerman, Barry White.

At the Annual General meeting, Peter Naish, the out-going Federal president, will unveil the mementos presented to the WIA as host at the IARU Region 3 Conference in Darwin last year. They will remain on display in the VK2 premises.

That's all for this month, perhaps there will be a new correspondent for VK2 next month.



"QRM"VK7 notes

Ron Churcher, VK7RN

First – a notice for anyone sending mail to the VK7 division. We have received notice from the postman that all suffixes are now redundant on postbox addresses so now it's just P.O. Box 371, Hobart.

During the early part of April interesting atmospheric conditions prevailed over Bass Strait resulting in mainland 2 metre amateurs and repeaters becoming "local" in northern Tasmania. 6 metres was also a good band. It would be great if it could stay that way.

Our Hobart branch had a very busy time early April when they manned a WIA information stand at a big Hobby Exhibition at the Derwent Entertainment Centre. The stand was in a very prominent position in the foyer and showcased all aspects of our hobby. The organizer, VK7JGD, said that they felt it was one of the best ever PR activities and thanked the large number of amateurs who rallied to the cause. As a result the exam classes now running in Hobart under the direction of Richard Rogers, VK7RO, are expected to result in many more amateurs on air in the future.

Our repeaters, being in very exposed conditions on mountain tops , while giving very good coverage, are liable to weather damage. VK7RMD on Mt. Duncan in the north-west's Dial Range needs some TLC on its antennas but also needs able bodied men to climb the 3 ' thousand feet to administer it. Some of us are getting a bit long in the tooth for the exertion. Joe, VK7JG, now has the Mt. Barrow (1470m) east of Launceston in better than ever condition and working into over half of Tasmania well.

We are fortunate in having Rex Moncur, VK7OM, making a study of EMR as it affects amateurs and the new ACA guidelines. He has addressed the Southern and the North-west branches so far and is speaking at the May meeting in Launceston. In his very practical way of explaining these guidelines he answered a lot of out queries on the ramifications for our own stations.

Cheers for now, Ron Churcher, VK7RN

VK4 Notes

Qnews

by Alistair Elrick VK4MV

Thank you Gordon

WIA Federal IARUMS Coordinator, Gordon Loveday VK4KAL, has retired after many years in this position, concentrating on the identification and removal of intruders from the exclusive HF amateur bands.

This can at times be a thankless job, with very few intruder reports from the general Amateur fraternity to back up the application to have these intruders removed. Yet many Amateurs benefit from such removals.

WIA Victoria President, Jim VK3PC, said, "the years of dedicated voluntary work performed by Gordon VK4KAL needs to be recognised and acknowledged".

Initially Gordon was the VK4 Intruder Watch Coordinator before being elevated to VK Coordinator, one in which he set goals including an increase in Intruder Watch Observers throughout Australia.

Gordon, all radio amateurs owe you a debt of gratitude. Please look back on your time at IARUMS Coordinator as being a success

WIAQ QSL Bureau

Shirley Gulley and husband David, VK4DCG, run the Inwards Bureau. Where as the Outwards bureau is operated by Steve Campbell VK4SRC with the help of XYL Kaylene.

Please ensure that all mail to the bureau is marked either Inwards or Outwards, not just to the QSL Bureau. A return address also makes it easier to record the article in the mail log. All mail SHOULD always be sent to the official PO Box, as per the latest Division Directory page in AR, NOT home addresses.

Dalby And District

TeleText page 910

Mike VK4XT says the Dalby club has a Transworld repeater, but he's lacking info on the beast! If you know ANYTHING about Transworld repeaters please contact Dalby and VK4XT.

Their Transworld is currently on 153/158 MHz. The repeater is made up of separate transmitter and receiver. The labels say Serial No# TM101A 4A027.for TX and No# RM101A 4A033 for RX.

To convert it to an amateur band repeater a copy of the circuit diagrams and specs would make life much easier. Of course a copy of some sort of service manual would be even better. Again that's Mike VK4XT of the Dalby AR Club DALBY AND DISTRICT. President is Reg VK4AQU Phone (07) 4662 2193

Sunshine Coast

TeleText page 909

http://www.ozemail.com.au/~vk4len/scarc/

Last month the 146.850 MHz repeater was returned to the hill in the pouring rain and mist by vk4swc and vk4alf. All cavities having been stripped, cleaned and realigned by VK4ARU.

The clubs 438.075 MHz repeater is only operating on a 4.5 dB gain antenna and tests are continuing with the 438.175 MHz repeater at Noosa, linked to 146.850 MHz.

It's a bird, it's a plane it's a Presidential Plane no less!

The President of the Tablelands Radio and Electronics Club, Bill VK4WL, appeared in the sky during the 2001 Easter break. He had taken delivery of his new ultralight aircraft and after getting aquainted with the new bird flew up the coast back to his home at Mareeba FNQ.

Bill had his FT-530 onboard set up for 2m and 70cm operations scanning 146.5MHz as a priority channel and if plans to activate several repeaters during his flight are successful, then it could be the start of many more high level contacts. So, keep your ear on ch50 or your local repeater for Bill VK4WL, Aeronautical Mobile!

Radio scouting

http://jota.scouting.net.au

It was standing room only at the Queensland Scout Centre recently where a throng of well wishers, family, and Scouting VIP's gathered to witness the investiture of Ross Tutin as a Leader, and his appointment as QLD JOTA/JOTI Co-ordinator.

After completing Year 12 in Toowoomba last year, Ross is now resident in

Brisbane, where he is undertaking tertiary studies.

Last year Ross was appointed assistant to the QLD JOTA/JOTI Co-ordinator, and was awarded the Queen's Scout. Earlier this year he attended the 8th National JOTA/JOTI Conference where he represented QLD and recorded the Conference minutes.

A 'telegram' from the National Co-ordinator, JOTA/JOTI and outgoing QLD JOTA/JOTI Co-ordinator, Steve Watson VK4SGW was read out by Branch Commissioner Youth Activities, and past QLD JOTA Co-ordinator, Ian Lightbody.

Addressing the crowd, Ian affirmed his confidence in Ross stating 'JOTA and JOTI are in safe hands'. All showed their approval by raising the roof with a shattering "BRAVO"!

Tower Problem

WIAQ Past-President Col Gladstone VK4ACG received a visit from Brisbane Town Planning people about his antenna array and upon receipt of a letter of instruction, will have two months to dismantle his antenna mast and structure.

Federal Councilor for WIAQ, David Jones VK4OF, Emailed Brisbane City Council official Juergen Hamisch, requesting a meeting immediately and advised him that the WIAQ will not accept such unannounced visits, especially from officers whose standards of courtesy require more than was done. David, working on tower matters for Col and also Ken Fuller visited Brisbane City Town Planning with Col and had a lengthy session with senior officials.

The outcome overcame Col's problem and defined the standard building codes in relation to AR masts. This being the right to a 10 metre structure if the mast is freestanding (in their terms this means more than a metre from the class 1

dwelling), or 3.5 metres above the roofline if attached. Negotiations clarified that the mast is often attached at fascias, but that the 10 metres or 3.5 metres would still be applicable. This would take account of those with steeply sloping blocks.

The submission made would go with all others to Town Planning assessment, when next the town plan was reviewed. The officer was reasonably happy with the suggestions made, and considered the approach was reasonable. However, objections will still have to be allowed.

David will be meeting with the Deputy Mayor and Town Planning people of Pine Shire next, regarding the same issue.

73's from Alistair

VK3 Notes

Website www.wiavic.org.au Email wiavic@wiavic.org.au

By Jim Linton VK3PC

WIA Victoria AGM

A reminder that the Annual General Meeting will be held on Wednesday, 23 May, 2001.

An official notification and annual reports were supplied to financial members last month. See you at the AGM.

Science Show

WIA Victoria has been working with metropolitan radio club presidents to look at the viability of running an amateur radio stand at the Great Australian Science Show in August.

The show held at the Melbourne Convention Centre runs for several days and is visited by thousands of school students and teachers. WIA Victoria has made a tenative booking of a stand. It is an excellent opportunity to expose our hobby. If sufficient sponsorship and voluntary labour support can be found, this major public relations project will go ahead.

Meetings of club presidents were held on 4 and 18 of April, and indications are that there is support among the amateur radio fraternity for the venue. Further meetings will be held, and industry sponsorship that is vital for the exercise is to be sought.

Celebrating the Centenary of Federation

WIA Victoria is planning a special event station to participate in the Centennial of Federation, with an emphasis on the role radio communications has played in the creation of our nation. Activation of a special event station by WIA Victoria will give due recognition to Australian amateur wireless experimenter H. Walter Jenvey.

ALARA (continued)

Some travellers' tales

Mary VK5AMD (and her OM Murray) spent a fortnight in the Philippines with a group taking Christ to kids. They met a lot of people, mostly away from the cities, and played a lot of games with the children while they shared their beliefs with them. In an earlier issue of AR Mention of Mary's kids club activities was made. She and Murray are very inventive in the field of entertainment for children. Their own kids must have had a marvelous growing up time.

It was their first trip overseas at all, so it was all a new experience. What amazed Mary the most was the traffic, the speed at which it went and the almost continuous use of the horns by the drivers.. The noise was horrendous yet it seemed to have the right effect. Mary also realised that, despite all the cars on the road almost none of them had dents!!!

Meg VK5YG and her OM David VK5OV's trip to Malaysia overlapped that of Mary. They were also amazed at the traffic, with pedestrians, man-carts, animals as well as cars, yet the traffic moved without any blockages.

Both of the travelers commented on the high humidity, which for South Australians is not the norm, but both also said you become accustomed to it after a while.

Most of our travellers' tales are of Europe of the UK so it has and will be interesting to hear more about Asia through their eyes on the Monday night Nets during the next few weeks.

Warning

If you are sending any cheques to our Treasurer, Bev VK4NBC, be aware that there is a new hazard in her household these days.

Meg VK5YG sent her renewal of subs with a cheque to Bev. A few days later she had a phone call. A very apologetic voice told her that the cheque had disappeared – into the tummy of one of the two puppies!!

Do not believe the innocent expressions on their faces>

Beyond Our Shores

David Pilley VK2AYD
Davpil@midcoast.com.au

Is there anyone out there?

I was hoping by now that I would have some feed back from members who subscribed to other world radio societies, but so far, no luck. March/April has been pretty quiet beyond our shores – it's a pity that the HF bands were much the same.

World Prices

Looking through the March editions of "QST" and the UK "RadCom", I began to wonder how the prices of Amateur Radio equipment compared with our own, especially with our dollar being at it's all time low.

I've tabled a few prices below. It is very hard to make comparisons with our own prices when only a few Amateur Radio stores in Australia advertise in A-R. They have obviously never heard of the great marketing cry "You've got to tell it to sell it" because "If you don't tell it you won't sell it". (My war cry when I was "in the business"). However, back to comparisons. In the prices below I have added 6% to the advertised U.S.A. prices as all States have Sales Tax and 6% is about average. The U.K. prices include their VAT (GST). For exchange rates I have used A$1.00 = US$0.50 and UKP0.35.

	US$ =	A$	UKP =	A$	A$
FT1500M	212	424	229	654	399
FT90R	392	784	309	883	599
FT920	1420	2840	1099	3140	2750
IC756PRP	2968	5936	1895	5414	6579
IC746	1378	2756	1395	3985	3420

As you can see, we get a pretty good deal on some equipment. Thank goodness we don't have to pay U.K prices.

Amateur Radio in Japan

The following was obtained from the JARL web site.

It appears that the Japanese were quite late starters to enter the field of Amateur Radio. According to the JARL, it was not until 1925 that unlicensed hams first started experimenting and researching Amateur Radio. The JARL was inaugurated in 1926 (this must be their 75th anniversary). In 1927 about 10 private experimental radio-telegraphy/ radio telephone stations were licensed JXAX (kankichi kusama) by the Government. The J1 – J9 prefixes were allocated by territory. These were subjected to strict regulations regarding frequency, power and operating procedures. Just before the outbreak of WW II there were only about 300 stations officially licensed. During the war these stations were of course closed. After the war the ban was lifted for reception only and it was not until 1952 that 30 stations were granted provisional licences. This spurred a very rapid increase and by 1994 there were over 1.4 million licensed Amateurs. To-day there are over 1.6 million, which is close to 50% of the world Amateur Radio population.

Japan has four grades of licence and they are known as the First, Second, Third and Fourth Class. Licences are renewable every 5 years at a cost of 500 yen. However an alien licence has to be renewed yearly. Applicants for a licence are subjected to examinations similar to our own. For the first 3 classes you need to know the Morse Code. First Class licence permits 1kW on HF, Second Class licence permits 200 watts and the Third Class licence only permits 50 watts with Telegraphy only. The Fourth Class is a Telephony only with a maximum of 10 watts. The Amateur Bands are similar to our own, except for 40 metres which is restricted to 7 – 7.1 MHz and 2 metres 144 – 146 MHz.

Visiting Japan

Yes! You can obtain permission to operate there. Applications have to be made through the JARL and can be obtained by e-mail from intl@jarl.or.jp The JARL recommend you request a Portable/Mobile 50 watt licence so that you can use it anywhere in Japan. If you do decide you want a high power fixed station then be prepared for a big questionaire, which will involve the station being inspected before operation.

The cost of the /P/M licence is 7200 yen.

RSGB makes Historic Changes

For the first time in 47 years the RSGB has made extensive changes to the Society's structure. 12 Regional Managers have been appointed and they will constitute the new "Board of Directors". This new structure has been designed to increase the Society's representation right across the United Kingdom and to strengthen the management of the Society in all aspects of its work. (Perhaps the WIA Board may like to review this for planning our future. Copies of the new Memorandum and Articles of Association and related Bylaws are available from the RSGB).

A Sad Loss

I expect many of you, like me, have enjoyed over the years the wonderful antenna books such as "The Quad Antenna", that was written by Bill Orr, W6SAI. Bill passed away on 24 January at the age of 81 but his books will be with us for many more years to come.

Europe Adopts 5 WPM

Europe Adopts 5 WPM as Morse Code Standard: The Conference of Postal and Telecommunications Administrations—CEPT—has effectively lowered the Amateur Radio Morse code test speed to 5 WPM for all European countries. The CEPT Radio Regulatory Working Group (WGRR), meeting last month in The Hague, adopted a revision of Recommendation 61-02 to include the 5- WPM standard.

The European Radiocommunication Office published the revised version of T/R 61-02 this month. The revision,

which establishes requirements for the issuance of a Harmonised Amateur Radio Examination Certificate (HAREC), reduces the Morse requirement from 12 WPM. "In revising what is known as the CEPT Recommendation T/R 61-02, it has in effect recommended to 44 European countries to adopt the 5 WPM standard," said Wireless Institute of Australia-Victoria President Jim Linton, VK3PC, who closely follows global developments in Amateur Radio Morse code trends. Additional information is available on Linton's Morse code watch site, http://www.wiavic.org.au/mcw .

More information on CEPT is on the ERO Web site, http://www.ero.dk .

"Boing Boing" Signals

I wonder how many of you suffered the "Boing Boing" QRM on the 12 metre band in early March? I was quite fascinated with it as it covered precisely only from 24890 to 24990 kHz. the entire 12 metre band It didn't really interfere with QSO's on the band, it just had this annoying noise that has been described as a noisy spring or a un-tuned guitar string ! The ARRL set the FCC watchdogs onto it and, thanks to successful direction-finding and identification by the FCC, it was eventually traced as a CODAR (Coastal Oceanic Dynamics Applications Radar) transmitter emanating from Honduras. (CODAR is a specific type of HF radar used to map ocean surface currents in coastal zones). The diplomatic efforts of the FCC set the wheels in motion and it was quickly removed from the 12 metre band with apologies. It seems the operator had dialed the wrong frequency!

(Just before going to press with this, "Boing Boing" was back in the 12 metre band – perhaps he is just now beaming in this direction).

In case you were not aware, the HF band segments exclusively allocated to the Amateur Service worldwide are 7000-7100, 14000-14250, 21000-21450, 24890-24990 and 28000-29700 kHz. There sure is a lot of housekeeping needed, especially in our 10 metre band.

WRTC

It has been announced that the next World Radiosport Team Championship will be held in Finland in July 2002 and is being organised by the Contest Club of Finland (CCF) and the Finnish Amateur Radio League (SARL). The contest stations will be located in the Helsinki area. In 1994 it was held at Seattle, Washington, USA. In 1996 at San Francisco and in 2000 in Slovenia. This is a HF event that is integrated with the IARU Contest held in July of each year and is both a CW and SSB event. Between 45 and 50 two-men teams will compete on a 'level' playing field, all having similar equipment. A great itinerary has already been prepared for both competitors and visitors covering the period from July 9 to 16. More information can be obtained on the Internet at www.wrtc2002.org

In both 1996 and 2000, Australia had a 2 man team competing. Wouldn't it be great if Australia could host such an event? We could offer the famous Traeger pedal powered equipment and set it all up in the outback...! Great tourist attraction!

WRC

The World Radiocommunications Conference is scheduled for June 2003 and is expected to be held in Caracas. This is possibly the most important Conference held that directly has a bearing on the Radio Amateur service. Amateur Radio Societies overseas are already meeting to with study groups and task groups preparing their strategies and requirements to be placed in front of their respective government authorities. Of course the exclusion of Morse Code is very prominent on most agenda. I see in April "QST" that the ARRL have concern on the retention of the 300 kHz in the 40 metre band and offer support that this be established for all IARU Regions. Our 70 cm band is again under the spotlight with the earth exploration satellite service seeking frequencies around 435 MHz. Our strength is in our own Society.

Migrating Birds

In the ARRL News Letter recently there was a request for volunteers to monitor and track tagged Canadian burrowing owls. It appears they migrate from Canada to as far south as Texas and Mexico. The tag frequency is 172 MHz. So if by chance you hear a strange warble on this frequency, contact K0OV. The mind boggles at the thought of tagging a few Galahs with a 145 MHz transmitter and letting them loose at the next DF Field Day!

NZART 75th Jubilee Conference – Auckland – 1st to 3rd June 2001

75th Jubilee Conference time is getting close.

The venue is the top class Alexandra Park Function Centre adjacent to Auckland's historic Cornwall Park and One Tree Hill. Easy to reach, plenty of parking and central to just about everywhere in Auckland.

Lester Earnshaw KB7FA, Author and President of Kachina Communications will be a keynote speaker at the Conference. A pioneer of the early development of SSB/HF communications in NZ now lives in the USA.

Forums and section AGM's will cover many aspects of amateur radio and related topics- AMSAT, SPAM, OTC, WARO, AREC, Digital Modes & Frequency Standards, Satellite working, VHF Contests, ATV, ARPS & GPS, CD & LandSAR. Trade and information displays will be accessible for the general public.

Alternative programs have been planned to take in a variety of Auckland attractions, and the Waiheke Wine Trail should provide a memorable outing for those participating.

Dinner on Saturday and Sunday will be held in the Top of the Park restaurant, with Saturday night guest speaker Phillip Sherry, and another evening of entertainment and fun on Sunday night.

There will be $10 discount for full weekend registrations received before 19th May.

Remember, registration for this NZART's 75th Jubilee Conference is not restricted to NZART members or Amateurs, so encourage anyone interested to come along and join in the action.

If you plan to travel the Tasman to attend this great event you can obtain registration forms and information from the NZART website http://www.nzart.org.nz/nzart, or write to 2001 Conference Committee, C/- P.O. Box 10-138, Dominion Road, Auckland. 1030.

ar

Contests

Contest Calendar May – July 2001

May	5	VK/Trans-Tasman 80m Contest	(CW/SSB)	(Apr 01)
May	5/6	Ten-Ten Intl. Spring QSO Party	(CW/RTTY)	
May	5/6	ARI Intl. DX Contest	(CW/SSB/RTTY)	
May	12/13	VOLTA WW RTTY Contest		
May	12/13	CQ-M Intl. DX Contest	(CW/SSB/SSTV)	
May	26/27	Anatolian RTTY WW Contest		
May	26/27	CQ WW WPX Contest	(CW)	(Feb 01)
June	9	QRP Day	(CW)	(May 01)
June	9	Portugal Day Contest	(SSB)	
June	9	Asia-Pacific Sprint	(SSB)	(May 01)
June	9/10	WW South American CW Contest		
June	9/10	ANARTS WW RTTY Contest		
June	16/17	VK Novice Contest	(May 01)	
June	16/17	All Asian DX Contest	(CW)	
June	23/24	Marconi Memorial Contest	(CW)	
June	23/24	ARRL Field Day	(All Modes)	
July	1	RAC Canada Day Contest	(CW/SSB)	
July	7/8	Internet 6m Contest	(CW/SSB)	
July	14/15	IARU HF World Championship	(CW/SSB)	
July	21	Pacific 160 metres Contest	(CW/SSB)	(May 01)
July	21/22	SEANET Contest	(CW)	
July	28/29	Russian RTTY WW Contest	(RTTY)	
July	28/29	IOTA Contest	(CW/SSB)	

Again your support is requested for our VK contests – there will be several in the next few months e.g the CW Operators' QRP Club QRP Day in June, Novice Contest in June and Pacific 160 metres in July.

Results of CQ WW WPX SSB Contest 2000

(VKs only Call\band\score)

VK5GN	All	7,799,293
VK3TZ	All	4,554,869
VK4UC	All	4,257,870
VK8HZ	All	1,028,146
VK8AV	*	147,620
VK1MOJ	28	143,788
VK2CA	All	1.060,409

QRP DAY CONTEST 2001

0700z -1200z Sat 9 June

Open to all CW operators, the object is to work as many stations as possible.

Category: Single Operator only.

Sections: (i) VK, ZL, P29 (ii) outside the above call areas.

Mode: CW only.

Bands: all HF bands (no WARC).

Exchange: RST plus serial number beginning at 001 and incrementing by one for each contact.

Repeat contacts on same band: In order to make greater use of available band space and time, repeat contacts with the same station will be allowed with a minimum of two (2) hours between contacts.

Scoring: the object is to score as many points as possible in your section.

Stations within VK/ZL/P29 score as follows —

VK/ZL/P29 contacts 1 point

Outside VK/ZL/P29 3 points

Stations outside VK/ZL/P29 score as follows —

VK/ZL/P29 contacts 3 points

Outside VK/ZL/P29 1 point

All contacts made with homebrew transmitter or transceiver score double points.

Final Score is the sum of the total QSO points. Except for the use of homebrew equipment (see above), no multipliers apply.

Certificates: Certificates will be awarded to the following –

(i) first three placegetters in each section,

(ii) top scorer on each band (if the entrant is not already a placegetter).

General: any station claiming to operate QRP MUST NOT exceed a maximum of five watts carrier to the antenna and should add /QRP after its callsign. Logs showing contacts and points claimed, together with a full description of equipment used, should be sent to —

Ron Everingham VK4EV,
30 Hunter Street, Everton Park, Queensland, 4053,
no later than 6 July, 2001.

PACIFIC 160 METRES CONTEST 2001

Date: *Saturday, 21 July, 2001*

Time: *0700 - 2300 UTC*

Object: for P2, ZL and VK stations to make as many contacts as possible on 160 metres.

DX stations are encouraged to participate, but may only work P2, ZL or VK.

Categories: Single Operator; Multi-operator; SWL

Sections: CW only; SSB only; MIXED

Frequencies: CW: 1828 - 1840 kHz
SSB: 1843 - 1875 kHz

(Note: Guard band 1840 - 1843 kHz. Contacts not permitted)

Exchange: RS(T) plus serial number beginning at 001.

Score:

For P2, ZL, VK –
One point for QSO with own call area;
two points for other call areas in ZL or VK;
three points for Pacific Islands (ZK1, VK9)

For Pacific Islands –
one point for QSO with own call area;
three points for P2, ZL, VK;
five points for QSOs outside P2, ZL, VK.

For stations outside P2, ZL, VK or Pacific Islands –
five points per QSO.

Multiplier:

For P2, ZL, VK –
total number of VK, ZL and P2 call areas worked, plus OTHER DXCC countries.

For stations outside P2, ZL, VK –
total number of P2, ZL and VK call areas worked.

Final Score: Total QSO points times total multipliers.

Certificates: to top scorers in each mode, call area of ZL and VK and in each DXCC country.

Logs: Please show full QSO details of call worked; mode; time UTC; exchange.

Include Summary Sheet showing operator's callsign; name; mailing address;category and section entered; points claimed and a signed Declaration.

Logs submitted electronically need only show operator's name in lieu of signature, but must show all other information.

Send Logs:

1. By mail to –

Ian Godsil VK3VP,
57 Nepean Highway,
Aspendale, 3195,
AUSTRALIA

2. By e-mail in ASCII/Cabrillo format to: contests@radiomag.com by 17 August, 2001

Asia-Pacific Sprint

SSB: Sat 9 June 1100z–1300z

CW: Sat 20 Oct 1100z-1300z

Object: For stations outside Asia-Pacific region to work as many AP stations as possible in the two-hours limit.

Bands: 20m and 40m only.

Power: max 150W

Category: Single operator, single radio only.

Exchange: RS/RST plus serial number starting at 001. Stations may be worked only once per band.

Multipliers: prefixes as per WPX rules (once only, not once per band).

QSY Rule: Calling station must QSY after a QSO at least one kHz on CW and six kHz on SSB.

Final Score: total of QSOs by multipliers.

Logs must contain complete QSO information plus Summary Sheet indicating claimed score, CQ Zone and T-shirt size.

Send logs by mail to: James Brooks, 26 Jalan Asas, Singapore 678787 three days after contest. Logs may be sent by e-mail in ASCII format to: jamesb@pacific.net.sg

NOVICE CONTEST 2001

from Bob Hockey VK2FI, Contest Manager

Sat 16 June - Sun 17 June

0800z - 0800z

Object is to encourage amateur operation in VK, ZL and P2 and to promote contacts with Novice and Club stations. Only VK, ZL and P2 stations are eligible to compete and stations in the same call area may contact each other for contest credit.

Bands: Novice frequencies in the 10, 15 and 80 metre bands. No cross-band operation permitted.

Categories: Single Operator, Club stations and SWL stations.

Modes: SSB and CW.

Call "CQ N" on CW, "CQ Novice Contest" on SSB and if you are involved with a club station then call "CQ Novice Contest Club Station" followed by your callsign.

Exchange RS(T) and serial number commencing with 001 and incrementing by one for each subsequent contact. SWLs may log up to 10 sequential contacts made by a station and then log at least five other stations before logging the previous station again. The five stations so logged need be a minimum of one contact only.

Score: two points for contact with Full Call/Intermediate stations; five points for contact with Novice stations and 10 points for Club stations. On CW score DOUBLE points.

SWLs score two points for Novice to Full/Intermediate, and Full to Full; five points for Novice to Novice and 10 points for Club stations.

Note RULE CHANGE: Intermediate stations (J and K calls) now classed as Full Calls.

Logs headed "VK Novice Contest 2001" must show date, time in UTC, band, mode, station contacted, exchanges and total claimed score at the bottom of each page.

A summary sheet should show callsign, name, mailing address, category, section, number of valid contacts, claimed score, signed declaration showing signature of operator or responsible club officer for club stations.

Entrants may only submit one log per mode. Logs for entries where the operator uses more than one callsign whilst operating in the contest will not be accepted.

Mail logs to: Novice Contest Manager, Westlakes Amateur Radio Club Ltd., P.O. Box 3001,

Teralba, NSW, 2284, by 16 July , 2001. Logs may also be e-mailed to: <*westlakes@hunterlink.net.au*>

Awards include the Clive Burns Memorial Trophy for the Novice with the highest CW score and the Keith Howard Trophy for the Novice with the highest SSB score. These trophies are held at the Wireless Institute of Australia Federal Office, with a plaque being sent to both winners.

Certificates will be awarded to the highest-scoring Novice in each call area and the highest-scoring station in each section. Certificates are at the discretion of the Contest Manager.

AUSTRALIAN LADIES' AMATEUR RADIO ASSOCIATION INC.

A.L.A.R.A. CONTEST August 25—26, 2001

Eligibility: All licensed operators throughout the world are invited to participate. Also open to SWLs.

Object: Participation: YL works everyone, OMs & Clubs work YLs only.

One contest (combined phone and CW) run over 30 hours.

Starts: Saturday 25th August 2001 at 0600 hours UTC

Ends: Sunday 26th August 2001 at 11 59 hours UTC

Suggested Frequencies: Bands to be used are 3.5, 7, 14, 21, and 28 MHz only. The following are suggested frequencies for easier location of contacts: 28.380 to 28.410, 21.170 to 21.200 and 21.380 to 21.410, 14.250 to 14.280, 7.070 to 7. 100, 3.560 to 3.590

Operation:

- Every individual phone or CW contact may be counted.
- There must be an interval of greater than 1 hour between contacts with any one station on any one band and in the same mode.
- No net or list operations
- No crossmode operations.
- No crossband operations.
- All contacts must be made in accordance with operator and station licence regulations.

Procedure: Phone: call "CQ ALARA CONTEST"

CW: YLs call "CQ TEST ALARA" OMs call "CQ YL"

Exchanges: ALARA member: RS or RST, serial no. starting at 001, ALARA member, name.

YL non-member, OM or Club: RS or RST, serial no, starting at 001, name, and whether club station.

OMs, Clubs & SWLs work YLs only.

Scoring: Phone: 5 points for ALARA member contacted, 4 points for YL non-member contacted, 3 points for OM or Club station contacted

CW: Contacts where at least I operator is Novice class count double points, otherwise same as phone.

OM, SWL & CLUB: 5 points for ALARA member logged, 4 points for YL non-member logged

Logs: Single log entry (but Australian YLs entering for the Florence McKenzie CW trophy should indicate their CW score separately). Logs must show date/time UTC, band, mode, callsign worked, report & serial no. sent, report & serial no. received, name of operator of station worked, whether it is a Club station, and points claimed.

Sample Log:

Date UTC	Time UTC	Band MHz	Mode	Callsign	RS(T) & Serial No. Sent	RS(T) & Serial No Rcd	Name	Points
12/11	0135	28	SSB	VK6DE	59001	58028	Bav	5
	0141	21	CW	VK3KS	599002	599045	Mavis	5
	0600	14	SSB	FK8FA	59025	59011	Aimee	5
	1100	3.5	CW	VK2PXS	599129	599004	Bobbie	10
	1103	3.5	SSB	VK3BSP	59130	59006	Joe (Club)	3

Logs must be signed. Logs also to show full name, callsign and address of operator, and show final score (points claimed). Logs must be legible. No carbon copies. No logs will be returned.

Decision of the Contest Manager will be final, and no correspondence will be entered into.

Logs must be received by the Contest Manager by: 31st October 2001.

Contest Manager: Mrs. Marilyn Syme VK3DMS
99 Magnolia Ave.
Mildura. 3500
Vic. Australia

Florence Mckenzie CW Trophy: This will be awarded to the Australian YL operator with the highest CW score (not necessarily an ALARA member). Minimum score 50 points. The actual trophy, because of the size and weight, will not be forwarded to the winner, but a certificate bearing a photo depicting the trophy will be sent to the winner each year.

CERTIFICATES will be awarded for the following:

Top score overall
Top score phone only
Top score Australian YL CW (Florence McKenzie cert.)
Top score ALARA member in each country and VK call area
Top score YL non-member in each continent
Top score OM in each continent
Top score SWL in each continent
Top score VK novice
Top score overseas YL CW
Top score VK Club station

TROPHIES will be awarded to the following:

Top scoring Australian YL
Top scoring DX YL

CLUB STATIONS: Operators of Club stations may use the Club call only for contacts, and MUST identify each contact as with a Club station. Use of personal consigns while operating as a Club member is not permitted.

ar

DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Pardon me, after *you*, sir...

These past few years have seen many articles in the amateur press lamenting our bad behavior on the bands. It seems that the general opinion is that we are becoming a selfish and self-centred lot. However, two recent events on the bands makes me feel there is still hope for us yet. The first instance concerns a CW dogpile calling EA6NB (Belearic Islands) on 12m. The usual cacophony of stations calling made it difficult for him to hear a weak JA QRP station calling. When the EA6 called 'QRZ the QRP station' everyone stopped sending while the QRP station had his turn. Of course, immediately after he had finished it was on for young and old again and, of course, I threw in my lot along with them. The second instance concerned a couple of 'gentlemen' who tuned up on the same frequency and then began to call CQ simultaneously. One of the stations was a VK2 and the other a JA. When they discovered that they were doubling they gave each other a call and apologised to each other for not listening before transmitting. Now I have heard some shocking exchanges on the air regarding who was on frequency first, but I was amused and heartened at the courtesy of both stations when they realised what had happened. What made it even funnier was that BOTH stations QSY'd and began calling CQ again on different frequencies.

I managed to get some of the major jobs around the house out of the way and found some time to spend on the air. I managed to work JW/DL3NRV on 17m CW. There was a lot of flutter on the signal coming over the pole and it made copy extremely difficult. I have heard this operator on the air in the past but have never been able to penetrate the pileups. This time I managed to get through on my fifth call.

The magnetic field of the sun began to invert during the month of February, this is a clear indication that the peak of the current cycle has been reached and that we are now on the downslide. There will still be a few years of good propagation to come on the upper HF bands, however, I wonder how much more activity there would be if people actually called CQ instead of just giving the bands a cursory listen.

While we are talking about the sun Carl, N4AA has sent me some info regarding the largest sunspot seen in ten years. The area of the spot measured 13 times that of entire surface area of the Earth. I tried to see it using the old trick of projecting an image of the sun onto a sheet of white paper using a pair of binoculars. I thought I could see it, but it is difficult to say as I could not hold the paper and binoculars steady enough. There was a massive eruption on the sun near to this spot on Wednesday the 28th of March that caused a massive CME (coronal mass ejection). The CME was expected to hit Earth on Friday the 30th March. This resulted in spectacular auroral displays at both the North and South poles. In fact the Aurora Australis was clearly visible from the Mornington Peninsula, southeast of Melbourne. The following weekend had excellent propagation and most bands were very lively. I wonder how the 6m guys went with the Aurora?

The DX

3A, MONACO. A group of Italian operators will be active from Monaco for 3 days from the 1st until the 3rd of June. Operation will be mainly on 6m but they will also be on the HF bands. Those of you who are keen enough can E-mail for a sked to 3a@mannelli.com QSL is direct with a SASE to Fabrizio Vannini (IK5GQK), via Forlanini 68, 50127 Firenze, ITALY. [TNX IK5GQK and OPDX]

3V8, TUNISIA. Zaida, a YL operator, has been active with the callsign 3V8BB. You can usually find her on 20m around 14260kHz between mid morning till early afternoon GMT. [TNX OPDX]

4S, SRI LANKA. Nelson, 4S7NE, has been active on 30 and 17 metres operating CW. He is usually active after 1830 GMT around 10103kHz. [TNX 4S7NE and OPDX]

7Z, SAUDI ARABIA. Joe, W5FJG, is hoping to get on the air from Jeddah as 7Z1AC by mid April. He especially likes 20m but expects to get on the 17, 15, 12 and 10m bands soon. 30, 40 and 80 will come later. He operates both CW and SSB. Joe works as a technician for the American Consulate and will be there for the next two years. Joe also mentions that the American Embassy in Riyadh has been given permission to restart amateur radio operations using the callsign 7Z1AB. QSL via WA4JTK [TNX W5FJG and OPDX]

9G, GHANA. Derek, 9G5MD, has been very active on the 15 and 10m bands. The most likely time to catch him is between 1200-1800z around 28500 and 21250kHz. QSL via F5VCR. [TNX 9G5MD and OPDX]

9N, NEPAL. Lawrence, 9N7RB, lives in Katmandu. He can often be heard on 10m SSB after 1330 GMT. [TNX 9N7RB and OPDX]

EV21, BELARUS (Arctic Expedition, "POLAR RING"). There is currently an expedition going on in the Arctic and is being helped by the members of the "Activity Group of Belarus" (AGB). The expedition/operation started February 1st in Minsk and will travel the southern part of the Arctic and the Polar Area. The expedition will pass through Yama (R9K/), Taimyr (R0B), Yakutia (R0Q) and Chukot (R0K). Currently, R0B/EV21ABG is now on from Taimyr. There is an award available for working this station. [TNX OPDX]

JW, SVALBARD. Per, LA3FL, is active during his spare time from Hopen Island (EU-063) signing JW3FL. He is the only radio operator on this little island with many polar bears (radio ham will taste almost the same as ordinary ham to a polar bear, hi). He will be there until June

2001. Per has been logged on CW on 21025kHz at 0915z and on 1833kHz between 0045 and 0330 GMT. QSL via LA3FL. [TNX LA3FL and OPDX]

JW, Prins Karls Forland. Terje, LA3OHA/JW3OHA and a group of others are in the advanced stages of planning an operation from Prins Karls Forland (EU-063). They are planning to be on the air between the 31st of May and the 10th of June 2001. [TNX LA3OHA and 425 DX News]

S92TX will be active from Sao Tome-Principe. Tom is mainly active on 10m, 15m and 20m SSB but has high hopes of being on 6m soon. Tom is employed by the Voice of America and is on assignment here for the next two years. QSL to W7KNT. [TNX W7KNT and The Daily DX]

VO2, Labrador, Canada. Fred, K2FRD is planning a DXpedition to Labrador. This is not a DXCC entity but it is a rather rare location. He plans to operate from about the 6th of June until the 31st of August as VO2/K2FRD. Fred's accommodation will be a tent (I hope he has a lot of fly wire and repellant, the flies in this area are ferocious). His QTH will be approx. 90km west-southwest of Churchill Falls, Labrador, Province of Newfoundland, Canada. Activity will be mainly on 10, 15 and 20 metres. Suggested frequencies are 28415, 28515, 21315, 21415, 14215 and 14295 kHz. Plans are also in hand to participate in some DX nets. [TNX K2FRD and OPDX]

ZA, Albania. Loreto, IK7VJP is currently in Albania and expects to remain there for two months. He hopes to operate as ZA1/IK7VJP from Durres (Durazzo). QSL via home call either direct or via the bureau. [TNX IK7VJP and 425 DX News]

DXpeditions

Several Scots operators will be operating from the Falkland Islands (SA-002) from 23rd of April until the 8th of May. Rob, GM3YTS; Jack, GM4COX; Tom, GM4FDM and Gavin, GM0GAVplan to have two stations on the air with a focus on CW, LF and the WARC bands. QSL to GM4FDM. For more information, go to www.hfdx.co.uk/vp8sdx. [TNX GM4FDM and The Daily DX]

The 3B6RF DXpedition to Agalega is now confirmed for the 5th until the 16th of May. A multi-national team of 19 operators from Switzerland, Portugal, Germany, France, England, USA, Poland, Mauritius and Israel will be on the air with 6 HF stations including linear amplifiers and a wide range of antennas (26 at last count). Activity will take place on all bands and modes including satellite, 6 metres, PSK 31 and SSTV (this mode will only run three days). More details can be found at the official web site at http://www.Agalega2000.ch. QSL via HB9AGH either direct via Ambrosi Fleutsch, Lerchenweg 29, CH 8046 Zurich, Switzerland or through the bureau. [TNX HB9BXE and OPDX]

Two members of the Bavarian Contest Club (BCC) will be touring the South Pacific and will be travelling through the Cook Islands between the 28th April until the 18th of May. Uwe, DL9NDS and Klaus, DL7NFK will be active from the North and South Cooks as ZK1NDS and ZK1NFK. The pair will operate from the islands of Rarotonga (OC-013), Mangaja (OC-159) and Aitutaki (OC-083) in the Southern Islands and from Manihiki Atoll in the Northern group. They will have an extensive range of equipment with them, e.g. two 400-watt amplifiers, a 1 kW amplifier, LP5, V80E vertical and some wire type antennas. They plan to spend a lot of time using the digital modes RTTY, PSK31 and MFSK16 (this is a new one to me?). QSL via their homecalls. [TNX DL9NDS and The Daily DX]

Several Brazilian operators have announced plans for an October expedition to Trindade Island. They will have two stations on for two or three days using the calls ZW0TB on phone and ZW0TW on CW. Planning for the DXpedition began in January so things will be well under way by now. The lead sponsors position has been taken up by Icom. The group has also gained the support of the Brazilian Navy (they have a base on Trinidade Island) and Anatel (the Brazilian Telecommunications Agency). The official web site is www.radiohaus.com.br/trindade.htm. The operators will be Fran, PU2RYW, Claudio, PY2NW and Erwin, PY2QI with Ben, PY2KQ handling QSL chores and other support. [TNX 425 DX News]

Special Events

A series of special event stations will be on the air to celebrate the 50th anniversary of V.R.Z.A. (the Dutch Amateur Radio Society). Wim Visch, PA3BIZ, Vice President of the VRZA, has released details of an award associated with this event. To qualify for the award contact with at least four of the following stations must be established PI50VRZ/A, PI50CQP/A, PI50V, PI50R, PI50Z and PI50A. These stations will be on the air until the end of 2001. The callsigns PI50V, PI50R, PI50Z and PI50A will be assigned to 4 of the 18 club stations participating in this event on a weekly basis, shifting the next week to four other club stations, thus the callsigns will be kept active the whole year round. QSL's will need to be sent via the regular club stations callsign i.e. PI4(club call) so please ask for the official club callsign. The stations will be on all bands, all modes and also during contests etc. Evidence of the four stations worked/heard can be presented in a log file and signed by two other amateurs and accompanied by 5 USD or equivalent will be sufficient to apply for the award. Send details to the award manager, Ben Horsthuis, PA0HOR, Fr. Halsstraat 95, 3781 EV Voorthuizen, The Netherlands." [TNX OPDX]

Mike, GM4SUC sent a note saying that planning for this year's International Lighthouse/Lightship Weekend is coming along very well. The weekend of the 18th and 19th of August should be pencilled into everyone's diary. Last year the event was a great success and this year should be even better. A list of stations that have confirmed their participation can be found at www.vk2ce.com/illw/index.html and rules and further information on the event can also be found on this site. If I can organise time away from work that weekend I intend to be on the air from near Cape Shank Lighthouse, on Bass Strait.

The Finnish Army Signals School is celebrating its 60th anniversary this year. Special event station OI3AY was on the air during the CQ WPX Contest. Martti Laine, OH2BH, was one of the operators from the OI3AY station during the contest. If you were lucky enough to work this one you will be receiving a special QSL card to mark this special event. The QSL Manager is Teuvo Kaistila, OH1BV, Ahventie 5B1, 25410 Suomusjarvi, Finland. [TNX OH1BV and OPDX]

Special event station TM0AR will be active during the "International Festival of Art and Technologies" from the 15th until the 27th of May. Activity will be on 40, 20, 15 and 10 metres (including the

WARC bands). Reference DDFM - 72. QSL via F5TJC: Jean-Louis Briere-Lecomte, 18 Le Petit Saint Louis, 72400 Cormes, France. [TNX F5TJC and OPDX]

IPARC S5. The Slovenian branch of the International Police Association Radio Club (IPARC) is sponsoring an award to celebrate its 5th anniversary and the 10th anniversary of IPA-Slovenia. The award will be issued for contacts made (or heard for SWLs) with S51IPA, S52IPA, S53IPA, S59IPA and S50IPA between the 15th and 22nd of April 2001. For further information please e-mail iparc@hamradio.si [TNX S51FV and 425 DX News]

Round up

I received a note from Gwen, VK3DYL, with some details of a group of Scandinavian YL's who will be operating from Aland Island from the 30th of June until the 6th of July. Among the group will be three YL's who made the trip to Norfolk Island last year. The group will be on the air using the contest station of Martii, OH2BH. The callsign will be OH0YLS (Young Ladies Society). A list of names/callsigns and the QSL route will be published in next months AR. If you hear them on the air please give them a call. These YL's seem to do a fair bit of globe-trotting and manage to get some good operating time in as well, is there something we OM's are missing?

Jean, ON6TJ, says that as of the 12th of Feb 2001 Belgian amateurs can now run up to 150 watts (previously only 10 watts) on the 160 metre band. Limits of operation have also been expanded to 1810 – 1850kHz (1810 – 1830kHz is still shared with other services). The CW requirements have also been lowered to 5wpm. [TNX ON6TJ and QRZ DX]

The National Institute of Standards and Technology (NIST) are carrying out a survey to get a better understanding of who is using their services and for what purposes. NIST has compiled a questionnaire for users/listeners of WWV, WWVB and WWVH to fill out. The intent is to get a better idea of what services are being used by whom and for what purpose. If you wish to participate please send an E-mail requesting the questionnaire to radio@boulder.nist.gov Responses will be greatly appreciated. More information about NIST services can be found on their web site at http://www.boulder.nist.gov/timefreq [TNX The Daily DX].

Sources

There are quite a number of people we need to thank for the information that make up this months DX Notes, so our thanks go to IK5GQK, 4S7NE, W5FJG, VK3DYL, 9G5MD, 9N7RB, LA3FL, OH1BV, LA3OHA, W7KNT, K2FRD, IK7VJP, GM4FDM, HB9BXE, N4AA, DL9NDS, PU2RYW, PY2NW, PY2QI, PY2KQ, PA3BIZ, GM4SUC, F5TJC, S51FV, ON6TJ, QRZ DX, 425 DX News, The Daily DX, OPDX.

ar

WICEN NORTHERN RIVERS

Emergency Radio Operator Training

On Saturday, 24 March, WICEN conducted another in the series of Radio Operator Training Courses. WICEN is an organisation of Amateur Radio operators who provide communications in times of emergencies.

The courses are to train emergency services Radio Operators in operating procedures, message and traffic handling. 13 WICEN and 6 SES operators attended this very intensive course. Instruction, testing and practice was given in operating procedures and the requirements for setting up Field Stations.

After lunch a written test was given on the morning subjects and then five Field Stations were set up. Different equipment set ups were examined by all and adapted. These used HF and VHF frequencies to practice message passing and procedures. Contacts were made with Victorian, South Aust. and West Aust. operators who happened to be on air. Those knowing how, practised traffic using Morse Code as well.

This is part of a series of courses, the next one being on the 2nd June.

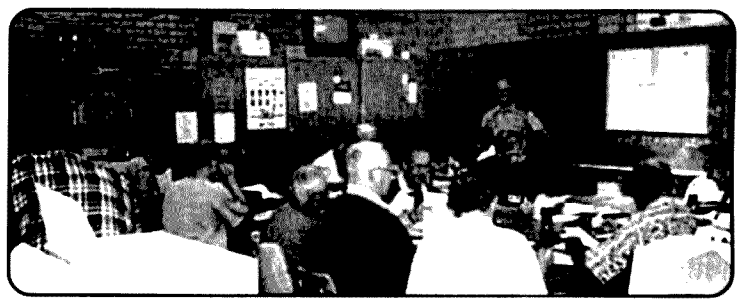


Photo 1 (top): FieldStn1—SES and WICEN personnel operating from a Field Station.

Photo 2: Operators receiving instruction on Procedures and Message Handling.

Ionospheric Update

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

Solar Activity

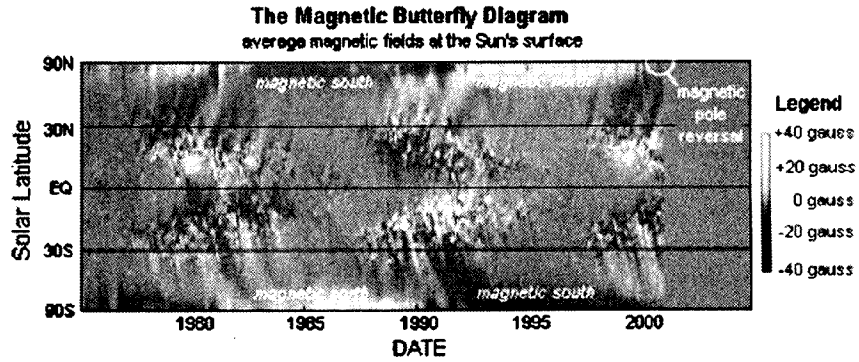
The first signs of a peak in solar cycle 23 have emerged. The sun's magnetic field has reversed. Last year the internal field was pointing to the solar North Pole; now it is emerging from the South Pole.

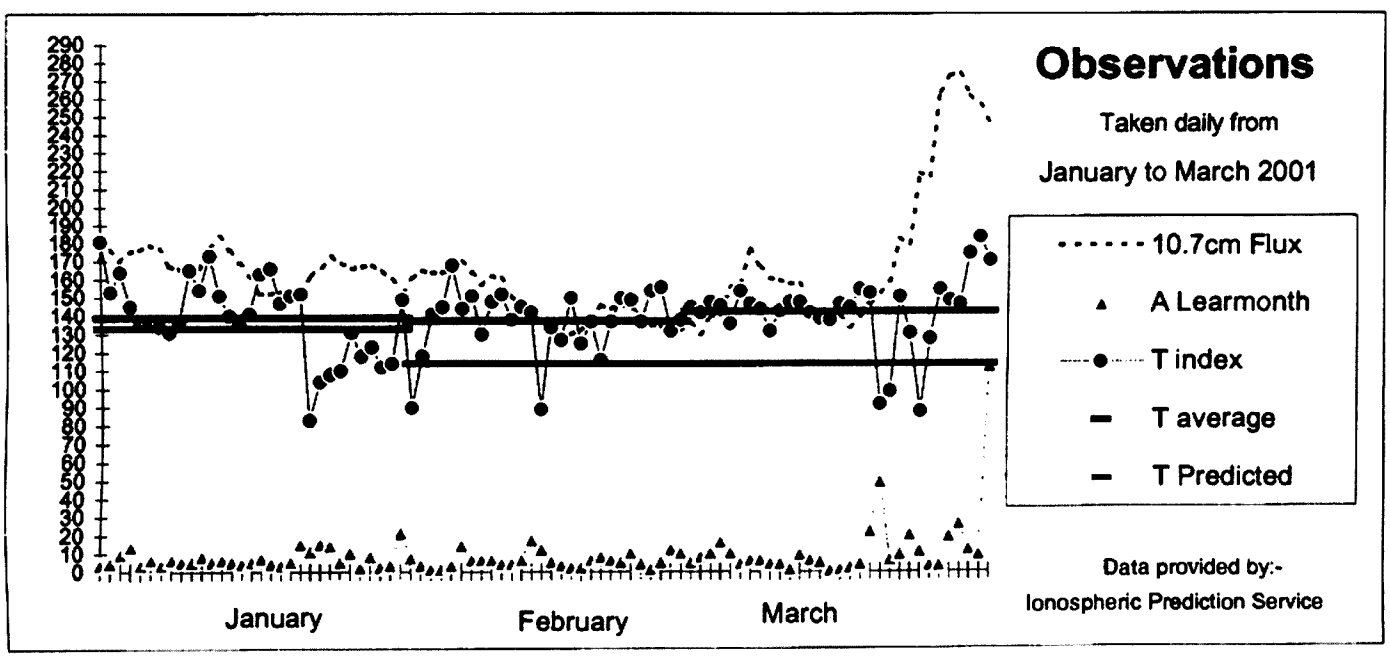
The reversal of magnetic flow is a reliable indictor that the sunspot cycle is at its maximum or has just passed it. Sumspots are an outward indicator of the magnetic flows within. It is worth remembering that the sunspot itself does not effect ionospheric propagation. The tie between the two is that the cause of sunspots also has an impact on the ionosphere. It has long been convenient to equate the two because sunspots have been quantifiable.

Plotting the strength of magnetic field on the sun in a diagram that compared latitude and time has long been another method of ionospheric research: it is called a butterfly diagram. The most recent butterfly diagram using data from the US National Solar Observatory at Kitt Peak is included as an example. The latest reversal is highlighted. The butterfly pattern [hence he name] is caused by sunspots. The diagram shows how at the onset of a new solar cycle: the sunspots are at high latitude. The drift toward the solar equator as the sunspot cycle proceeds can be easily seen.

Ionospheric Activity

April is proving to be a very volatile month. Being on holidays, I have no current experience. I do note that the Ionospheric Prediction Service have reported some very large flares and consequent short wave fadeouts in early April. While conditions are so volatile, both up and down, I can only recommend the Ionospheric Prediction Service current conditions bulletin service on the web. The URL is *http://www.ips.gov.au/asfc/current*





Spotlight on SWLing

By Robin L. Harwood VK7RH

Massive solar flare

There was a massive solar flare at the end of March continuing into the first week of April. In fact it was one of the most severe, I have ever experienced and made it difficult to ascertain all the changes to the new A-01 period. On one day, there was almost a complete absence of propagation at 2100z, although signals gradually faded in as the Sun rose higher in the sky. I believe that observers in the Northern Hemisphere were treated to a spectacular auroral display.

Other broadcasters cut broadcasts to Australasia.

In last month's column, I reported that Swiss Radio International had ceased beaming to Australia and the Pacific, as well as the East Coast of North America.

Now I have discovered that the Vatican Radio also ceased broadcasting to this region although their English programming to Africa come in well. At present, there is a dispute between the Holy See and the Italian government over electronic pollution affecting residents adjacent to the Maria Galeria site. The matter has ended up in the legal system with both sides locked in a war of words debating jurisdiction. The last I heard was that tests were to be undertaken to determine if it really was a problem.

The Italian Minister of the Environment threatened to cut of their electricity feed if the Vatican did not cut down their emissions by a certain date, which also happened to be the day prior to the Italian General Election.

The Austrian Radio (ORF) also discontinued broadcasting to Australasia and all their broadcasts have been severely curtailed due to budgetary constraints and they have now opened up the senders to other broadcasters and program makers. I believe that Radio Flanders International in Brussels (yes they have renamed their station again) has also ceased broadcasting to this region.

Darwin back up

The Darwin facility is operational but is still rather irregular. Their crackly audio feed leaves a lot to be desired. From what I have read on the Net, it is presently identifying as the African Service of Christian Voice to Asia. I have heard it at 0120 on 21680. I have not heard it on any other channels.

Meanwhile Radio Australia was recently thrown into a tailspin when the 7 Network rapidly pulled the plug on Australian Television International because they considered it not viable commercially. RA formerly used to piggyback their audio on the ATI signal and they had to scramble to find alternative feeds to their partner and relay stations in Asia and the Pacific. The Federal Government gave them additional funds to use a trans-ponder on the Indonesian Palapa bird.

However RA's frequency management is a shambles. For example, they are scheduled to be on 15240 using the Shepperton sender at 0800 and at the same time using the Taiwan relay on the channel, being half a second behind. Listeners in SE Asia have told me that the channel is a mess.

Clandestine watch

I have not heard the anti-Iranian clandestine stations after the new broadcasting period commenced. They are probably on lower channels at much earlier times. However I have come across another group using similar cat and mouse tactics. It is the Falun Gong movement that was banned in China. Ostensibly a meditation group similar to Tai Chi, the movement evidently expanded its scope. I first heard the station on 12120 kHz around 2130 and the station suddenly went of mid-word, reappearing just 5 kHz down. There were frequent mentions of Falun Gong and I did tentatively identify it as "Falun dafu diantai".

Since then, I have discovered that there are three transmitters used on adjacent channels in parallel. Broadcasts are in Chinese with the same music theme played in the background. You will hear these stations, which reputedly are located in Bulgaria, anywhere between 121110 and 12135 kHz. The Chinese have mounted a jamming operation primarily using white noise or overmodulated audio. Transmissions on any given channel can last from 10 to 20 minutes, depending on the severity of the jamming. I have heard them between 2200 and 2300 UTC.

One clandestine that does not make it to here is located in the American State of Kentucky. It originally identified itself as the "Kentucky State Militia Radio" and has been heard on 3260 on USB. This station is extremely hostile to the Federal Government, reflecting the views of an extreme right-wing group of state supremacists. It was apparently put together by a "Major Steve" who surrendered his ham ticket after numerous complaints over a 75 metre SSB net which strayed far from the radio regulations.

These groups apparently hired airtime over a legal station in Georgia, which broadcasts on USB under the callsign WGTG, although they have since changed the call letters. Some of them were kicked off when they refused to pay for their broadcasts and this clandestine popped up adjacent to the legal station not long after. "Major" Steve has since left the Kentucky State Militia, renaming the clandestine as "United Patriot Radio". One of the channels he claims to operate on is 12182 in the daytime but I have not cited any reports yet. I have heard WGTG carrying the Genesis Communications Network at 2100 on 12172 on reduced carrier sideband (r3e). This self-styled "major" has stated on-air that he does not recognise the US Government and its radio regulations and ominously warns that his station is backed by the 'Second Amendment". And what is that? The right to bear arms. Waco apparently is prominent in his monologues.

In conclusion, I would like to acknowledge Glenn Hauser's DX Listening Digest and Martin Scoech's Clandestine Radio Watch for background to this month's column.

Who said short wave was dead?

Repeater Link

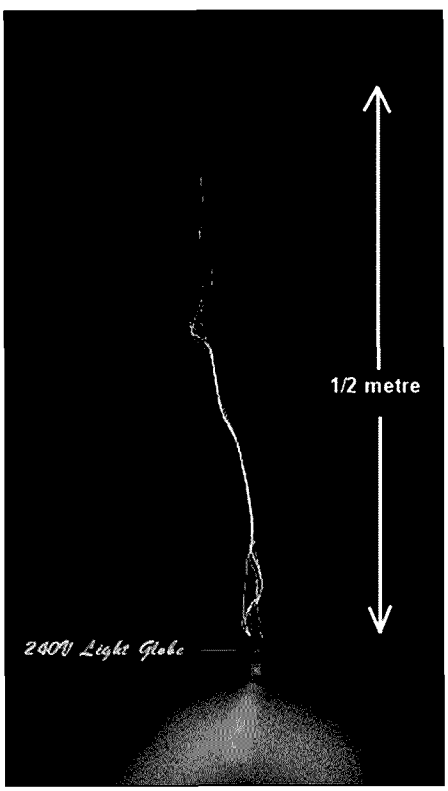
Will McGhie VK6UU
21 Waterloo Cr, Lesmurdie 6076
will2@iinet.net.au, VK6UU@VK6BBR

Tesla Feedback

Anyone who writes articles enjoys receiving feedback from readers, particularly if it is complementary. It is interesting to note that the most feedback for this column is usually when a non amateur radio article is written, such as my article about Tesla Coils. Several amateurs have written or E-mailed me about Tesla Coils.

Reproduced below is a letter from Athol VK7LR, remembering his early experiences with building a Tesla Coil way back in the early 1930s. The letter captured the spirit of making do with what you had, and the excitement and wonderment of a time when off the shelf did not extend to electronics. Over to Athol.

"Your article in Amateur Radio for March 2001 brought back memories of similar activities in the mid 1930'2, probably in 1932 or 33 as it was before I was licensed VK7LR in 1934. Together with two like minded youths we constructed a coil, in appearance similar to the photographs of your coil.



"The coil was about 5 feet long, wound with 26 SWG or 24 SWG double cotton covered wire, the complete coil then generously coated with shellac dissolved in metho. (French polish) The ball on top was a copper float ball salvaged from a toilet system about 5" in diameter. The primary coil was similar to yours and made from 1" by about 24 gauge copper strip, donated by the local plumber.

"The capacitor (in those days we called it a condenser and I still do) was a stack of whole plate glass negatives with the emulsion soaked off with hot water, and interleaved with pieces of zinc sheet, about 1/64th thick, obtained from piano cases. I should mention here that some imported pianos were packed in substantial wooden cases after the instruments were encased in zinc and all the joints soldered! Have no idea as to the capacity, but it worked. Sparks up to 15" to 20".

"We were not the most popular lads with local citizens who owned radios, as there was only one local radio station, 7UV Ulverstone, about 10 miles distant, running possibly 200 Watts. Most people used the Melbourne stations, 3LO, 3LR, 3UZ, 3DB or so miles away.

"The transformer was a neon unit, 20kV I think. We worked for an electrician who just happened to be the local Claude Neon agent.

"Sometimes I wonder if the youth of today, mostly much better educated than we were, and for fairly reasonable prices, can satisfy their desires with 'off the shelf' articles, will ever experience that thrill we got when our first home made toy actually worked.

"Thanks for reviving old memories.

"Athol VK7LR.

"P.S. Please excuse the hand writing, 85 years don't improve it."

Thank you Athol for letting us know about a time when bits and pieces came from where ever. Particularly liked the zinc sheeting from the piano crate and the glass negatives. Think of all that history washed away from the glass negatives.

Colour original inserted

More Photographs

Interesting evening taking some photographs of my Tesla Coil with a 35mm film camera. As I mentioned, digital cameras don't do justice, usually due to the lack of control with shutter speed and iris settings etc. With camera loaded I set up the camera on a small tripod, but quickly found at a distance of just under 2 metres from the Tesla Coil I would draw a half centimetre arc off the camera as I reached for it. Earthing the camera overcame that problem and I took 24 pictures with various shutter speeds and iris settings. All guess work but the results were fairly pleasing and I have put a few of the better ones on my web page. Have a look at. www.members.iinet.net.au/~will2/tesla.html

I have included a black and white picture of a particular discharge that looks like a tornado. If the discharge point is smooth, like a door knob or a light globe, for up to 10 seconds at a time, the discharge forms into a thin stream that twists and turns, just like a thin tornado, before breaking up into a more random pattern. The shutter speed was a twentieth of a second. The picture was scanned from the negative at 2000dpi, cropped and digitally enhanced. The colour version is mainly royal blue with a hint of lighter blue and purple. My web site has the colour version.

VK6RBP HF Beacon

As reported, the International HF Beacon, VK6RBP was erratic in power level, giving the indication it was not sending the 'correct callsign. Investigation showed the beacon was working as it should, it was the Dick Smith 25 amp power supply that was not. The power supply however appears to work okay into a dummy load. Could be RF feedback into the power supply and this is being looked into. Meanwhile the beacon is back on air with another power supply.

ar

VHF/UHF AN EXPANDING WORLD

David K Minchin VK5KK
Postal: PO Box 789 Salisbury South Australia 5108
E-mail: tecknolt@arcom.com.au
Web page: http://www.ozemail.com.au/~tecknolt
Fax: +61 8 82346396
Phone: 0403 368 066

All times are in UTC

Aurora Australis on 144 MHz!

The sun erupted late March 2001 resulting in substantial ionospheric disruption in both hemispheres. Other than the effects noticed on HF (black out), the aftermath on 50 MHz (some DX) the best Auroral conditions on 2 metres for a couple of years occurred in Southern Australia.

Trevor VK5NC reports ... "The following is a list of stations worked and heard during the 31st of March, 2001 Aurora. I was notified at approx 0630UTC and got the gear organized to go portable. I decided to go to Cape Northumberland as QF01 grid locator is rather rare and is not very far to the south of Mount Gambier. On the way down to QF01hw I was listening to VK3CY, VK3AEF, VK3EK, while I was driving along on my vertical whip ... I could not get back to any of them. I arrived at my portable QTH and got set up. My station was in the car IC290R small amplifier 25 watt output, antenna was 4element yagi at 4 metres high.

Stations worked as follows from 0718 UTC. VK3EK, VK3PK, VK1VP, VK3FMD, VK3BRZ, VK3BDL, VK3WRE, VK3WN, VK2KU, VK3HY, VK5KK, VK3FIQ, VK5DK, VK3AEF, VK3ZQB, VK3HY on CW, VK5EE, VK3SWD, VK2FLR on CW, VK1VP on CW, VK3KEG, VK3KWA on CW, VK3FIQ on CW. The last station worked at 09:32 UTC. Stations heard were VK5NJ, VK5ZBK, VK3AJN, VK3FC, VK3CY & VK3DUT. It was a very good Aurora but no visual display at my portable QTH. Due south from my portable location 50metres is the sea ... the next stop is Antarctica. The signals all came from the south east." ... 73 Trevor Niven VK5NC

Russell Vk3ZQB reports .. "On the 31st of March, 2001, on 144 MHz Aurora, I worked VK1VP, VK2TP, VK2BXT, VK2KU, VK3EK, VK3FIQ, VK5NC/P5, VK3HY, VK3BDL, VK3SWD, VK3WN, VK5DK & VK3AEF. Signals were constantly 4-9 from 0630 UTC to my last contact at 0825 UTC. Activity continued through to 1030UTC" .. VK3ZQB

Colin VK5DK reports .. "Here is a list of stations worked from this QTH on the 31/3/2001 starting at 0735 UTC and concluding at 1005 UTC via the Aurora Australis. VK2KU 4X9, VK1VP 4X9, VK3FIQ 4X9, VK5NC/P 4X9, VK3HY 4X9, VK3DUT 4X9, VK3FC 4X8, VK3BDL 4X9, VK3WN 4X9, VK5KK 4X9, VK3AEF 4X9, VK3ZQB 4X9, VK3SWD 4X9, VK5ZBK 4X9, VK3AJN 4X9, VK3KEG 4X9, VK3PK 4X8, VK3CY 4X9" ... Colin VK5DK

Ron Cook sheds some light on auroral propagation ... "The aurora seems to have a radio reflection mean height of about 110 km and typically sits at about 20 degrees latitude from the MAGNETIC poles. The South magnetic pole sits close to the Antarctic circle, and from our perspective is to the East of the South geographic pole. It is a long way from the geographic pole. At peak times the auroral curtain moves North providing VHF opening in Southern Australia.

The distance worked is limited by the need for common line of sight to the aurora for both stations. Thus around 1200 km on 2m is usual maximum range. The aurora is a truncated cone in shape with the pointy end aimed at the magnetic pole. In VK3 we seem to be limited to working stations in an arc covering Mt Gambier (and Adelaide?) in the West to (my guess) Lord Howe Island to the East. I don't know of any stations in VK7 or southern VK3 working into VK4 on 2m but it could happen with exceptionally intense and extensive auroras. In the Northern hemisphere ranges up of 2000 km with almost East West beam headings have been frequently reported, but the with Northerly beam headings the range is closer to 1200 km max." ... Ron VK3AFW.

As a comment, auroral propagation can be enhanced by Auroral E propagation. The effect follows typical E layer characteristics and becomes more frequency dependant. I.e. 50 MHz works much better than 144 MHz and 432 MHz is yet to be achieved from our latitudes. From VK5KK's shack at 34 degrees latitude SSB was not the preferred option, CW the only option! Similar reports came from VK2's at similar latitudes. The furtherest heard from VK5KK was VK3KWA on CW and VK3HY working VK2KU (no sign of VK2KU). The northern most and widest signal heard was Jim VK3AEF, a genuine 0x6 on SSB with about 1 kHz shift! No sign of VK6 on 2 metres, from my recollection no record exists of a VK6 to eastern VK on Auroral 2m. For those who want to follow Auroral predictions a bit closer go to the IPS website www.ips.gov.au.

John Martin, VK3KWA writes ... "The other night it occurred to me that it would be interesting to study the Doppler shift and spread on auroral signals. I got VK3BRZ to send a carrier and observed what came back. The straight blue line is his carrier received direct with a pitch of about 980 Hz. Above is it auroral reflection spreading between about 1200 and 1750 Hz, with the greatest density around 1300 Hz.

I heard some other stations, which sounded as though they had far greater shift and spread, but unfortunately I didn't think to fire up the computer in time. I will be lying in wait for the next one" ... VK3KWA

6 Metres

Colin VK5DK reports... "On the 30/3/2001 at 1055 UTC after a phone call from Robbie VK3EK alerting me that he had just worked JY9NX on 50.106MHz I was able to work JY9NX with 5 x 5 reports both ways. Later in the evening from 1308 UTC I worked 15 Japanese stations

and at 1325 UTC I worked VR2XMT also at 5 x 5. The band was still open at 1400 UTC." .. Colin VK5DK

Wally VK4DO reports ... "Good opening on 15 April to USA between 0231 and 0340.Grids, DM02, 03, 06, 07, 12, 13, 14, 33, 42, 43. CM94, 95, 96, and 97 for total 48 stations. Signals up and down from S1+ QSB to S9. Earlier FW5, T12, T14, T15, FO3, VK9NS (new country) and ZL2TPY b/s. On 14 April at 0435 YB0CB1 (OI33)" ... Wally VK4DO

Microwave Primer Part Twelve: Microwave Transverter IF Transceivers

This part was going to be about ATV and Microwaves. The original planned 12 parts to this series has had a few bits added along the way by request so at best guess we will end up with 18 parts! This part will cover IF transceivers. Part 13 will cover Frequencies and IF switching techniques. Part 14 will cover Local oscillator frequency stabilizing methods, a very interesting subject. Plans are also a foot to encapsulate the series in a publication later this year.

In earlier parts, I have discussed various transverters for 1296 to 24048 MHz so now we will talk about what to drive them with. The IF transceiver is an important part of any Microwave system. As often signals are best described as "weak", the difference between a good transceiver and a bad one could be making a contact or no contact. 144 MHz is often used, by default, as an IF, because of the availability of transceivers, yet is not the most ideal in a lot of cases. The following concentrates on portable and mobile rigs as small size and power consumption is a primary objective when you go true "mountain topping". All portable and mobile rigs to be discussed draw less than 400mA on Rx and will run on a 12 Volt 7Ah Gel cell for a number of hours.

Icom IC202 and IC202S. The IC202 144 MHz SSB "Portable" was released in December 1975. The IC202 introduced more amateurs to SSB on 144 MHz than any other. Its simplistic design was the secret to its success; over 500 were sold in this country in the first year. By the early eighties, many amateurs had moved on to more up market transceivers meaning IC202's were put in the cupboard. The predominance, in Europe of IC202's as IF rigs, in the eighties and nineties, means that virtually all transverter interfaces have been designed to suit the IC202's 3-Watt output. Today they are still hot property as a basic IF rig for microwave use, for around $100 who can argue!

The IC202 uses a single conversion plan with a crystal based VXO giving 200 kHz per band segment. As is, an IC202 only covered 144.0 – 144.4 MHz. With two extra crystals can be added to extend coverage to 144.8 MHz. Being xtal based, the VXO provides, even by today's standards, one of the cleanest Local Oscillator's available. A "clean" LO is important for weak signal work. When compared with the 1st & 2nd generation PLL rigs, of the Eighties, it is well in front.

The IC202 does have a few dis-advantages; the most notable is the 5kHz spaced readout! This is the weakest link in a stable 10 GHz setup! A frequency counter connected to the VXO is the only answer. G3WDG uses two IC202's in his 10 GHz EME station; one has a tiny 6mm high LED frequency readout next to the S Meter! The restricted range and the lack of FM are other inconveniences. The VXO is reasonably stable but does need alignment after a few bashings. The latter model IC202S is the most desirable for several reasons including LSB as standard! Many modifications are about to improve the IC202. The first one is to remove the extendable whip and replace it with a BNC. The second is to reverse the DC connector so the outer is the negative terminal. The largely unused battery compartment will accommodate many things including a complete MiniKit 1296 MHz 2 Watt SSB transverter!

The Icom IC402 (432 MHz) is also a usable IF rig. The IC502 (6m) is hard to use with a single 1 MHz range on the same size dial as a 202! They drift a bit too much for exposed use. The IC402 is perhaps the best transceiver of the three with double conversion and the latter improvements of the IC202S. Unfortunately IC402's are far harder to find second hand. I use both 202 & 402 in my portable set up; both have had numerous modifications including frequency counter outputs and "Codan" style SSB squelch.

Yaesu FT290R. The FT290R took over where the IC202 left off, when it came out in 1982. Many of the disadvantages of the IC202 are advantages of the FT290R and some vice a versa! It has 100 Hz readout, FM, 10 non-volatile memories, 4 MHz coverage and 2.5-Watt output. The FT290R, when used as a microwave IF, also has a large redundant battery box can be used for building in a number of options including a small transverter!

The disadvantages of the FT290R include a reasonable amount of phase noise from the PLL 10kHz step oscillator and a few spurii. Also the "100 step" VXO used to get the 100 Hz steps can drift such that you end up with either overlap or a gap every 10 kHz! If you can put up with 100 Hz click steps then don't list it as a disadvantage! As with the IC202, seasonal testing and alignment is the answer. Modifications 1 and 2 from the IC202 are applicable to the FT290R.

The latter FT290R "Mk2" was a completely redesigned rig with nearly all of the shortcomings of the earlier model fixed. It would be the best choice by far out of the portables discussed so far. Yaesu also made the FT690R (50 MHz) and FT790R (432 MHz) versions. Unlike the IC502/402 either of these units would perform equally as well as the FT290R at these alternative IF frequencies and should be looked at seriously in light of discussions about IF frequencies next month.

Stepping up to mobile SSB transceivers a number of options exist. Many seem to have similar advantages & dis-advantages.

Kenwood TR9000 & TR9130, Yaesu FT480R & Icom IC290A. All of these transceivers appeared from 1980 onwards. They all ran between 10 and 25 Watt all mode with 100 Hz steps. All are quite usable as an IF with good receivers and better PLL's than perhaps the FT290R. Disadvantages ... all have volatile memories, needing an external supply to be connected at all times (FT290R is far better here). Most require internal modifications to run 3 watt on all modes (IC290A is the exception). All have 100 Hz click steps. Some of these early digital sets can get frustrating dry joints so subject your choice to a few G forces before going portable! All had 6m and 70cm variants, again of equal usability.

Kenwood TR751A (and TR851A 70cm

version) appeared in the late eighties and seems not to have a parallel from the other two camps. A far more modern all mode rig than the TR9130 it replaced. The TR751A has LCD readout, 50 Hz steps, good audio and non-volatile memories. I have used one for a few years as a portable 2m set as well as a backup IF rig (because it has FM!) for transverters. It can be set for 3 watt all mode internally. My pick for an IF rig when I retire the IC202, as it is virtually the same size!

Most base transceivers, produced over the last 20 years, can be used as an IF rig. The pick would be the IC275A or IC820/821, both being first generation DDS local oscillator rigs. If age isn't a problem then a FT221R or TS700A will do. The main disadvantage of base units, other than size, tends to be the amount of current they consume. This is a concern when you have to lug equipment and batteries to the top of a mountain! Nearly all base units need modification to guarantee a consistent 3 watt all mode output. If you operate from the boot of your vehicle then this is not so important.

The latest crop of all mode, HF plus VHF/UHF rigs with DSP are all worthy contenders. The IC706 fits the size constraint but consumes around 2 amps on receive. The New FT817 portable has me curious, the next generation IC202/FT290R? What about homebrew? Russell VK3ZQB uses a homebrew 144 MHz rig for his portable work. Charlie VK3EMD has made up a DSP10 transceiver (QST a couple of years ago) and has plans to use this portable. Other ideas include Doug, VK4OE's, where he gutted an IC202 and built it into a 2.4 & 10 GHz transceiver in one box with digital readout! If you have the inclination and time, by all means make or modify!

Next month. Time to blow apart the time honoured convention of using 144 MHz as an IF frequency!

VK3 Easter Microwave Portable Operation.

VK5DK & VK5KK Portable at Portland with 5.7, 10 & 24 GHz

The pilgrimage to Pt Fairy is becoming a regular event! This year is was VK3EK, VK3XPD, VK3ZQB (Russell had no choice in the matter!) VK5DK, VK5KK & VK5NC. Equipment in the field included 5.7, 10 & 24 GHz portable between Moonlight Heads, Pt Fairy and Portland in VK3. Most notable signals were signals from VK5NC/P3 at Moonlight heads to VK5DK/P3 Portland on 24 GHz. Distance 141 km with little propagation. Both stations worked Russell VK3ZQB at Pt Fairy in the middle. VK5KK worked VK5NC/P, VK3EK/P & VK3ZQB/P on 5.7 & 10 GHz 59++

In later tune-up tests, Rob Vk3EK's 3.4 GHz barefoot transverter was measured at a genuine 2 mW's output. This power level was used, by Rob on 3.4 GHz, to work portable from VK7 to VK5NC/P5 on 3/1/2001 ... over 667km! That's 333 km's per milliwatt! After a tune up the transverter now puts out 5 mW so it should go a lot further now.

In closing

SERG will be holding their annual convention on the Queens birthday long weekend, June 9th & 10th, 2001. Fox hunts, commercial displays and the usual annual chat for VK3 & VK5.

At what is technically the end of the summer season it is safe to say that this has been the poorest Tropo year for about 10 years with few exceptions. Especially above 144 MHz! Despite El Nino and its other Spanish cousin, the actual peak of the Sunspot cycle has proven again that the experiences of 1979 & 1990 weren't isolated ... the peak it is not the best time for Tropo propagation.

Winter is approaching time to fix all the gear that didn't work last summer! I'll leave you with this thought, "Everyone is a self made person, but only the successful admit it"

73's David VK5KK AR

Sweet Retirement

Sheila Spargo

Retirement really should be fun
Though it's not so for everyone
For (let me whisper) some wives might
Not feel pure, unalloyed delight
To find their spouses now are free
And always wanting cups of tea.
"I'm going to a Red Cross lunch.
Find yourself a crust to munch.
And Tuesday is my tennis day.
Please mow the lawn while I'm away.
Now dear, you mustn't get too slobby
You really should take up a hobby."
Not golf! Not bowls! But years ago
He dabbled in ham radio.
A gleam comes to his eye - Of course!
He still can tap a little Morse.
His licence he obtains with flair
And very soon is on the air.
CQ, CQ out goes the call
And answers come from one and all
At last, he's in his element.
His loving wife is quite content
For while he's busily CQ-ing
She can get on with what *she's* doing.
The smallest bedroom is his shack
It has a nice view out the back
Where under his appraising eye
Antennas reach up to the sky.
She wages a defensive war
To stop him raising more and more.
He's always learning something new
And now he sends out pictures too -
Can reach Alaska in a trice.
She thinks it's cheap at half the price
To have a man content and busy
And never have to ask, "Where is he?"

Pounding Brass

S.P. Smith VK2SPS
4/6 Taranto Rd, Marsfield NSW 2122
E-mail vk2sps@ona.net.au
(H) 02 9876 8264 (M) 0419 602 520

A technical look at mainline sounders: final part

The whole object in using mainline sounders or basic sounders in general, whether they be 4ohm, 20ohm or 150ohm, is to obtain an increased sound as compared with that given out by the morse relay.

For a mainline sounder to produce audible sounds loud enough to be heard in a busy telegraph office, the sounder should possess considerable mass, its moving parts must be actuated quickly and without any lag, the use of a strong spring and large electro-magnets of considerable strength must be used.

Sounders are basically electro-magnets; the magnetism developed increases with the strength of the current within the sounder coils, and also with the number of turns of wire. The magnetism developed within the sounder is directly proportional to the current strength multiplied by the number of turns of wire in the coils; we call this "Ampere Turns".

To product an audible sound that is a clear and distinctive "click" the sounder requires about 250mA in its coils for correct operation. Let's assume the number of turns to be 900 and the line current to be 250mA the ampere turns of the sounder will be 225.

Eg. Amp/Turns = No. of turns x current
= 900 x 250mA
= 225

Mainline sounders are used on mainlines and have a resistance of 20ohms as compared to ordinary sounders which have a resistance of between 4 to 5ohms. Commonly used sounders were the "Bunnell", "Westen Electric" and the "Victor", these were distinguished by the use of either a spiral or retractile spring set up plus minor modifications to the sounder itself.

Let's look at some examples.

1. A local circuit consisting of 2 cells and one ordinary sounder of 4ohms, total resistance will be:-

   2 Cells, with an internal resistance of 2ohms each = 4ohms

   1 Ordinary sounder, 4ohms = 4ohms

   Total Resistance of circuit = 8ohms

   EMF of 2 volts divided by total resistance gives a current of 0.25 ampere.

   Ampere turns = 0.25 x 900 = 225 as stated earlier.

2. Let's operate 4 X 4ohm sounders on a circuit with a wire resistance of 100ohms and increase the battery to 30 cells, we have:-

   30 cells, with an internal resistance of 2ohms each = 60ohms

   4 X 4ohm sounders = 16ohms

   Resistance of circuit wire = 100ohms

   Total Resistance of circuit = 176ohms

   Line current will be 30 divided by 176 = 0.17 ampere

Ampere turns = 0.17 x 900 = 153

This is considerably less as in example 1. to satisfactorily operate the 4ohm sounder.

If we now use mainline sounder and substitute the 4ohm with 20ohms we get the following.

30 cells, internal resistance of 2ohms each = 60ohms

4 X 20ohm mainline sounders = 80ohms

Resistance of circuit wire = 100ohms

Total resistance of circuit = 240 ohms

Line current will be 30 divided by 240 = 0.125 amp

The number of convolutions on a mainline sounder is 1800; we thus obtain 225 ampere turns.

"Convolutions", in the English dictionary means: -

"Act of rolling together or on itself, a winding, a spiral"

Current strength was reduced from 0.17 to 0.125 amps by the additional 64ohms of the mainline sounders, magnetic strength increased by additional convolutions to a point nearly the same as that of the 4 X 4ohm sounder in the above example.

Line relay & sounder coils were constructed using silk covered wire. Standard specifications of the time were 4ohm sounder, 10 layers of No. 24; B & S Wire on each core & 47 convolutions to each layer. Which is 940 turns in all.

Specifications for the mainline sounder were 20ohm; 14 layers of No. 25; B & S wire on each core & 67 convolutions to each layer. Which is 1876 turns in all.

References used:

The Telegraph by Lewis Coe

American Telegraphy by William Maver Jr

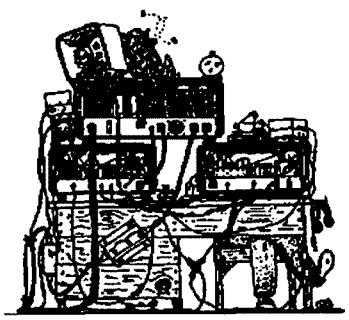
Plus my collection of Telegraph notes VK2SPS

Next month a look at Telegraph Internet sites and what's available to the radio amateur

ar

Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, Noranda WA 6062
Email: vk6pg@tpg.com.au



Part 2 –

Hardware

In the 1970's, US Company Tandy Corporation produced the TRS80 in three versions from Mark 1, 2 and 3. Programs were written in BASIC (Basic All-Purpose Instruction Code), and stored on ordinary audiocassette tapes. Many RA's world-wide wrote BASIC TRS80 programs and used them successfully on air kick-starting the well known packet radio revolution.

Personal computers really got going from the early 1980's when IBM Corporation mass-produced the famous "XT" computer. These were slow by modern day standards, but with the release of a simple Disk Operating System (called MS-DOS™), AR operators were free to experiment. Microprocessors were produced by Intel™ Corporation (called the 8080) and worked at about 4 Mhz. Memory was limited to 640 kilobytes on the main XT board, but additional Random Access Memory (RAM) could be added to give about 4kB of affordable expansion.

The "clone makers" soon replicated the original XT idea producing their own versions of the "IBM compatible computer". These early machines used two 5_" floppy disks each with a capacity of 360kB. One handled the DOS operating system, and the second for programs and data storage. Clumsy - but usable in the blossoming Ham Shack.

Intel 286 (the AT) computers soon followed and later in the 80's the Intel 386, 386SX, 486SX and 486DX etc. These machines got RA's "moving and shaking" with bigger and faster machines. The older XT's had sported internal hard drives of about 20MB and 720kB floppy drives and XT's started to flood the second-hand market. Great for Ham Radio operators on a tight budget!

By the mid 80's the desktop and later mini-tower, midi-tower and full-tower cases were common place. Microsoft Corporation Inc struggled to improve their DOS operating system – from MS-DOS version 3.3 through controversial versions of 4, 5 and DOS 6 were all common up until MS Windows 95 finally surfaced in August 1994. MS Windows for DOS had been used for sometime on the AT's. However, Microsoft launched their first experimental "full" release of MS Windows version 3.0 in 1990. This failed dismally so version 3.1 quickly landed in the marketplace.

During this traumatic time of "rampant up-grades", manufactures had produced bigger and better machines, more memory, bigger hard drives, stereo sound cards, CD-ROM's and more. It became a race to keep up with "the Jones's" which still prevails today. It was not until Microsoft produced an "adaptable" 16/32-bit operating system with the release of MS Windows 98 that high-speed machines could come of age.

What's Next?

Today, the choices are enormous. Intel, AMD and IBM each manufacture a wide range of different processors, whilst component manufactures offer a huge variety of motherboards, memory and high-speed CD-ROM's that can read and write. Cameras and microphones have appeared and many other add-on devices like the USB (Universal Serial Bus) ports on newer ATX class machines arrived.

Check out the latest edition of "*Australian Personal Computer*" Magazine. The magazine comes with a huge amount of software on CD-ROM and is a fine start to your software library. Then rummage through the advertisements and develop your own specifications, prices and information for what you would like in your shack.

Where does all this now place the average Radio Amateur in their Ham Shack? It's a complex decision process and daunting for today's AR newcomer.

Part 1 outlined some of the source options for older computers. These ranged from the local tip, computer recyclers, magazine advertisements, fellow club members and friends – through to that modern "all-in-one package deal" from the bigger retailers.

Getting a Quote

A better option would be the planning suggested in Part 1. For a modest new computer, let's suggest the following basic specification and a shopping list, then get some quotes from around the dealers before any decisions are made.

1. Midi tower ATX case and PSU.
2. A "BX Celeron" motherboard with 2 USB, 2 serial and 1 parallel port.
3. Intel "Celeron" 500MHz processor and companion daughter board.
4. 64MHz of fast RAM.
5. 4GB (or larger) IDE hard drive.
6. 16/32 bit Sound Blaster compatible stereo sound card.
7. A 1.44Mb floppy drive.
8. One high-speed CD-ROM drive.
9. Microsoft compatible USB mouse.
10. Microsoft Windows 98, 2nd edition on a CD-ROM.

A good quality secondhand 15"SVGA monitor will save heaps of money. All the above items should cost less than $1,000 new. However, you will still be able to do all the modern "whiz-band" stuff in your own shack. Adding a phone line modem (about $75 new) and you'll be on the "Net" looking for software, working DX stations on PSK31 – AND programming your bright new Yeasu FT8100R multi-channel FM VHF/UHF transceiver all at the same time!

A Cheaper Option!

Remember the older Intel 486DX2/50 mentioned in Part 1. Well, this is a little wonder machine when MS-DOS 6.2 has been installed. With a secondhand 14" SVGA monitor and a serial mouse, these machines will run your packet radio station, do all your logging and QSL management, and keep the family happy with a few crazy games! The cost will be far less than $100 secondhand.

Microsoft DOS version 6.2 is the better MS-DOS system and NOT currently available at computer dealers unless some "scrounging" is done from dealers, friends and club members. HAM COM is a nice easy MS-DOS station logger written by VK2VN (QTHR). TPK 1.82 is a first class packet radio DOS based software package and it's free. For a packet modem, try a $50 BAYCOM kit from your local club or secondhand from a friend. Again, the software is free!

MS-DOS 6.2 (on 1.44Mb floppy disks) comes with all the tools to manage your shack computer including a simple text editor, and essential MS diagnostics tools like Scandisk, Defragmenter and Memmaker software.

Doing It Yourself

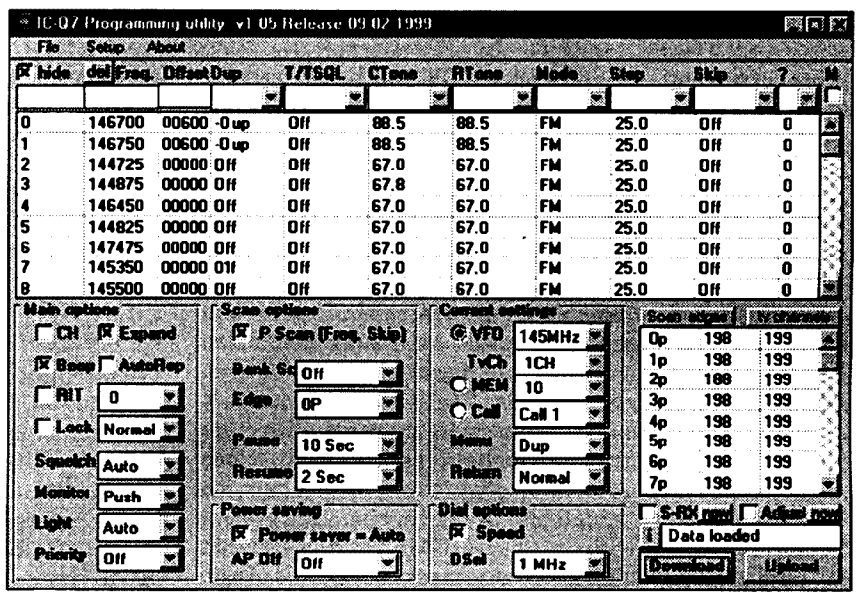
Well within the capabilities of the curious RA operator. After all the bits have been gathered together, assembly is very easy to do. Follow the instructions for each of the components until the hardware has been assembled.

Once assembled - at first switch on, the computer processor can read the on-board BIOS (Basic Input & Output System). Parameters are entered allowing the software to be "configured" so that the computer "knows" that you have a hard drive (called the C:\drive), a floppy drive (called the A:\drive) and other key components. Set the A:\ drive to BOOT FROM (meaning to start MS-DOS) followed by the C:\ drive.

Work through the screen prompts and SAVE, then EXIT. Shut down the computer - then open it once again.

Booting Up

Your kit of parts should include an MS-DOS 1.44Mb BOOT disk containing the essential files to run DOS and to add the CD-ROM as a new drive D:\. Once this is done, by following the README instructions on the disk, then the computer is ready to install the full version of MS-DOS or MS Windows 95, 98, 2000 or ME (Millenium Edition) from either the floppy drive or the CD-ROM drive. Work slowly and follow all the screen prompts until the installation has been completed. Then re-BOOT!



Adding Ham Shack Software

There are thousands of software packages available, and it's your choice on what your next steps will be. The first task is to become familiar with how your new operating system works. This is best done from software handbooks or advice from friends. Many AR software packages come as "self-extracting" files. By just "clicking" on the file, the installation process becomes automatic, with prompts asking for your NAME, QTH, RIG and sometimes the LICENCE NUMBER. The self-extracting file is "unzipped" producing a long list of new files installed on your hard drive. From the list, select the file called say - "logging.exe" and "click" the mouse to simply run the program.

At this point, assertive readers will understand that this series of articles cannot possibly cover all of the aspects of setting up and running computers. It would take up the whole of *Amateur Radio Magazine* for at least a year just to make a small dent in this mighty topic!

One Good Example

You might have a nice little "cutie" – the Icom IC-Q7 handy transceiver that's a nightmare to program using the tiny multi-function buttons on the front panel of the rig. With the right software in the adjacent picture (1) and a DIY stereo audio cable with a serial port plug on one end connected to a spare computer communications port. Then you can program the software. EG: 200 memory channels – including air-band AM, FM repeaters and offsets, FM simplex, beacons, slow Morse sessions, TV sound channels, favorite AM and FM broadcast stations all in the little tiny "cutie". When done, hit the UPLOAD button and every parameter will be stored in the rig. Great, now you can impress everyone at your next club meeting! Similar packages are available for dozens of modern Yaesu, Icom, Alinco, Kenwood and Ten Tek AR equipment. Most of these programs are available on the Internet as "freeware" or modestly priced "shareware" products.

Part 3 of *Ham Shack Computers* overviews MS Windows 95/98/2000/ME based logging, control, packet radio and QSL card programs which will really lift the productivity of your own Ham Shack.

Ham Tip No. 2.

At your next club junk sale, look for a Data Transfer Switch box (around $5). This device allows RAs to select different Ham rigs to a single computer communications port – or visa versa.

(1). Free Icom IC-Q7 software at:
www.croswinds.net/frankfurt/~valaski/

(2). More AR resources can be found at: www2.tpg.com/users/vk6pg/vk6sig

73's de Alan, VK6PG

ar

Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

Re: WIA Into the 21st century report No1

As a non-VK5, I hesitate to comment here, but here goes....

One point I will comment on at this stage is the magazine. I think it would be a mistake to under-rate the potential value of this medium.

I agree entirely. I notice that April's R&C makes rumblings about possible amalgamation with AR. Also I've heard noises from other quarters along these lines as well. AR magazine is not perfect (needs some good proofreaders at the moment, and some decent technical articles to stem the slide into history and aimless reminiscing).

Hit the send button too soon! I should have completed the above sentence by saying that it compares quite favorably with overseas and commercial magazines due to its constructional and technical articles. AR is also WIA members' most tangible asset, and one of the top two or three WIA activities that members value.

Scrapping AR would cause a huge members backlash, and is something we don't need.

Peter Parker VK3YE

Compulsory membership

On the surface, the comments against compulsory membership have validity, and certainly seem to make sense in areas. However, the fact remains that this type of structure already exists and works in Australia, CAMS being one example.

CAMS are the national government recognised representative body – no membership - no motor sport. It does work. You can argue that the CAMS organisation needs improvement, but what organisation doesn't. The fact remains that it is there, it works, it is viable, and it is accepted that in order to hold a competition licence, a person must belong to an affiliated club and therefore belong to CAMS. Of course there are differences, but it is a starting point for discussion.

73, David Burnett VK5AXW

Reforms the Easy Way

All of Martin Luther's wish list can be implemented by using the enabling articles of the existing Memorandum and Articles of Association and by amendments to others.

Article 2 for example permits an unlimited number of member divisions provided these qualify according to article 3(a), which could be amended to read "Such corporation in the opinion of the Council represents the views of a group of Australian radio amateurs." The existing last words of 3(a) are the reason for the division political boundaries.

There are other articles which could, by suitable amendment, enable other reforms; article 30 for example, suitably amended, could ensure that Councilors and other executives are elected by a postal poll of ALL members.

Maybe Martin doesn't have a copy of the M&A; these are sometimes hard to acquire. I don't think any member is qualified to contribute to the present discussion if he/she is not familiar with the contents of the existing M&A. I have tried to persuade previous editors to publish the M&A in AR without success. These are lengthy documents and publication in several parts would be necessary. Publication could be followed with a Quiz entitled "How much do you know about your WIA Constitution."

I agree with Ken Fuller, the present organisation is the result of careful consideration in the beginning and years of development, including learning from mistakes, there is no point in repeating that process. The deficiencies perceived by some (including me) cannot be remedied by the actions proposed by Martin and his fellow conspirators. We already have "a national body that is owned by the members" and there is no real impediment to the owners resuming control and introducing improvements.

Lindsay Lawless VK3ANJ.
Box 760 Lakes Entrance Vic.3909

More letters on page 56

Response to the pro-morse brigade

Oh dear! I thought that when I retired from teaching that I would not have to teach people to read. Unfortunately, a couple of letters in the February issue of AR convince that this is not the case.

Fred Smith uses some ancient Persian philosophical terms to launch an oblique attack upon my stance. I see no connection between the wish to dispense with Morse as an examination requirement and Zoroastrianism. not Zocrastian Fred! By the way I could teach a couple of five year olds to tap out SOS in a couple of minutes and then let RDF find the lost travelers. Sorry, not a valid argument Fred.

Now G.W. Lanyon suggests that I have a go at my 5 wpm exam. I suggest that he re-read my letter and have a look at my call sign. I went full call in October, 1999 Mr. Lanyon.

Now let's repeat what I did say. I said that Morse was an anachronism. I do not retreat from that viewpoint. I said that Morse has kept many aspiring people from joining our ranks. Instead these people have turned to computers and chat rooms, etc. Many amateurs get their regulations and full call theory but can't be bothered with Morse. I know several of these people in our radio club and they are quality people who would be an asset to the full call ranks.

I did not say that Morse should be done away with! If you enjoy Morse that's fine as far as I'm concerned but don't jam it down people's throats. Indeed, I have used Morse-myself being able to read at around 14 wpm and send at a higher rate. But it is not a mode I enjoy

I did say that I have found many pro-Morsers are hypocrites and use computensed Morse. I see no reason to retreat from that remark.

If the pro-Morse brigade as so correct then they should also be pushing for examinations in other digital modes such as RTTY, Packet, Amtor, PSK 31, etc. How ridiculous this makes their argument.

Roll on the day when Morse becomes just another non-examinable mode.

Ian Gray VK2IGS (FULL CALL!!)

HF Predictions

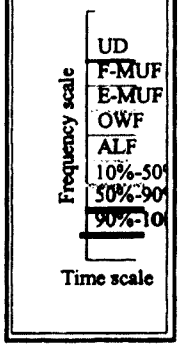
by Evan Jarman VK3AN
34 Alandale Court Blackburn Vic 313

These graphs show the predicted diurnal variation of ke
frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

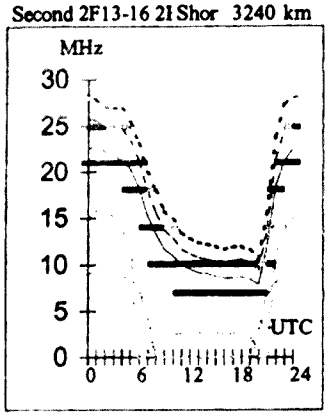
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands i
ranges between these key frequencies, when usable. The pat
propagation mode and Australian terminal bearing are also give
for each circuit.
These predictions were made with the Ionospheric Predictio
Service program: ASAPS Version 4

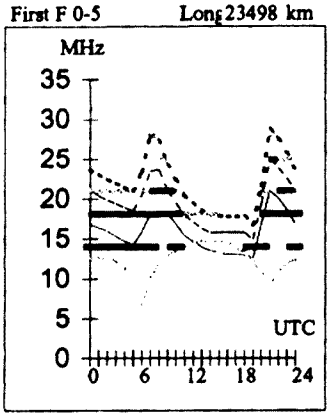
May 2001
T index: 117



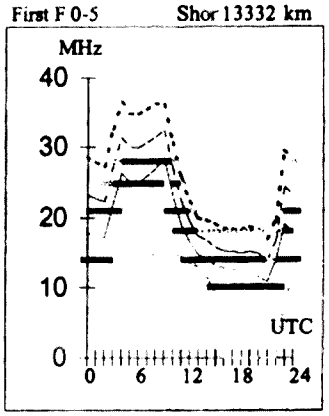
Adelaide-Auckland ##
Second 2F13-16 2I Shor 3240 km



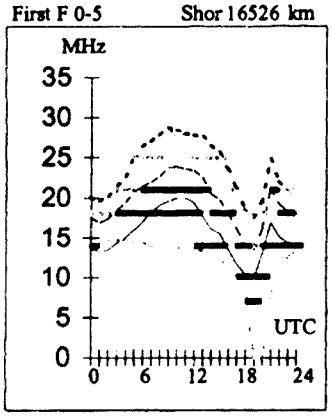
Brisbane-London ##
First F 0-5 Long 23498 km



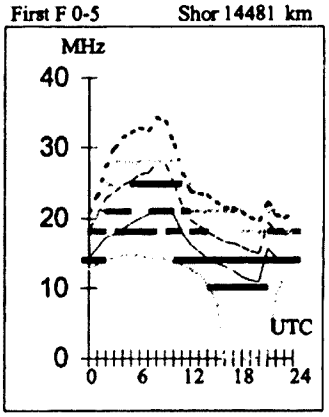
Adelaide-Cairo ##
First F 0-5 Shor 13332 km



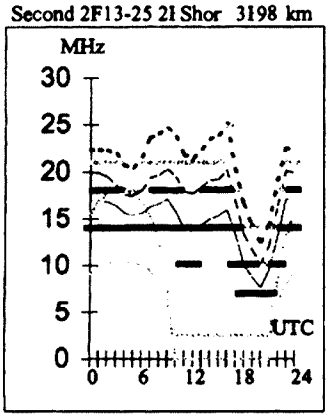
Brisbane-London ##
First F 0-5 Shor 16526 km



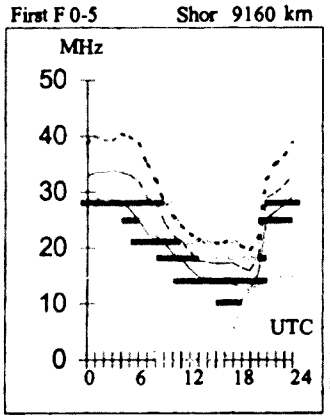
Canberra-Moscow ##
First F 0-5 Shor 14481 km



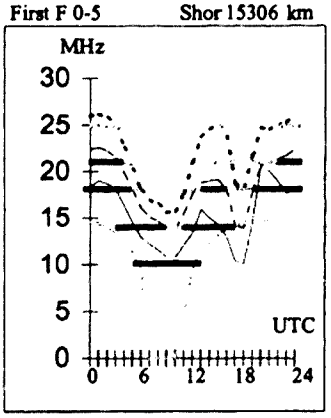
Darwin-Manila ##
Second 2F13-25 2I Shor 3198 km



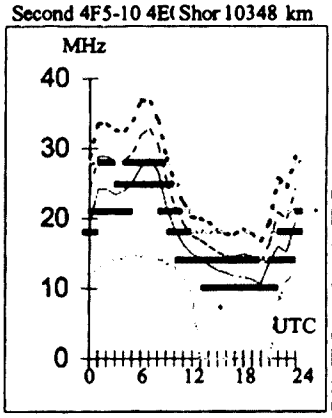
Adelaide-Honolulu 57
First F 0-5 Shor 9160 km



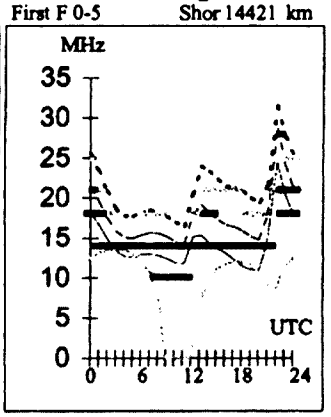
Brisbane-Ottawa 52
First F 0-5 Shor 15306 km



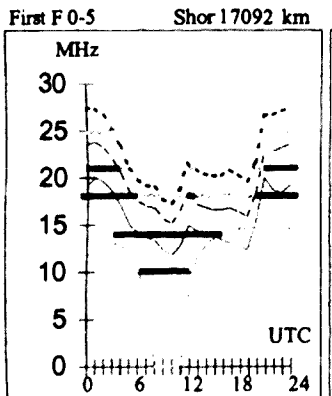
Canberra-New Delhi ##
Second 4F5-10 4E(Shor 10348 km



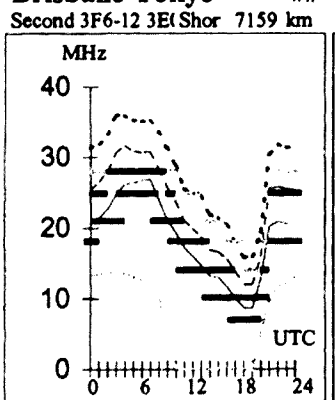
Darwin-Santiago ##
First F 0-5 Shor 14421 km



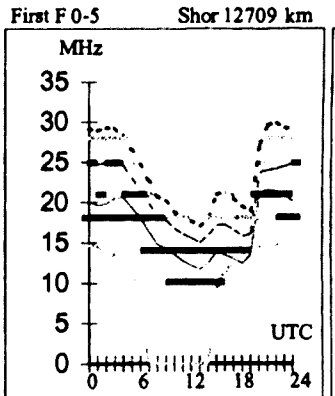
Adelaide-New York 67
First F 0-5 Shor 17092 km



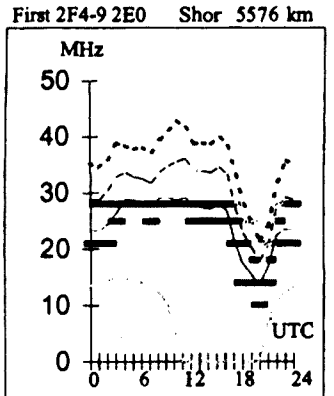
Brisbane-Tokyo ##
Second 3F6-12 3E(Shor 7159 km



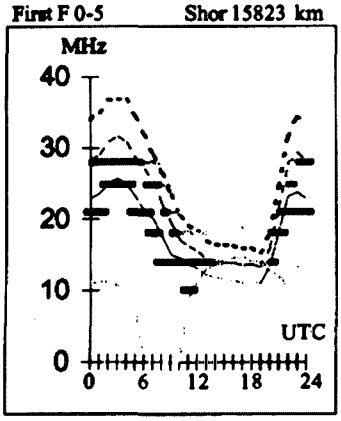
Canberra-Seattle 48
First F 0-5 Shor 12709 km



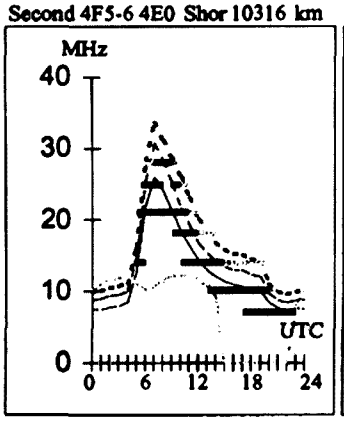
Darwin-Seoul ##
First 2F4-9 2E0 Shor 5576 km



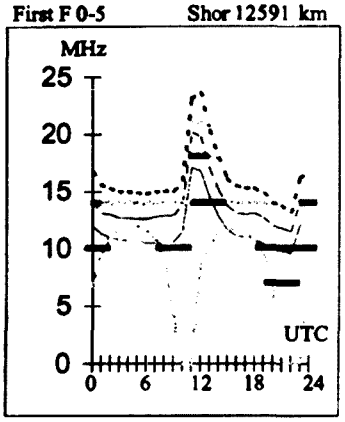
Hobart-Barbados ##
First F 0-5 Shor 15823 km



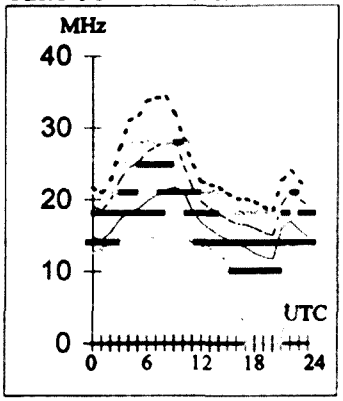
Melbourne-Capetown ##
Second 4F5-6 4E0 Shor 10316 km



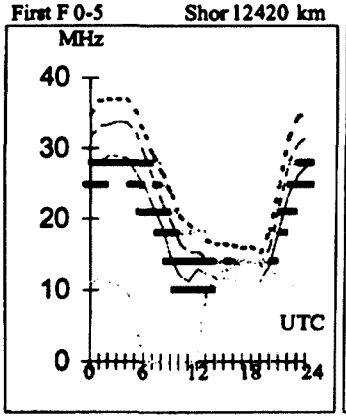
Perth-Buenos Aires ##
First F 0-5 Shor 12591 km



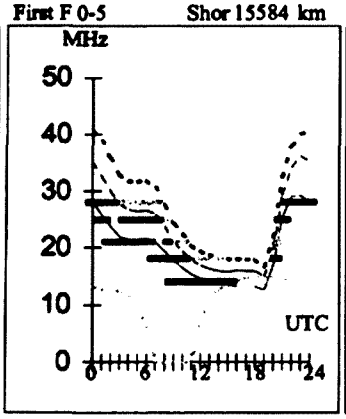
Sydney-Budapest ##
First F 0-5 Shor 15778 km



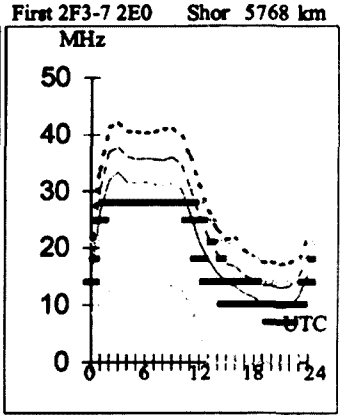
Hobart-Lima ##
First F 0-5 Shor 12420 km



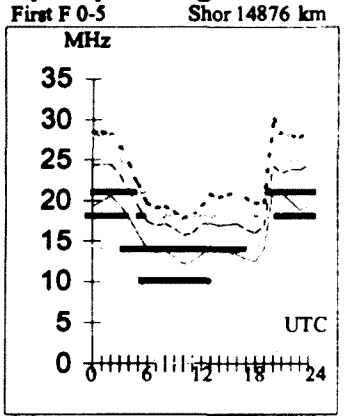
Melbourne-Miami 94
First F 0-5 Shor 15584 km



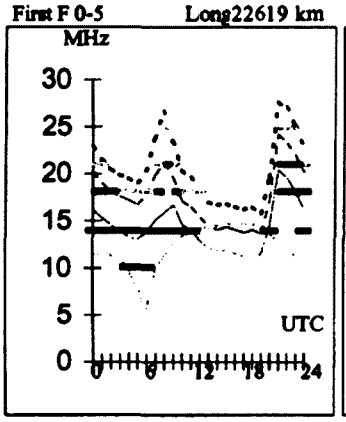
Perth-Columbo ##
First 2F3-7 2E0 Shor 5768 km



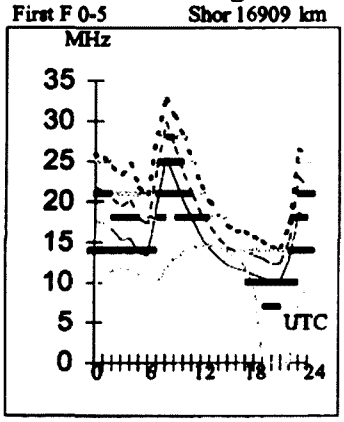
Sydney-Chicago 62
First F 0-5 Shor 14876 km



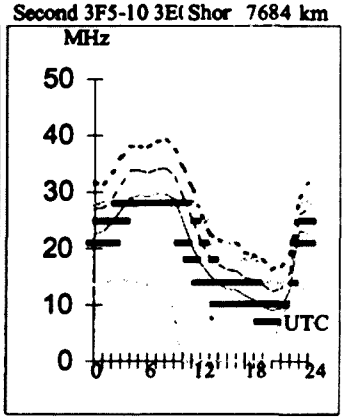
Hobart-London ##
First F 0-5 Long22619 km



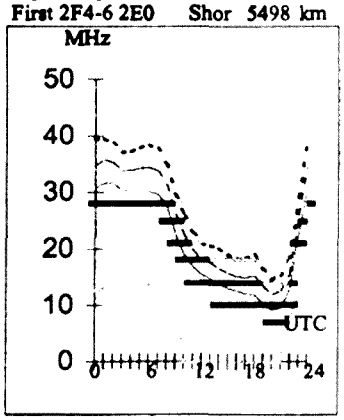
Melbourne-Senegal ##
First F 0-5 Shor 16909 km



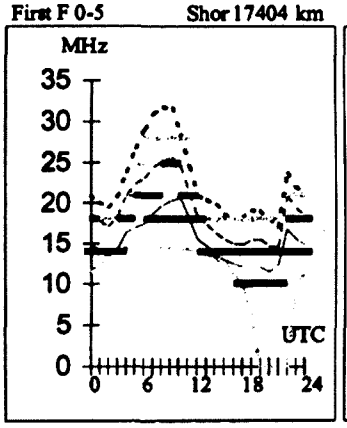
Perth-Osaka 17
Second 3F5-10 3E(Shor 7684 km



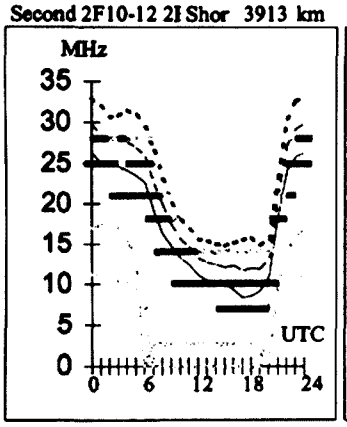
Sydney-Jakarta ##
First 2F4-6 2E0 Shor 5498 km



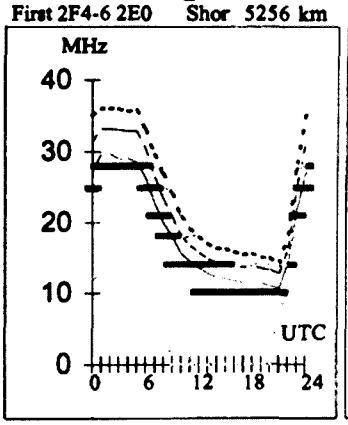
Hobart-London ##
First F 0-5 Shor 17404 km



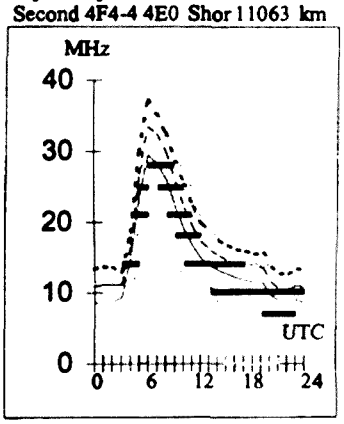
Melbourne-Suva 65
Second 2F10-12 2I Shor 3913 km



Perth-Wellington ##
First 2F4-6 2E0 Shor 5256 km



Sydney-Pretoria ##
Second 4F4-4 4E0 Shor 11063 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsl@webtime.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE - ACT

• Kenwood all mode 2m TR9000 $250. Kenwood all mode 2m TR751 $550. Kenwood all mode 70cm TR851 $550 All with mobile mounts, service and instruction manuals. Glen VK1G Phone 02 6254 8002

FOR SALE - NSW

• Kenwood station 4405 7"A 8"A MC85 P550 $2200. MML 100S amplifier. Azden PCS4000 coax relay. Reyco type 101 inline satelite antennas. TET 10el XYAGI 144MHz. MMK1691, 137.5 WXSAT converter. Call Colin VR2JCO Phone 02 9803 1760

• Deceased VK2UN offers wanted Uniden 2020TX, Yaesu FRG7000, Yaesu FT901, Yaesu FRG8800, MFJ tuner, Osker SXR200, Delta4 coax switch, antennas, 2m 5el beam, coax etc. Ring Colin VK2JCO Phone 02 9803 1760

• Kenwood AT120 $70ea. Yaesu 707 T/R $425. Revex W502 $140. Kenwood QR666 comm RX $125. SWR bridges $40ea. PK232 $200. DSE frequency counter $125. Digital multi meter $40. MFJ752 signal enhancer $180. A&R 2m linear $80. B&D twin beam scope $160. Estate VK2DBD. All o.n.o. Phone 02 4393 2626

• Yaesu FT-101ZD HF SSB transceiver plus Yaesu FL-2100B amplifier plus Emtron EAT-300A Antenna tuner plus Yaesu desk dynamic microphone MD-1. $950 the lot. Brian VK2GYT Phone 02 6972 3634

• Kenwood transceiver, model 440S-AT. Good condition, recently serviced by Kenwood. Doug, VK2DDR. Phone 02 9949 3426

• Yaesu FT200RH 2m handheld 140/150 MHz, 5 Watts output, case, book. Very good condition. $190 - ono. Peter VK2BPO QTHR, Phone 02 9713 1831

• Icom IC-275H 100W all mode 2metre transceiver $900. Kenwood TS-660 10W all mode 6m quadband transceiver $500. Lutron FC-1200 handheld 1.25GHz frequency counter $125. All items in excellent condition, with original packing boxes and instruction manuals. John VK2TK, Phone & fax 02 9416 6906, email pathways@rivernet.com.au

• Kenwood 440s transciever $850. Autoplex CW bug mod 8747 $50. John VK2EHZ QTHR Phone 02 6655 0893

• Yaesu 847 new bought it to put in car for mobile, sold the car, will not fit in new car, no room. Have fitted Collins filters also still under warranty plastic still on the dial also Emtronics power supply EPS-20 ST new in box $ 195. A.Walsh VK2TBW awalsh@acenet.com.au

WANTED NSW

• Wanted 6 metre transceiver. Peter VK2EMU (02) 9584 3236 vk2emu@arrl.net

• Wanted front end for GEL0S0 receiver or complete GEL0S0 G209R receiver either amateur bands or general coverage. Will buy or swap. Ray VK2AWQ QTHR Phone 02 6494 1347

• Galbraith morse paddle. Bob, VK2AVQ, QTHR Phone 02 9878 2359

• Information on Advance sig-gen type 62 serial no. 1043, six ranges 150 kHz 220MHz single 12AT7. Write Stanley Dogger, 116 Tunnel Road, Stokers Siding, 2484

• Copies of the series of articles on the Deltahet Comms receiver published in E.A magazine circa 1969/1970. Will pay reasonable costs for legible photocopies of full articles including circuit diagrams. Pat Brennan VK2ABE PO Box 158 Tamworth NSW 2340

FOR SALE - VIC

• Fluke multimeter Model 73 new unused with leads and instructionbook $150. HP 8640B signal generator full working order VGC with 50 watt reverse power protection option $950. Phone 03 9963 6884 John Rickard, email jrickard@aca.gov.au

• Kenwood TS820 SER 450796 dig readout c.w. filter SP520 speaker. MC50 desk mic and four new spare finals $425. Icom IC2E 2m hand held SER1735 with carry case and recent nicads $120. Rack comprising H.F. linears (2) and 2m linear (1) $100. Merv VK3AFO Phone 02 6024 2537

• Big transformers. "A" Primary 0-200-220-230-240V. Secondaries 30V 1A, 110V 0.5A, 0-18-20-22-24V 8A $50. "B" Primary 0-200-220-240V. Secondary 1500-0-1500V, 300mA $50. Bill VK3ZWO 03 9598 6304 QTHR

• Icom IC706 MK2 HF-2m transceiver with UT 106 DSP unit installed plus Emtron EPS 20st power supply. Dick Smith D4822 2m base antenna and D4825 6m base antenna. Cost over $3100 new. Yours for $2400 ono. Yaesu Musen Co FLDX400 transmitter $100. Heathkits SB101s 3 for you. 1 working, 2 for spares 21 valves each unit. $150 lot. Terlin outbacker HF-6m mobile antenna brand new in box never used $300 or give me $3000 and take the lot. Urgent sale, going to Poland. Contact Anthony VK3JIA QTHR. Phone 03 9728 4305 or 0408 564 589 anytime.

• "Dick Smith" D3800 Variable Power Supply 0 to 15V. 20A at 13.8V. S/N 92519182. $160 including P/P Aust. "YAESU" FP700 20A Power Supply with built in extension speaker. S/N 4F080001. $160 including P/P Aust. Bert VK3DVY. Phone 03 5221 6804. email virgo@webaxs.net

• YAESU FL-2100B linear amp $500. HY GAIN TH3jr antenna, needs TLC $100. DIAWA rotator including DC7055 round controller (preset type), DR7600Q complete with top & bottom mast clamps & spare (DR7600Q condition unknown) $250. Telescopic mast 3 section & various mast sections $50. 250 ft 3/8in coax cable $50. KENWOOD SW2000 SWR/PWR meter with SWC-3 coupler 1.8-54MHz, 3 antenna selector $150. BWD 101 AM/FM signal generator 100kHz-100MHz (unknown serviceability) with maintenance handbook $150. Can email pictures if required. Reasonable offers considered. Peter VK3BPN QTHR Phone BH 03 9580 9518 AH 03 9551 7346 or email peterco@alphalink.com.au

• AVO 8 Mark 6 multimeter in leather case like new condx. Offers? Damien VK3RX Phone 03 5427 3121

• IC 28AE as new 144-148 5 - 25W 25 mem channels sn 14998, extended Rx range $300 ono. IC 2400AE Immaculate, 2m 70cm 45 watts, 42 mem channels sn02960, extended Rx range $700. Keith VK3AFI – QTHR, Phone 03 5221 3658

• Alinco DR599 Remote head Kit. New , Still in package $100. Claus Salger VK3AZE Phone 03 9309 4462 or claus@alphalink.com.au

WANTED - VIC

• VHF Transceiver, ALL MODE, older style base station type like TS711A or FT221 preferred, details of price, make, age & condition to VK3FH QTHR, Phone 03 5986 1592. email:- jforster@alphalink.com.au

• Wanted satellite receiver e.g Proscan R139 RX2 manual and alignment tools necessary. Ken Morgan VK3CEA Phone 03 9592 9957 email kea@ozemail.com.au

• Philips FM828 MK2 tcvr band "B" in good order. Alan Phone 03 5985 6213

• Manual or at least circuit diagram for Advance signal generator model SG62B. All costs refunded. Drew VK3XU QTHR Phone 03 722 1620

• Spreader insulators only from 300 ohm TV open wire line, dogbone preferred. Installers check your offcuts. Wire not required. T.R. Naughton VK3ATN QTHR Phone 03 5492 2224, fax 03 5492 2666

FOR SALE - QLD

• Radiotron Designers Handbook 4th $40. 4 only 811A used $80. Caps 10,000 UFD 40V (6) $12. Hills SS Yagi 148 MHz 7 el corner reflector $40. Peter VK4APD Phone 07 3397 3751 peterhadgraft@yahoo.com

• Antenna: Spider Multiband (USA for mobile, maritime, residential with space restrictions. Vertical, four resonators (10, 15, 20, 40) with patented tuning sleeves, abt 2lbs height 6 ft, anodized aluminium. Outstanding performance (balcony use 100W 177 ctrs) request brochure! Rated 200W PEP with bracket, ball-mount, 100 ft 213U/50 coax. $300 ono. Hans L40370 ex HS1ALK. Phone 07 5470 4561

• A AH Traeger transceiver model 54S20 No 1 1726 as seen in 'Back Of The Big Beyond' with Tom Kruse in GWO and big and heavy. Swap for dedicated tube LF Tx/Rx or simlar. Paul VK4YKR Phone 07 3371 4486

WANTED QLD

• WWII Japanese transmitters and receivers (parts, plug-in coils etc). Also German equipment for restoration. Ray VK4FH Phone 07 3299 3819, fax 07 3299 3821, PO Box 5263, Daisy Hill Qld 4127

• WWII ex military German and Japanese Radio Equipment. Also AMR 100 receiver and services amentities. Receivers type V5 Aust. sound systems, AWA type C17020. Ray VK4FH PO Box 5263, Daisy Hill Qld 4127, Phone 07 3299 3819, fax 07 3299 3821

FOR SALE SA

• RF signal generator TE 20D freq range 120 kHz to 500 MHz in six bands. Older valve model. Very good. $50 VK5BVJ QTHR Phone 08 8738 0000

• Rotator Emotator 502 SAX control box, 15 m six core cable, all SS bolts used with three element, three band Yagi, $150. VK5BVJ QTHR Phone 08 8738 0000

WANTED SA

• Information on Marconi transmitter/receiver output test set TF1065A. Instruction book, circuit etc. Steve VK5 QTHR Phone 08 8255 7397

• Battery charger for Motorola HT-220 handheld. Hank, VK5JAZ, Mobile 0403 285 940

WANTED WA

• Power transformer for Yaesu YO-801 Multiscope or old unit with good transformer. VK6ABS QTHR Phone 08 9075 4136

• Variable air capacitors needed for projects. Please help Phone 08 9771 1664. Ring after 10.00 UTC week nights

FOR SALE NT

• Icom ICR 7100 Receiver ser. 04150, 25 MHz to 2 GHz, plus Icom AH 200 Disone antenna plus 20m feeder, $550. VK8FT 4/11 Lorna Lim Tce, Driver 0830. Phone 08 311 881

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

• **AMIDON FERROMAGNETIC CORES:**

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra

Silent Keys

The WIA regrets to announce the recent passing of:-

K C (Ken) Seddon VK3ACS
(JOHN) Kelly VK3AFD
A (Al) Bowley VK3AP
W A Trenwith VK3ATW
C W Richardson VK3QY

Email your hamad

Then we just cut and paste.
You proof it, you retain control.

ADVERTISERS INDEX

Over to You

continued from page 51

Contests

After 40 years of experience in Amateur Radio as a DXer, I would like to respond to the letter of Martin Luther, VK5 GN, about contests (Jan. 200 1).

It gives me trouble to read that VK5GN is one of the members of the WIA who have put his thoughts in print about the future of A.R. His pro-contest-arguments are alarming. Let's for instance find out what consequence it is if we only analyze these over ten thousand so-called QSOs of the CQWW leading station he mentioned.

10 000 contacts means to scream out "fifty-nine" at least 10 000 times and "Queue-are-zett" probably even twice the amount. A world-record in redundancy and narrow-mindedness! And where is courtesy? ("Your call!!", "What !!", "Again!!") To speak of a "QSO" is out of place. In such a "QSO" the most important components, like an honest report, name and location are missing. You can't even test your antennas because you'll get your "fifty-nine" from all directions, no matter what wet piece of string you are using. That means no information is exchanged, except a mendacious report and a meaningless number. Absolutely no communication! And that's one of the main reasons why contests provoke the complete destruction of A.R. It's the result of a misleading education. It's an outgrowth caused by those people in the ham-radio- society who never ever have understood the meaning and the magnificent possibilities of AX, for instance, operating for world-wide friendship and understanding, learning and practicing languages, comprehending geography or exchanging technical knowledge, let alone international and cultural interchange of ideas and other innumerable fields of knowledge. Their answer is "That's not my cup of tea!" However who gives them the right to turn the short waves regularly into a refuse heap, blocking a reasonable activities? To scream out "fifty-nine" for 48 hours is without rhyme or reason. It is the language of blockheads. This scenario definitely takes over the bands on every weekend. In fact it is the fastest growing area of our hobby, a perversion which has only scores in view, as many "fifty-nine" as possible in a fixed amount of time.

To furnish proof in the year 2000 we had no less than 417 contests word-wide. That means we had 8 contests each weekend on average. These undisciplined people do not care about anybody and act at the cost of people operating by means of good style. For their flash contacts they appear everywhere a frequency seems to be quiet for only a few seconds. Many of them using a tape recorder come over you by an overmodulated machine-gun-voice as if it were a matter of life and death. A serious amateur has to switch off his rig, because it is impossible to maintain any conversation.

Is there any rational human being who can enjoy such a stupidity in wasting time, frequency spectrum and power? Psychological studies uncovered that the only reason why so many people participate in a contest is to be seen in their incompetence to converse, their irresponsibility in view of operating skills and their inability to perceive feeble-mindedness. Powerplay, egotism, self-deceit and incredible simplicity take the place of the once highly praised ham spirit.

VK5GN1s statement, contesting to be a good method to easily outscore a good conversation speaks for itself Amateur Radio at level zero - apparently the world he feels at home. And what about contest-free WARC bands? Listen there and you will hear a great many contest-contaminated followers in a private contest shouting their primitive "fifty-nine". Under this state of mind it is quite obvious that the day will come when you will hear contests everywhere you go and all the rest of a once glorious and demanding hobby finally will consist of the two foolish imbecile words "fifty-nine" and "QRZ". Where is the responsibility of the coordinators of the national radio societies and organisations for a halfway civilised communication? Hopefully qualified hams with new ideas will be sort out to serve amateur interests in the sense of a better future of A.R_ and who make a stand against destructive contests.

Bernd W. von Bojen, DJ7YE, Roetgen, Germany

The struggle of Mazda and Ahriman

I thank you for including my contribution Morse and Mazdaism, in the February edition.

Unfortunately, Zoroastrian got mangled and my callsign VK2BN became VK2EN.

The letter had been prompted by the infuriatingly tautological and judgementally distorted outpouring of Ian Gray.

Zoroastrianism is based on the concept of a continuous struggle between Mazda, the God of Creation, Light and goodness and his archenemy. Ahriman, the spirit of evil and darkness.

If we really think about the many means of communicating by Morse Code and some of the simplest ways of exploiting, it, eg, sound, rf, light, in times of emergency. Surely, it is not too much to ask of us some return for spectrum occupied by amateurs by demonstrating our steadfastness and application to a skill peripherally attached to the art we strive to achieve.

It is clearly not a struggle between the spirit of evil and darkness portrayed by Morse abolitionists nor the God of creation, light and goodness they see in its abolition.

I suggest we contemplate the origin of the ARRL and adjust our perspectives accordingly.

Fred Smith
VK2BN/VK2ACP

Editor's note The misspelling of Zoroastrian was a mistake by a new optical character recognition system. Neither it nor the typesetter were around in the Avesta; neither made the connection

Address Letters to:
The Editor, Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

YAESU'S DONE IT AGAIN

YAESU

FT-817 HF/6m/2m/70cm Transportable

The world's first self-contained complete battery powered multimode transceiver covering all the Amateur bands from 160m to 70cm. Provides up to 5W PEP output, with SSB, CW, FM, and AM modes, plus reception of the 100kHz-56MHz, 76-108MHz (wideband FM only), 108-154MHz, and 420-470MHz ranges. Operates from 8 x "AA" size batteries (not supplied) and Alkaline or NiCad batteries may be used. An external 13.8V DC power source can be easily connected to the transceiver, and a Menu function will allow charging of the optional FNB-72 NiCad pack from the 13.8V DC source. Includes "big rig" features such as IF Shift for reduced adjacent channel interference, IPO to allow by-passing of the RF preamp on HF/6m for improved strong signal performance, an IF Noise Blanker for reduction of impulse noise, and a front-end Attenuator for more pleasant reception of extremely strong signals. Includes 2 antenna sockets - a top panel BNC socket plus a rear panel SO-239 socket and the menu system allows you to define which socket will be used on the HF, 6m, 2m, and 70cm bands. Includes: 200 memory channels with Alpha tagging, VFO and Memory scanning, Dual Watch and Priority Channel operation, as well as Smart Search. CTCSS and DCS encode/decode circuitry is built-in as standard. Supports 1200 and 9600 baud VHF/UHF Packet operation, and the Menu system allows custom setups for RTTY and PSK31 (USB & LSB), as well as two User defined models (eg. for SSTV use). Supplied with the following accessories: MH-31 handheld microphone, FBA-28 internal battery holder, YHA-63 Whip antenna for 6m/2m/70cm operation, E-DC-6 DC cable, and a shoulder strap.

D 3680

$1495

2 year warranty

DICK SMITH ELECTRONICS

That's where you go!

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information. Offers expire 30/6/2001

THE BEST. NO TWO-WAYS ABOUT IT.

Introducing the latest UHF CB two-way radio from ICOM. The IC-40jr "Joey" is super-compact, very lightweight, extra-rugged, water-resistant and lots of fun!

Imagine any activity where you would like to stay in touch with friends and family: • Camping • Climbing • Horseback Riding • Mountain Biking • Scouting • Hiking • Orienteering.

And don't worry about the weather because the Joey is built water-resistant. That means you can use ICOM's Joey in wet environments: • Boating • Canoeing • Boat launching • Fishing • Skiing (water or snow) • Sailing. Outstanding features include Smart Ring and 'Out of Range' indicator. The compact design with fold down antenna fits neatly in your hand or pocket. There's also a 2 year warranty and an easy to read LCD screen and more....

After all, why buy a radio intended for active use if the radio can't survive the activity?

ICOM
Clearly Ahead

VIC Time Plus (03) 9380 4172, Aeroshop (03) 9431 2131 NSW Mastercom (02) 9682 5044, Amateur Transceiver (02) 9896 2445 Andersen Marine (02) 9979 6160
ACT Watts Communications (02) 6280 6416 SA ICS (08) 8447 3688 Electric Bug (08) 8346 9234 TAS Marcom Watson 1800 630 611 NT I.T.S (08) 8980 8980
QLD Access Electronics (07) 4922 1058, Delsound (07) 3839 6155. Olbis (07) 3875 1155 (07) 4779 2234, Michaels Electronics (07) 4632 9990
WA Allcom (08) 9479 4997 Midland Disposals (08) 9250-9000. *For more information call ICOM (Australia): (03) 9387 0666 or www.icom.net.au*

June 2001
Volume 69 No 6

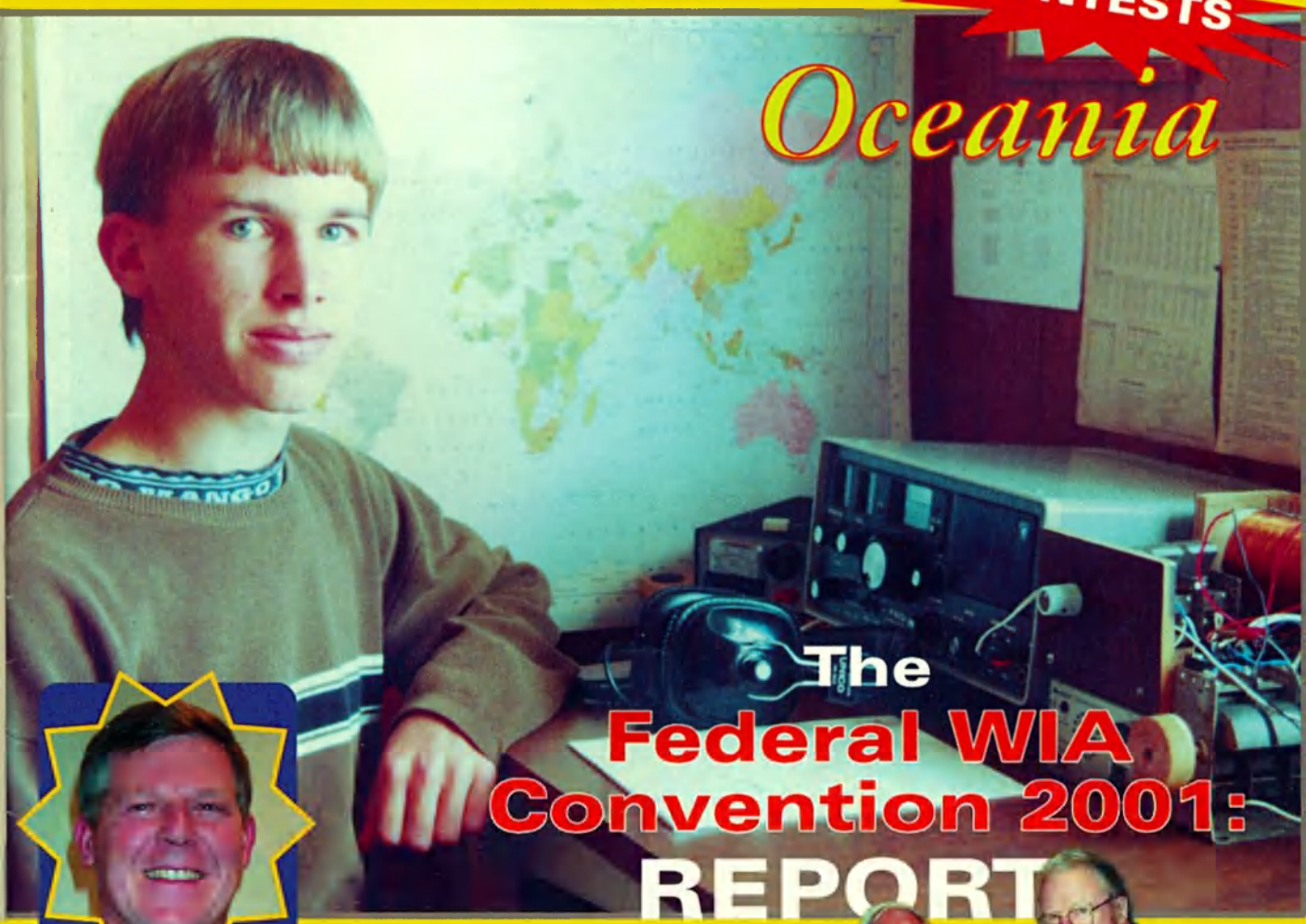
Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

VK1RGI refurbishment:
A major antenna rebuild at Mt Ginini

CONTESTS

Oceania



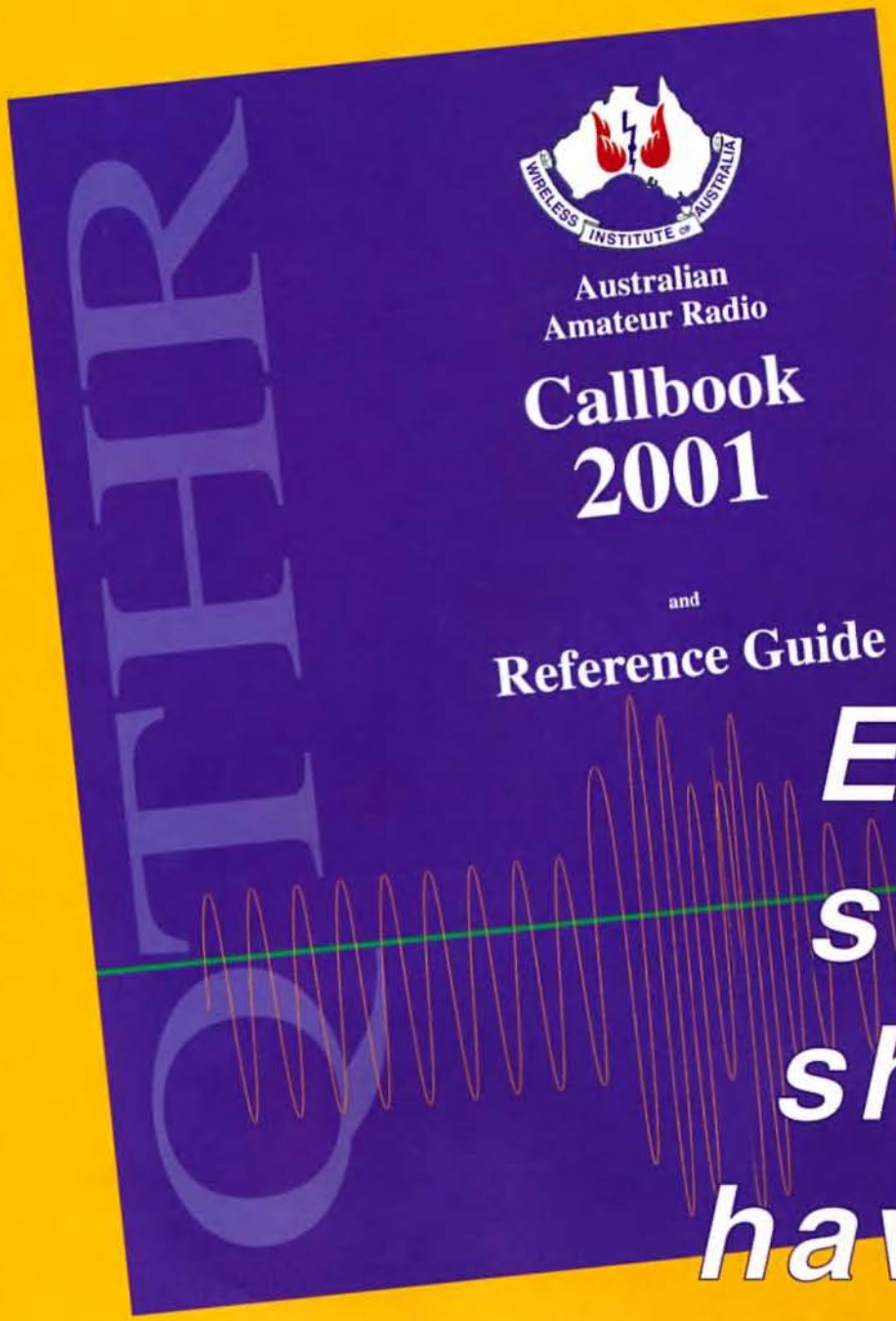
The
Federal WIA Convention 2001: REPORT

Introducing
the President

- The Simple Z Match Tuner Simplified
- PSK31: The *Easy* Way (Part two)

Novice Notes: Workshop and operating hints and tips

Technical Abstracts:
- The Parasol
- 160 Metre Inverted L Antenna
- Multivibrator Overtone Crystal Oscillator



Every shack should have one

Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies
and more!

The "WIA Call Book 2001" is available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 6
June 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members
Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: t.b.a
e-mail: *newsl@webtime.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191
Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

General

Technical

Columns

Our cover this month

Main picture: James O'Hare ZL3501 is 15 years old and winner of the Oceania SWL category.

Insets: (left) New WIA President Ernie Hocking VK1LK; (right) Outgoing Peter Naish VK2BPN presents former AR editor Bill Rice VK3ABP with the Higginbotham Award for his Service to AR and Publications

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues
Back Issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Federal Secretary

Peter Naish VK2BPN

Federal Office staff

June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

Council

President	Ernest Hocking	VK1LK
VK1 Federal Councillor	Gilbert Hughes	VK1GH
VK2 Federal Councillor	Barry White	VK2AAB
VK3 Federal Councillor	Jim Linton	VK3PC
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6UU
VK7 Federal Councillor	Phil Corby	VK7ZAX

Executive

Brenda Edmonds	VK3KT
David Pilley	VK2AYD
Don Wilschefski	VK4BY

Federal Coordinators

AMSAT	Graham Ratcliff	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	John Kelleher	VK3DP
Contests	t.b.a	
Education	Brenda Edmonds	VK3KT
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Grant Willis	VK5ZWI
Intruder Watch	t.b.a.	
International Travel Host	John Miller	VK3DJM
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (VK9, VK0)	Neil Penfold	VK6NE
Videotapes	VK2 Division	
Web	Joe Burford	VK5UJ

ACA Liaison Team

Ernie Hocking VK1LK
Gilbert Hughes VK1GH
Keith Malcolm VK1ZKM
Peter Naish VK2BPN
Canberra Liaison Officer Richard Jenkins VK1RJ

Editorial Comment

Colwyn Low VK5UE

Well the WIA is certainly filling the BBS and email lists with info. Now we have to make sure it is the info we need.

The new Directors are settling down in their jobs and we will see things have changed a bit different in the coming months.

I was interested to read in the Bulletin of 6th February an article on Amateur Radio on page 64 called "Ham is where the heart is". I wonder how hard it would be to get similar exposure in an other National magazine? This is why we need a Federal PR Coordinator

Amateur Radio magazine is being looked at to see if it can be improved. Now to some that means content, to others the quality of the paper and the presentation of photographs and diagrams. I feel the starting point has to be 'What are we trying to do publishing a magazine for members?" If the prime purpose is to provide members with information and to be a forum to exchange ideas then it could be argued that we do not need the highest quality paper and the highest resolution photographs. In the end members pay for what they get. So they have to decide if any extra expense in publishing the magazine in a different form is justified.

This month we have had to catch up on the results of some of our contests. You will see that the Oceania contest results show a large number of entries worldwide. We need to remember we are DX to a lot of operators and so contests like the Oceania one give non VK and ZL operators a chance to find VKs and ZLs easily. Please give them some more opportunities this year in October.

I am having an easier life the last few months. You have provide more input and I can now plan a month or so ahead. This should help set and keep a 'post in Melbourne by 1st of the month of issue' schedule. Hopefully this June issue gets to you by 10th June.

I still need to remind you that we need material to publish in AR. Technical articles are not as numerous as General articles. So what about some articles on ATV and UHF/SHF equipment.

The Mt Ginini article should have had a few more photos but I was sent 35Mb of photos in successive email on the same day. It overflowed my ISP mailbox allocation of 20Mb; it filled my 1Gb HDD and took 3.5 hours to down load over three days. I had to strip and rebuild the HDD. Please if you have this much data send it on a CD. Express Post gets to me in a day from all Capital City areas. From the fragments I did see there were some good photos of working in the wind and rain.

I have acquired a small, solar panel, about 6W 12V which might let me run an HW7 in a field day on solar power. Anything for a change !!! What have you got up to?

Colwyn VK5UE

New WIA Members

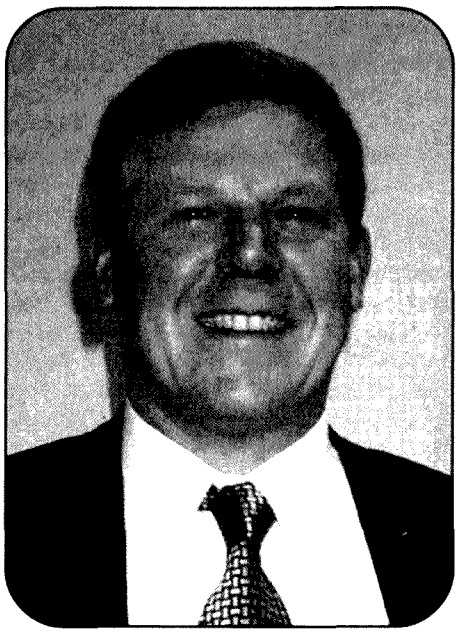
The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of March 2001

L21185 MR A BALLANTINE	VK2HUP MR J FEGAN
L21186 MR G B WOODWARD	VK3DJM MR J H MILLER
L21187 MR M FAED	VK4OC MR D S A PEAKE
L60XXX MR R C W JUNCKERSTORFF	VK7ZAC MR A CORDWELL
	VK8GW MR G T WOODS

WIA Comment

Ernest Hocking VK1LK

Introducing the President



Ernest Hocking VK1LK

Amateur Radio means many different things to many different people. Like many, when I first became interested in amateur radio I thought the hobby was about listening to radio transmissions and once qualified being able to respond to them. It was not until I first came into contact with my local radio club that I discovered that of the greatest joys was being able to interact with others in all aspects of our hobby. Through this club I met others with similar interests and as a result greatly improved my understanding of a wide number of aspects of radio. I also remember thinking that at some time in the future I would like to be able to provide the same sort of help to others.

Given my experience it then seemed only natural to volunteer when these opportunities arose. Since my time here in Australia I have participated in the activities of the local VK1 Division initially as the TAC and subsequently as divisional treasurer. Through these activities I came to learn about the Federal organisation of the way in which it worked. When the call for volunteers to assist in the Federal arena it seemed natural to volunteer to assist.

Something about myself

One of the questions that I have already been asked is several times is "Can you tell us something about yourself?" so here goes:

I was born in 1959 in the Devon in the South West of England. After finishing at Bideford Grammar School I went to the University of Sussex where I studies Mathematics and Physics. During my last year I decided that a career in the Army would be a great opportunity to experience a little life before settling down to a "normal" career. After some exciting times at Sandhurst and Aldershot I was commissioned into the Parachute Regiment where I discovered, in the Falklands in 1982, that the Army wasn't all about sports and adventure training. In 1984 I transferred to the Royal Corps of Signals in order to work more with my interests in communications and IT.

After a number of years with the Signals I decided that my interest in IT was great enough to justify returning to University at York in order to take a Master's Degree in IT. This was followed by a three-year stint doing research for the Royal Signal's Research Establishment (RSRE – the UK equivalent of DSTO) into secure computer systems. This led to a period working as a consultant for a local consulting company before spending a number of years working in Luxembourg on computer security issues for Cedel Bank. I moved to Australia in 1996 where I have spent time working as a consultant on a number of projects including a 6 month spell at the ACA before joining Sun Microsystems in late 2000.

Immediate plans

There are a number of things that I see as immediate issues that need to be done as a pre-cursor to moving forward. These include:

Communication. Listening to the members. As communicators I often hear it being said that we do not effectively communicate with each other. In the past; technology restrictions made it impractical to easily communicate effectively. This is no longer the case and most of us have ready access to the Internet and the opportunity to get our message across. I propose to make good use of this, and any other medium, in order to listen to what amateur have to say about our hobby and to communicate to all amateur what the WIA is doing for them.

WIA plan for the next year. The current directors are all new to their positions. As a priority we need to determine long term objectives of the WIA, assign individuals to roles, and define the budgetary requirements needed to meet these objectives. This process will be helped by the views of all amateurs—but please act quickly since we have to consolidate our plans quickly.

Budgetary Issues. The Federal Council already has a proposal in front of it to consider an increase in membership fees to cover increased costs in the production of AR. This proposed increase is not as some have suggested just to increase the print quality of the current magazine but rather to reflect a number of factors such as reducing circulation numbers, increased production costs and reduced advertising revenue. Whilst none of us want to see an increase in price we may have to impose this if we are to maintain the magazine in the short term. In the longer term there are a number of options that we might wish to investigate. I will have more to say about this in future articles.

Future examination and licencing arrangements. As you have already heard by now the ACA has issued a paper seeking proposals about the

Continued on page 5

The Federal WIA Convention 2001

This Report was sourced from QNews. It is one person's view of the Convention and is not the official minutes. It is published to provide all members with an overview of the Federal Convention. Colwyn VK5UE Editor

The following is extracted from a lengthy report from the VK4 Federal Councilor David Jones VK4OF what might be termed *"Reflections on the 65th Federal Convention of the WIA."*

The meeting opened at 0900 Saturday, with WIA President, VK2BPN Peter Naish in the chair. WIA Director John Loftus, VK4EMM conducted a workshop on accounting methods and ways of assessing the performance criteria of certain aspects of a business example. This education was very well received, and allowed everyone to better appreciate the increased complexity of company accounts.

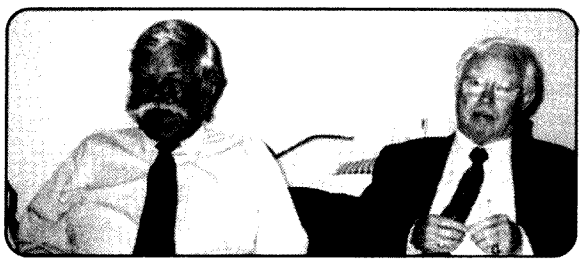
Of the 18 Divisional Motions some were withdrawn, as they are often unintentionally worded in such a way as to possibly create new WIA policy, when a change in operation or attitude is all that is needed to effect the desired outcome. The conducting of a market survey moved by VK3 was approved and the debate generated many useful ideas. The motions (1) to establish of a national bookshop and a QSL service were withdrawn, however VK2 has offered to extend its Bookshop services to any member of any division and are looking at the commercial aspects of handling QSL cards for other divisions. (2) to establish a national News Service, by VK4 was withdrawn. QNEWS is now officially made available to any division which requests it, and the WIA Federal President or his nominee will appear at least monthly. QNEWS will co-ordinate same, record the interviews, and distribute them to other divisional news services if required.

What many WIA Divisional members saw as "the big one", the discussion of Martin Luther's restructuring paper, along with the VK4 restructuring ideas were both withdrawn, then discussed in open committee for over an hour on Sunday morning. Basic issues are that any change could be very expensive, with no guarantees of success. General agreement was to work towards far better communication between divisions and to members and non-members alike. Use of federal president on news will also help to spread the word.

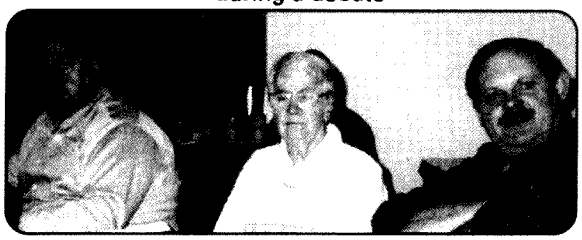
Reports to Council numbered 26, including some very detailed and expansive ones. For example, Grant Willis's IARU Region III Report was initially 60 pages! Importantly, there are two WRC's coming up, the first in Venezuela in 2003, and another in 2006. Plus IARU Region III conferences. We need to finalise a team of two for both but given our current level of funding at $2.00 per member, we will be out of funds by the end of 2003. The solution, more from more members. The WIA did not support the IARU Region III proposal to restrict the 10 MHz operation to FSK and CW only. ARDF, in-principle support for the hosting of the Region III Championships in 2003. WIA/ACA Liaison Committee and Gilbert VK1GH will progress the 40m gateway issue. This has repercussions for people in small lot developments who cannot install antenna arrays.

Grant VK5ZWI makes a point during the IARU Session

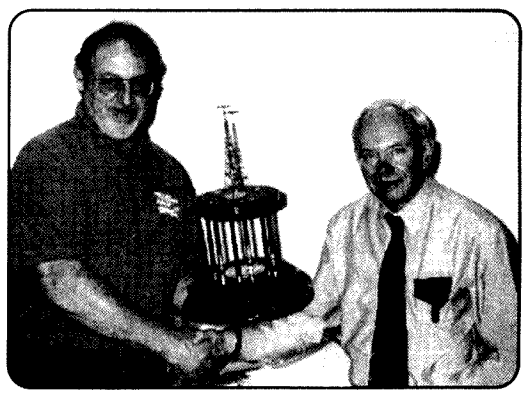
Elections: Executive: President: Ernest Hocking, VK1LK. Directors: David Pilley, VK2AYD Don Wilschefski, VK4BY Brenda Edmonds, VK3KT Secretary: Peter Naish, VK2BPN: Editor AR: Colwyn Low, VK5UE: WIA/ACA Liaise Gilbert Hughes, VK1GH Keith Malcolm, VK1ZKM Peter Naish, VK2BPN Richard



Martin Luther VK5GN and David Pilley VK2AYD during a debate



Serious business! VK3 delegation: Jim VK3PC (Federal Councillor), Brenda VK3KT and Peter Mill (3rd Alternate Councillor)



David Jones VK4OF receives the RD Trophy 2001/2 from Peter Naish

Jenkins, VK1RJ (ipso facto). All other ex-officio positions were reconfirmed.

G A Taylor Award. It was agreed on secret ballot to award the G. A. TAYLOR Medal to Neil Penfold, VK6NE, for over 30 years of service to the WIA in a variety of capacities.

David VK4OF said " This was by far the most productive, pleasant and exhausting meeting I have ever attended which currently number about 12. There was no petty 'playing of business meetings', no character assassinations, nothing except a great spirit of co-operation and a willingness on the part of all to work together for the common good of the WIA and the Amateur Radio Service it represents. Conferences such as this deserve far more publicity than they ever receive, and the members of each division need to be assured that they really get their membership money's worth from their well-prepared delegates. If we can expand the principle of communications across the divisions, learn from each other's successes and failures, this will progress the WIA in a way that will likely eliminate the need for any restructuring, at least in the short term. When we add greater emphasis on communicating the message to all the amateurs across Australia, including having the Federal President on news broadcasts, I am sure we can make a serious start towards rebuilding the membership base."

The new Federal President, VK1LK, in a press statement released by the VK1 Division said in part "I want people to contact me, but they have to realise that there are limits. Email me, or expect to reach an answering machine and then I'll deal with matters in my own time." The contacts are:
ernest.hocking@aus.sun.com
04 1230 2576 Fax-(02) 6257 2664.

John Loftus, proud recipient of the Frank Hine Trophy

Introducing the President

amateur examination, and licencing arrangements and how they will be administered. Currently Brenda Edmonds is working on this issue. The paper is available on the ACA web page and Brenda and I would welcome others thoughts on the way in which we might respond. If anyone has the time to assist Brenda in the preparation of the response then I am sure that she would welcome volunteers.

Longer Term Plans

Although not definitive I would like to indicate some of the areas that I believe I need to focus on over the forthcoming months:

1. *Accountability.* Many people do not understand just what it is that the WIA offers them. In order to address this I will endeavour to increase the frequency and quality of way in which the WIA and its officers communicate with all amateurs. I propose to achieve this by means of regular articles in AR and the divisional broadcasts. It is important that everyone knows what the issues are that we are facing, along with broadcasting the successes achieved by the WIA for amateurs.
2. *The future of the hobby.* We need to increase the profile of amateur radio in all areas to encourage a

Continued from page 3

wider involvement. We know that amateur radio as a hobby is in a decline in Australia. This is not the case in all countries. We need to review what is happening in the US and the UK to determine what we can do to make amateur radio relevant to the next generation of amateurs. Some of the initiatives might range from attempts to introduce a concessionary rate for students and pensioners through to reviewing the current licencing arrangements with the ACA in an effort to increase the overall membership of the amateur radio community Australia wide.

3. *Listening to the membership* to find out what their thoughts are. I propose to do this through being available to talk to you as often as I can. Where possible I will take the time to visit clubs, divisions, and events such a Wyong. In addition I always welcome comments by electronic mail and where essential by telephone. Whilst the current Divisional structure has its role in the current administration I do not see it as an impediment to the membership liaising directly with the Federal directors on matters of interest.
4. *Patronage.* Amateur radio does not exist in isolation. Many of us are members of commercial, academic, government or professional bodies. Many of our employers perceive our participation in amateur radio as something that serves to enhance our day to day work. I would like to try and make this currently informal relationship something that we can all benefit from. Only by making the profile of amateur radio more prominent can be hope to achieve the increase in numbers that we need to see our hobby thriving well into this century.

All of the above plans rely heavily on your input. This might range from the expression of any opinion on the way in which we can improve some aspect of amateur radio through to your active involvement in a project to bring such a plan to fruition. A number of federal positions remain open for anyone who would like to assist. One thing is clear and that is that the best hopes for amateur radio lie with the efforts of each of us working together for the benefit of our hobby.

Finally I would like to extend my most sincere thanks to the outgoing committee for all of the hard work that they have put in over the last year or so. Without their efforts none of us would be in a position to look forward to enjoying all of the aspects of the hobby over the next year.

Ernest Hocking VK1LK

The Simple Z Match Tuner Simplified

Lloyd Butler VK5BR

The requirement

You need some sort of simple-to-build and inexpensive gadget to match your HF transceiver to a wide range of antenna impedance load conditions. (In fact almost any old piece of wire you might care to hang up). You would also like it to match both unbalanced and balanced loads on all HF bands.

Ask somebody what to do and you will probably get the answer: The Z Match.

Considering all the data we have published on Z match tuners and the different circuit arrangements we have investigated, one could be forgiven for being confused about which Z Match design one should choose to satisfy the criteria of the opening paragraph. Based on all the experimental work I have carried out, here is what I select as a simple design, which has been fine-tuned to match a wide range of antenna impedance conditions:

The design

The circuit diagram is shown in figure 1. The circuit arrangement of L1, L2, C1 & C2 is identical to that which I described as the AR Single coil Z Match, Amateur Radio (AR) April and May 1993.

Coils L1 (57 mm diam.) and L2 (67 mm diam.) are wound with around 16SWG gauge enamel wire. The precise gauge is not critical but the heavier the gauge the better the efficiency one might expect from the tuner. The former (figure 2) is made from Perspex sheet and drilled as shown to support the individual turns of the coils. The inner holes support L1 and the outer holes L2. Initially wind coil L1 close spaced on a round former, which has a diameter less than 57mm, and with a few more turns than the 14 specified. Release the winding from the round former and allow the winding to expand to the right diameter. (Some experimentation may be required to get the initial diameter right in the first place). Thread the winding by rotation into the support holes in the Perspex former. Trim off the winding at 14 turns and clean off the enamel insulation for soldering connections at the ends. Also clean off enamel for soldering tap points at 7 and 10 turns.

The same treatment is repeated for L2 by first winding on a round former (in this case something less than a diameter of 67 mm) and then threading the coil into the outer holes.

Variable capacitors C1 and C2 are tuning gang types with around 0.25 mm plate spacing and recovered from old radio receivers. Whilst these capacitors might be difficult to purchase off the shelf, they are often picked up at amateur radio trading marts. The plate spacing is fine for the usual transceiver RF power of 100 watts. It is a bit marginal for higher powers and under some matching conditions, arcing across the plates might be experienced at the amateur power limit of 400 watts.

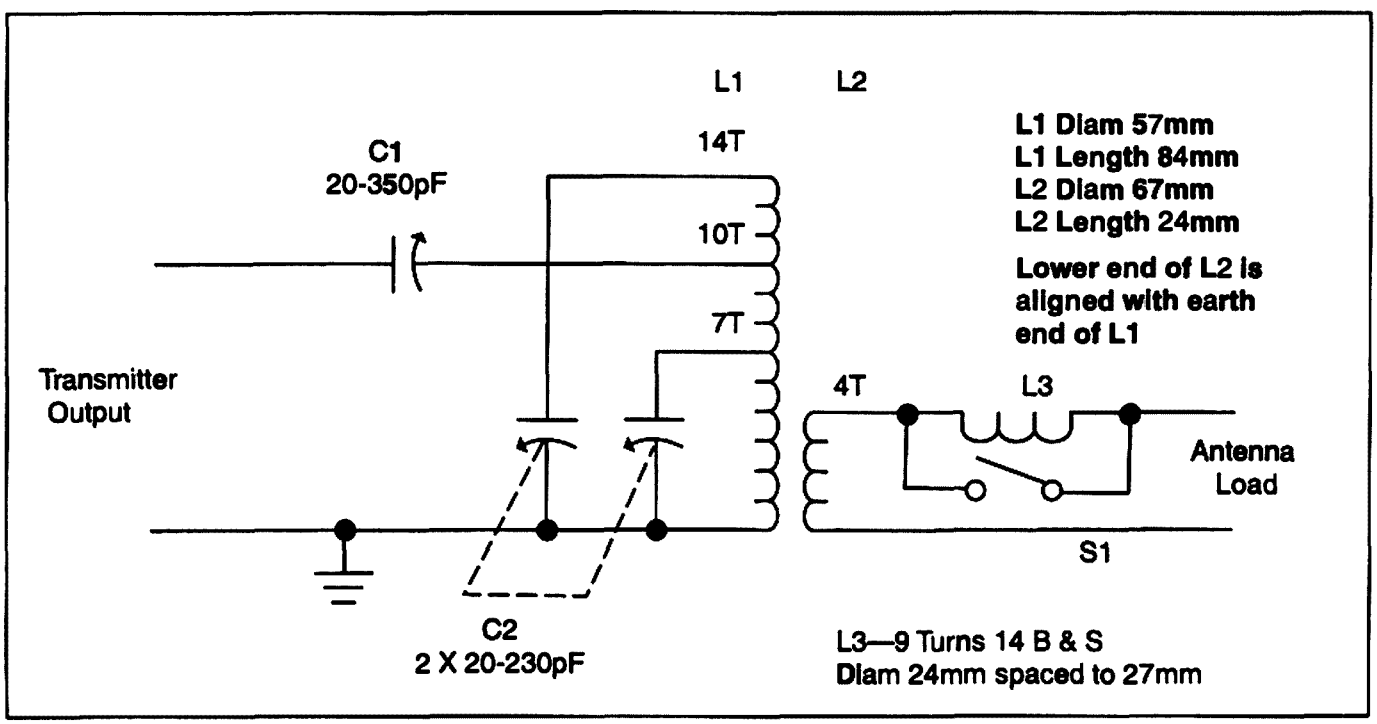


Figure 1. Single Coil Z Match Tuner

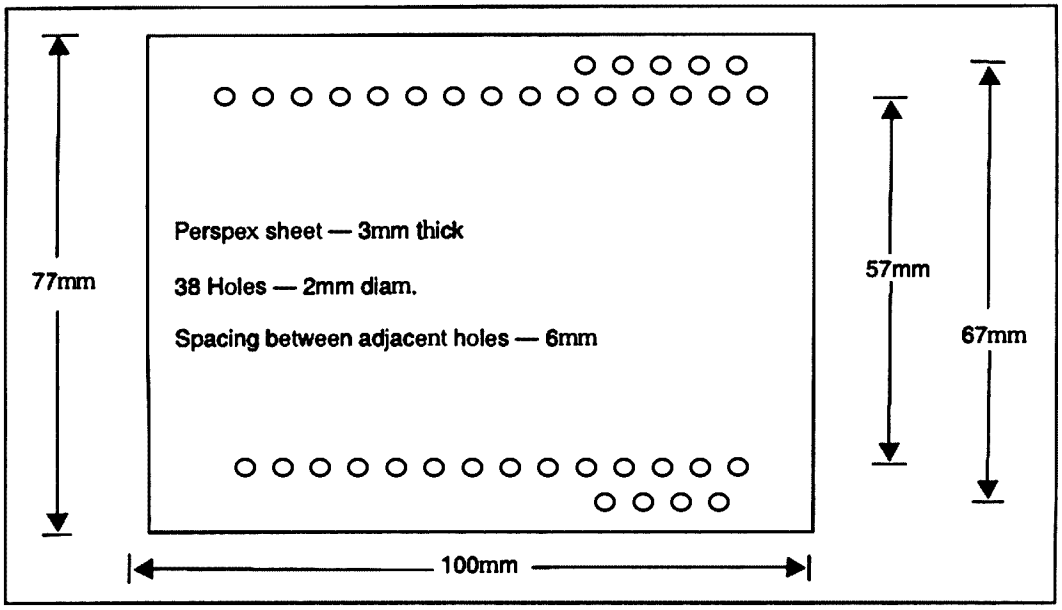


Figure 2. Perspex support sheet for coil L1-L2

The coil assembly can be mounted using a small L bracket fitted to the Perspex sheet at the cold or earthy end of L1. Heavy connecting bus bars between L1 and the tuning capacitors can provide support to the upper section of the coil assembly.

If you refer to the original Single Coil Z Match articles, you will see that L3 and S1 are not inclusive and they are a further addition. In fact for most matching conditions, they will not be needed and L3 will be switched out by S1. However a characteristic of the Z Match Tuner is that to match low resistance loads, some reactance is required in the load circuit, either due to reactance reflected from the antenna load, or the reactance of L2, or a combination of both. The antenna load impedance might be capacitive reflecting a capacitive reactance back to L1. If by chance this happens to be close in value to the inductive reactance reflected to L1 due to the inductance of L2, then the two reactances cancel or near cancel. For this condition, a match is unlikely to be achieved for an antenna resistance component somewhat lower than around 80 ohms. The theory of this phenomena was explained in more detail in our article Amateur Radio, March 1997 (Butler & Thornton).

To get over the problem when this occurs, some extra reactance is simply switched in by the addition of L3. In practice, if a match cannot be found by adjustment of C1 and C2, then switch in L3 and try again.

The inductance of L3 is not critical. As specified in figure 1, it has an inductance of close to 1.2 uH. Air wound with a heavy gauge wire, it can be made self-supporting by soldering its ends to insulated mounting tags. Apart from its use in the particular single coil tuner described, the inclusion of the circuit L3S1 is a very useful addition to any Z match tuner design to cope with the sort of condition I have discussed.

Except for some sort of front panel oblique base assembly or container box, left to one's own imagination, the only other major components are two vernier dial drives fitted to the two tuning gangs. The capacitor settings for a match in a Z Match Tuner are usually quite critical and the vernier drives are quite essential to carefully locate these settings and hold the capacitors locked. I find it's best to tune with both hands, one on each dial, as it is sometimes necessary to chase one dial setting after the other, leading into the optimum settings.

In conclusion

Follow the design as described (particularly the precise specification for L1L2 coil assembly) and you will have a unit to a design which has been "fine tuned" so that it will match most of the impedance loads you might encounter.

It can be used on all the amateur bands of 3.5 to 28 MHz with either a balanced or unbalanced load.

Power efficiency is very good for frequencies up to 14 MHz and for load resistances up to 200 ohms (This was discussed in AR Sept. 1995). Some loss in efficiency can be expected as load resistance is raised higher.

Output balance is quite good for frequencies up to 14 MHz and balanced load resistances up to 1000 ohms. (This was discussed in AR April 1996).

ar

(Originally published in the Adelaide Hills Amateur Radio Society Newsletter July/Aug. 1999 & republished in Lo-Key June 2000)

PSK31 The Easy Way

Part Two

This paper builds upon the basic concepts of PSK31 discussed in Part One of "PSK31 The Easy Way" (1) by looking at recent developments in software, and using PSK31 on air. DigiPan PSK31 software (4) has become a commonly used computer program in recent times, and has identified many of the limitations (2 & 3) of the original front end, display, macro's and general ease of use by the wider Amateur Radio (AR) community.

A broad summary of PSK31 operating techniques is discussed with hints and tips for the newcomer with using keyboard-to-keyboard communications for DX hunting and general on air chatting with friends. Some questions remain, Eg: "Will PSK31 make RTTY obsolete?"

Compiled: 19 February 2001

Alan J Gibbs, VK6PG
223 Crimea Street
Noranda 6062
Western Australia
Telephone: +61 (08) 9275 3348
Email: vk6pg@tpg.com.au
Web: http://www2.tpg.com.au/users/vk6pg/vk6sig
Packet: VK6PG@VK6BBR.#PER.#WA.AUS.OC

A year has passed since the publication of "*PSK31 – The easy Way*" (1). During this time, thousands of Amateur Radio (AR) operators worldwide have become active with this comparatively new data mode of communications, and more appear every day. Whilst debate about CW testing in the AR Licensing Requirements continues to appear in AR journals around the world, little discussion is offered about how PSK and other modes can supplement CW thereby furthering the interest and diversity of Amateur Radio for the benefit of all.

During a recent PSK contact with an overseas operator, the writer discovered that the DX station was deaf and had to give up AR operation because he could not hear CW and SSB stations. PSK came to the rescue, and now he can enjoy his beloved hobby once more. Other cases include "seniors" who find it difficult to use a Morse key because of limited hand agility but they find that a computer mouse "click" was easy to do, and whole sentences can be inserted into their PSK "overs" with little effort. There are many other examples where PSK31 has given AR operators the freedom to meet with other operators worldwide on equal terms.

The writer has been very active with PSK31 for almost two years, and has watched the vast uptake of the mode at first hand. Two years ago it was difficult to find anyone using the mode, yet today, a short CQ beaming Europe immediately causes a pile-up that can last for many hours and easily fills a full page in a logbook!

Bad operating habits plague PSK31 just the same as any other mode on the HF bands. Calling CQ right on top of your signal, when you are conducting a contact with a DX station might mean that you lose that illusive DX station - is all to common on today's crowded bands. However, good PSK operating practices should be upheld, and this paper highlights just a few of these to get you started.

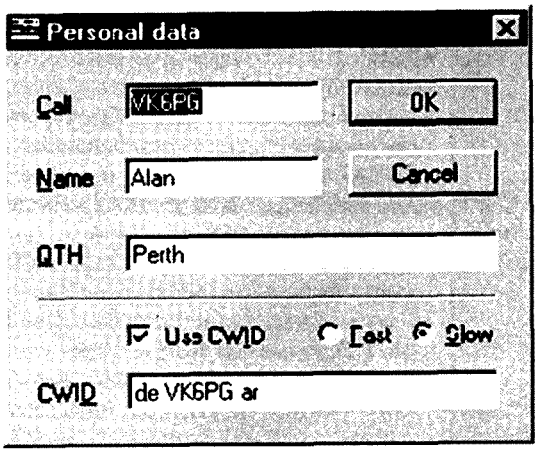
One of the first software packages written by Peter Martinez, G3PLX (2 & 3) and offered free to AR operators was **psk31sbw**.exe. However, many skilled AR programmers have now developed new "front ends" using the same Varicode core written by G3PLX to improve the general "useability" of PSK software. At the time of writing, DigiPan (4) seems to have become almost the defacto software standard on the HF bands, and this paper deals with obtaining, setting up, and running DigiPan on your home computer.

DigiPan Software

DigiPan is a "freeware" computer program that can be quickly downloaded from the Internet (4). The downloaded file is less than 600kb and will easily fit onto a 1.44Mb floppy disk as a back-up file, or to give to your friends to try. Named – digipan6.exe, for version six onwards, is a self-extracting file that can be installed in a Folder called (say) DigiPan in your Windows, Programs folder. Just copy the digipan6.exe file into your new folder and "click" the file to enter the installation and setup dialogue menus. On a Pentium 166 computer, the installation just takes a few seconds! Once the program has been installed on your computer, using My Computer, select the DigiPan folder and look for the file – DigiPan.exe. "Click" this file to open the DigiPan interface program.

If you have followed the instructions and build your own interface box (1), then you should have a computer serial port dedicated to PSK31 acting as a push-to-talk (PTT) line. This places your transceiver into the "transmit mode". Note the Com port number ready to configure DigiPan to your own requirements. Next, "click" on the Configure – then Personal data ... options to bring the personal dialogue box up onto your screen.

This is the easy bit! Fill in the boxes with your own call, your name, the QTH, and if you intend to use an automatic CW identification at the end of overs on



card if you are new to computers.

DigiPan is now ready to run with your transceiver or receiver if you are a SWL.

Macro Editing and Linking

DigiPan has a wonderful macro feature. Macro's are short sentences or information used in regular on air sessions. Examples range from CQ, RIG, your NAME and QTH, QRA Locater number, Grid square,

Common macros might be CQ, CALL, INTRO, INFO, OVER, RIG, SIGN, EMAIL etc. Of course the most important macro will be T/R which switches your transceiver to transmit or receive when needed. However, even this can be "automated" with the <RXANDCLEAR> command. Because DigiPan has a fully integrated logbook that stores all your PSK contacts for you, you can end your SIGN macro with the <SAVEQSO> command! The combinations are extensive, feel free to write, edit and use your own complex macros.

On the right hand side of the 12 macro

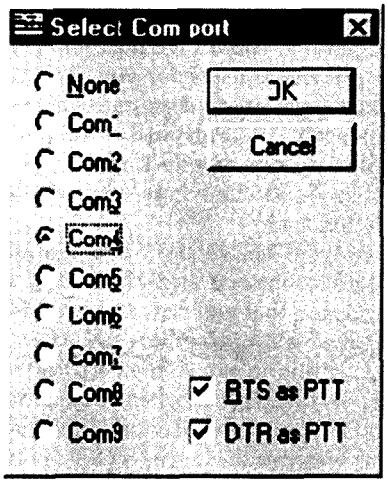
PSK31. "Click" OK and you're done.

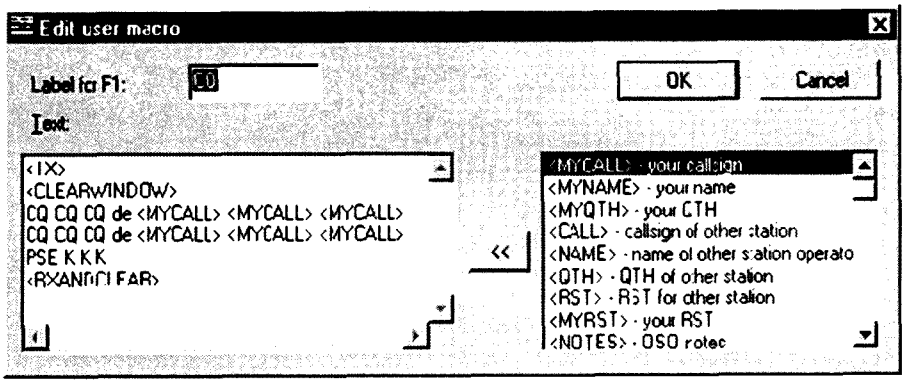
If you are a Short Wave Listener (SWL) and do not intend to use DigiPan as a "transmitting" program. That's fine. Enter your SWL number for the callsign and ignore the CW ID bits. The program works exceptionally well as a receive only program, and ideal as a SWL DX monitoring and logging program.

Select the Configure operation again and select Serial port...

Select the Com port for your own computer. The writer is using Com Port 4 with RTS and DTR checked as well. Once done, "click" OK and it's done.

Readers might have computers with just two communications ports. Port 1 might have your mouse connected, and Port 2 may have an Internet modem or transceiver control software running automated logging etc. If so, you may need to buy a comport expansion card for your computer. These cards are available from most reputable computer stores for a small sum. Read the installation instructions carefully to avoid software conflicts, or ask a friend to help you with the installation of the





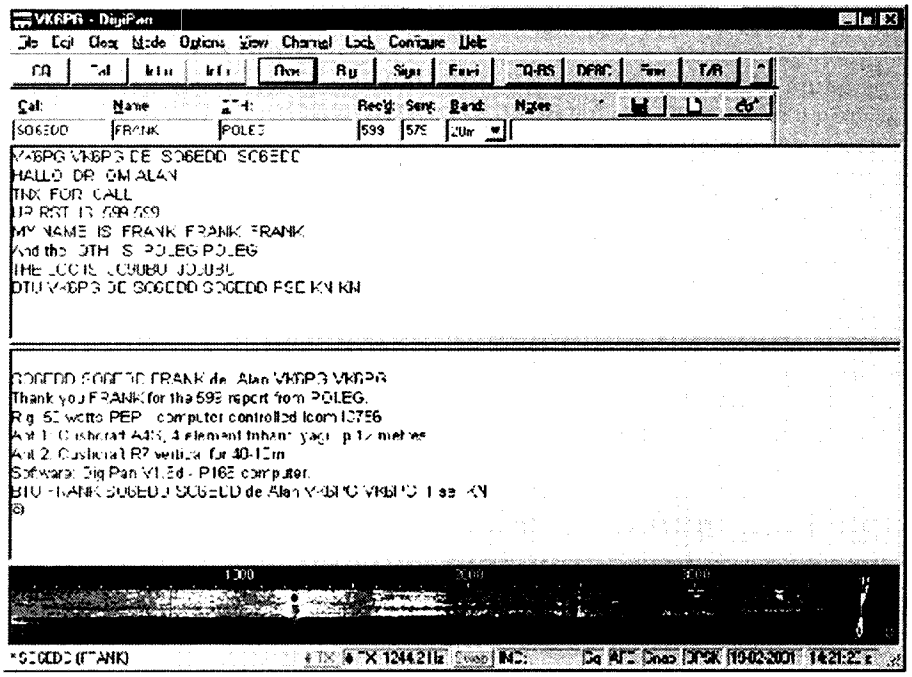
and many others which are personal to you own style of operation. At the top of the DigiPan toolbar, there are 12 buttons that represent the 12 function keys on your keyboard. To see each of these, select the first button and "right click" to see the macro editing window shown in to picture above. <TX> places the transceiver in the transmit mode, <CLEARWINDOW> clears old text from your lower transmit window, <MYCALL> inserts your own call from the Personal data entered previously, and <RXANDCLEAR> clears your transmit window ready for you to respond if called by another station. These macro commands can be selected from the right hand window and automatically inserted into your custom macro by "clicking" on the "<<" button. No programming experience is necessary!

Before you launch into a frenzy of PSK operation, write down on some scrap paper some examples of macros that you will need. Then place them in order from F1 through F12 to complete your final collection. Examples of some macros can be seen from the writer's DigiPan installation shown below.

buttons, a small double ^ button allows the operator to select another 12 macro buttons. This gives you a total of 24 macro options. Again, do some advance planning especially when considering PSK contesting, rubber stamp contacts, rag chewing, QSL information, DX chasing, and personal details etc. In just a few days of operation and you will be back into editing and refining your macros – even when you are in the middle of a PSK contact!

Once you have written short macros such as the CALL macro and by first entering the callsign of the wanted station inside the CALL white box, then by "clicking" on the CALL button, the transceiver drops into the transmit mode, calls the station, adds the DE and your own callsign several times, finishes with PSE KN, drops back to receive and clears the window. Wow that's fast and I only had to "click" once. It gets even better. Try an INTRO macro that automatically introduces the customary exchange of callsigns. Then a FINE macro which adds comments like: Hello <NAME> thank you for the report <MYRST> from <QTH> <NOTES>.

A full on air two-way contact can be



made **without doing any typing** at all once the macros are fine tuned. For example, when you have answered a station with **INTRO**, add the **FINE**, add the **INFO**, "click" **RIG, QSL** and **OVER**. Just **SIX** "clicks" and you have almost finished. While you are digesting the information from the distant station in the receive window – "click" the **INTRO, TNX, SIGN** macro buttons, and when the "over" is passed back to you, just "click" the T/R button and complete the contact. The screen is automatically cleared and the contact information is saved in the DigiPan logbook. Nothing could be easier. The writer regularly has pile-ups on 14MHz and can work 20-30 DX stations without typing **ONE WORD** on the screen except to enter the station Call, Name, QTH and reports into to white windows at the top of the DigiPan window.

On Air Contacts

The DigiPan waterfall window allows you to net onto a station by "clicking" on the yellow PSK31 signal seen on the screen and heard in your headphones. At weekends when the band is busy, the waterfall is full of yellow signals slowly wandering down your waterfall. Just "click" onto each one to read the mail, eavesdropping, or find out who is calling. Once the little diamond icon appears on top of the wanted signal, get ready with your **CALL** macro for a fast start before someone else grabs him! If he's who you are looking for, enter the call in the white window, hit the **INTRO** macro and wait until he's finished calling – then **GO** with the T/R button. If he answers, and while he's transmitting to you, start "clicking the macros in the desired order ending with the **OVER** macro. This process means that your characters are transmitted a full speed without the recipient seeing you pecking away at your keyboard with one finger. From then onwards, sit back and enjoy your contacts by just "clicking" the desired macro options. Linking macros as you go along is a pure delight and really is "*PSK31 – The Easy Way*".

Operating Practice

Like other AR modes of communication, PSK31 needs some personal discipline on your part. Do not be guided by some operators who insist on tuning up on air, call stations when they are already in contact, ignore the KN commands, and operate PSK31 without a proper exchange of call signs. Spend plenty of time listening (and watching) the traffic around 14.070MHz and get some experience in proper procedures and practices, and modify your own macros accordingly to streamline your own PSK31 station.

Some good macro examples might be:

<TX>
<CLEARWINDOW>
CQ CQ CQ de <MYCALL> <MYCALL> <MYCALL>
CQ CQ CQ de <MYCALL> <MYCALL> <MYCALL>
PSE K K K
<RXANDCLEAR>

Use no more than three CQ's followed by three <MYCALL> commands then an ENTER on your keyboard followed by one repeat line is more than sufficient for the average CQ call.

QSL is OK via the bureau. Goodbye from Western Australia - Zone 29.

73's <NAME> and thank you again for the PSK31 contact from <QTH>.
<CALL> <CALL> <NAME> de <MYNAME> <MYCALL> <MYCALL> AR SK
<RXANDCLEAR><SAVEQSO>

Be polite but keep your messages and macros short. Avoid "waffle" and especially casual Australian "jargon" which some DX stations do not understand. In some countries, the word MATE means to have sex! Do I need to say more?

DX Hunting and Chatting

DXCC is very easy these days on PSK31. With the beam pointing on Europe or the USA your country score will rapidly climb to new heights. WAC can be achieved almost any Saturday or Sunday when the DX bands are open. At the time of writing, VK and ZL stations are still fairly rare to many foreign stations and even the DX-peditions like D68C and planned Spratly Island adventures are now including PSK31 in their inventory these days.

Hunting DX is very easy. Try the DigiPan Options, the Arrows for seek, and/or **Continuous seek** by ensuring there is a tick (T) along side these options. Then use the keyboard left and right arrow keys to let DigiPan find the stations for you! Try "clicking" on the pair of glasses to find out more about the stations that you have stored in the DigiPan logbook. DigiPan even finds duplicate contacts for you, and if you have programmed your own macros correctly, DigiPan will automatically enter the operator's name, QTH and other data when you work the same station again.

At your leisure, run through all the DigiPan options and check that all is well, and that you now feel confident to let yourself loose on the DX.

Chatting to your "regulars" or locals can be fun. This is when you have to do some typing to send casual information, the weather, how the XYL's operation

went today, who you worked last night or the date and time of the next club meeting. Three or more AR operators can work in a round table with break-in operation, or indeed start your own local net. The options are almost unlimited – especially for young people who understand how to use a computer but will be amazed when they find that can actually chat to other operators without the added line and service provider costs associated with the Internet. Computers are not a threat to AR - they now enhance the hobby.

Summary

This paper discussed the basic attributes of DigiPan and PSK31. Installation, setup and macro programming has been outlined with examples of simple macros commonly used on air by AR operators. With the continuing debate on the future of CW, PSK31 is offered as a welcome relief to operators looking for an easy way to enhance the hobby, and give personal fulfilment by joining in the fun of using data as an affordable communications medium.

Readers are referred to "*PSK31 – The Easy Way*" (1) for computer requirements, background details and constructional information. Copies of both Parts 1 & 2 may be obtained from the writer (pre-paid postage please), or downloaded from the Internet at: http://www2.tpg.com.au/users/vk6pg/vk6sig

To assist Australian and New Zealand operators, the latest issue of DigiPan is also mirrored at the above Web Site. Readers in difficulty can always discuss their concerns with the writer on packet or email at the addresses shown.

Happy Hunting.

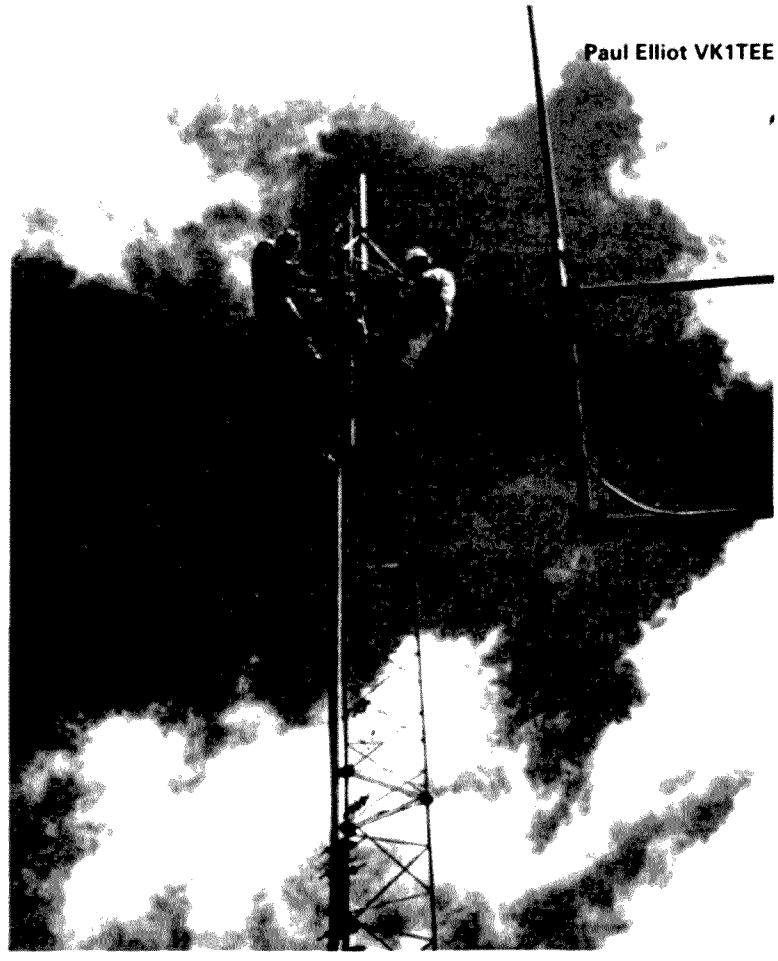
References

1. Gibbs, A. (VK6PG). *PSK31 – The Easy Way.* Amateur Radio Magazine. Vol 68/3. March 2000. pp. 36-40.
2. Martinez, P. (G3PLX). *PSK31: A new radio Teletype mode.* Part1. RADCOM 12/98. p14
3. Martinez. P. (G3PLX). *PSK31: A new radio Teletype mode.* Part 2. RADCOM 1/99. p 26
4. DigiPan Software mirrored at: http://www2.tpg.com.au/users/vk6pg/vk6sig

ar

VK1RGI Refurbishment

Paul Elliot VK1TEE



This story tells how a major antenna structure rebuild was carried out at the WIA repeater site at Mt Ginini. in the south of the ACT. The project has already spanned two years, has been carried out entirely by volunteer labour, and was achieved without interruption to normal repeater service. About twenty local amateurs have volunteered at various times, with some making major personal contributions to the success of the project.

The Mt Ginini Site

Mt. Ginini is an elevated peak in the Brindabella Range about 50 km SW of Canberra. At a height of 1800 m, it spends most of the winter and some of spring covered in snow. The site is accessible from greater Canberra only after a 90 minute drive along the rough and at times narrow Brindabella Road. It is located in the Namadgi National Park, adjacent to the ACT/NSW state border. There is virtually no topsoil, and only the hardiest of mountain plants manage to survive there. The Canberra division of the WIA has had a repeater in this rugged environment for many years, and it has excellent coverage of much of the ACT and south eastern NSW..

Project Outline

Prior to the commencement of this job, the various repeater antennae were dispersed across two structures, namely a Southern Cross 40 foot tower, and an 8 metre light pole. The installation looked untidy, and offered no room for the expansion of services. Further, severe winds and ice build ups led to the early demise of many arrays due to the use of antennae supported only at the base.

By happenstance, the Division was able to procure a three section, strong but light all welded triangular tower. Being made of solid steel sections, the tower is ideally suited to the alpine environment. The new tower is more rigid than the current tower, and will require *less* maintenance as it will have fewer bolts and joints to come loose, which in turn could produce RF noise. After the erection of the new tower, most repeater services would be transferred to it..

Project Commencement

Work on the new tower began in early October 1998 when Paul (VK1TEE), Mike (VK1KCK), Neil (VK1KNP) and Paul (VK1BX) gathered at VK1BX's work place to refurbish the galvanised tower coating and to construct a template of the tower base. Rust was cleaned up by wire brushing and the whole tower was given a new coat of zinc rich paint. At the same time, the group made a template of the tower base from a piece of 19mm thick 5-ply clamped to the flanges on the bottom section of the tower. This template was later used in the construction of the foundation steelwork.

This steelwork was constructed from 20mm gal threaded rods. 2m lengths were placed through the holes in the template and held together at the top with plates . A triangular piece of expanded mesh was used for the base. Reinforcing rods connected the threaded rods in a crisscross manner. Laeli (VK2LO) welded the pieces together to form a cage like frame..

Foundation Works

Site work started at Mt. Ginini in late November 1998. Gil (VK1GH) and Paul (VK1TEE) observed while Martin dug a 2 metre deep hole with his back-hoe with much difficulty. Most of the spoil was large rocks, and the final hole was quite irregular. Gil and Paul completed the final shaping with pick, shovel, cold chisel and hammer.

Installing formwork in the hole was quite awkward. The original plan called for a circular column of concrete which would have a volume of about 2 cu m. Because making a circular form was just too difficult, it was eventually decided to use a triangular upper section for the foundation concrete work.

On an overcast Thursday, Gil and Paul made the journey to Ginini. Their plan was to have the form work in place by the end of that day, then to make final adjustments on Friday

ready for the concrete pour on Saturday. While Gil gathered up the loose rock and soil from the hole, Paul assembled the first and second sections of form work. The foundation steelwork and the first section of form work was placed in the hole, temporarily secured in place and made level. The second section of formwork was then positioned but the two sections could not be joined together. During this stage of the proceedings the sky opened so the pair retreated to shelter and reviewed progress. They agreed that the form work had to be fully assembled while it was out of the hole and then lifted into place.

On Friday, Gil and Paul spent the day drilling, filing and bending pieces of metal to make brackets to hold the corners of the form work at the correct angle.

Saturday morning dawned bright and clear. Alex Saeck and his son Nick, Gil, and Paul made an early start while Laeli followed with a concrete vibrator. On arrival, they assembled the formwork on the ground and the corner pieces were a complete success.

Next, scaffolding tube was attached to the form work to stiffen it and to provide a means of suspending it during installation. Alex, Gil and Paul then manhandled the now heavy structure to the hole.. It did not initially sit square as there were a couple of places where the ground still needed to be removed, but this was soon fixed. A little more work and the form work was level and solidly held. Then the foundation steelwork was checked for level and height. Even now there were still a few places where more dirt and rock needed to be removed. Gil, Laeli and Alex took turns with hammer, chisel and bucket and eventually the foundation was sitting in the hole well clear of the bottom and with plenty of room for the concrete.

The foundation steelwork was temporarily removed to allow sealing of the formwork against concrete leakage, and while this was going on Paul applied bitumen paint to the top of the steelwork to prevent the ingress of water. When the steel contracts in the cold, the flexible Bitumen expands to ensure there is no gap between the steel and the concrete. This prevents corrosion of the steel, and damage to the concrete in the freezing winter. Once more the foundation steelwork was placed in the hole and made vertical. The original plan had been for the cage to sit on blocks which rested on the floor of the hole. This proved to be difficult so the final solution was that the cage was suspended from the form work.

The final task was to attach two 100 millimetre conduit bends to the form work. Paul and Alex screwed two blocks of wood to the form work to hold one end of each bend. The bends were then placed over the blocks and Laeli secured the bends to the foundation with wire.

All this done, the group sat down for a cuppa to await the arrival of Joe, (VK2JG) with a load of concrete. No sooner had the tea-bags drawn to a nice colour than the peace and quiet was disturbed by the sound of a heavily laden engine. All thoughts of tea were abandoned as Joe drew his concrete truck into the compound. After a quick inspection of the site, Joe backed the truck up to the hole. Alex soon had the vibrator purring nicely and Joe began to discharge the concrete into the hole. While Alex settled the concrete, Gil and Laeli assisted by shovelling the concrete into the corners. This operation proceeded very smoothly and soon the concrete was level with the top of the form work. After a final vibrate, Alex and Laeli began the task of finishing off the surface.

Soon after, the heavens opened and heavy rain began to fall, but Gil had thought to bring some plastic sheet, and this was quickly placed over the foundation. The tools were cleaned and the group took shelter from the rain. The weary party gathered together their tools at about 4:30pm and headed for home. They had achieved a great deal.

Five days later, Gil, Ian (VK1BG) and Ursula, Ian's wife, made the journey to Ginini to remove the form work and back fill the hole around the perimeter of the new concrete foundation. When the panels were prised away from the concrete rocks of various sizes were placed carefully into the space between the new foundation and the surrounding ground. and then the gaps were filled with dirt. Space was left where the conduits were to run to the hut. Rob (VK1KRM), lent his heavy duty drill and Neil, Laeli, Ian, and Paul started the installation of two 100mm conduits between the tower base and the equipment shelter. Once the trench was dug, work started on penetrating the base of the wall of the hut. It was decided that the most practical method was to make the entrance through the first course of bricks above ground. as the hut foundations were too thick for ground level entry. This proved to be strenuous work. The group took turns at drilling and smashing and slowly the hole was made through the wall and then expanded to fit the two pipes. Paul and Laeli took on the job of making the conduits the right shape using a specialised cut and glue technique, after which they were installed However there was some unease about the long term reliability of this arrangement. Meanwhile, Dennis Gibson (VK1DG) was fabricating the top mount for the tower. This piece would carry the VHF side mount dipole.

Tower Erection

Winter in 1999 came to the Brindabella's in the June holiday week-end. A large fall of snow was followed by a few days of warmer, wetter weather. Information from the Park Ranger indicated that a trip to Mt. Ginini was possible a week later. Gil and Paul loaded the tower onto a truck which was fitted with a vehicle loading crane (VLC) ,and started the journey up the mountain. The road was wet but the going was firm and steady until shortly after passing Bull's Head when the party encountered the first snow. The covering was light and so they pressed on. However, they soon encountered the first of group of homeward bound sightseers. This was on a stretch of road which was just wide enough for the two vehicles to pass each other, so there was no problem. However the next vehicle was met on a narrow stretch of road with a slight up-hill incline. Once the truck stopped, it had to be dug out and a tarpaulin placed under the driving wheels to get enough grip. Wisely, the pair decided to abort the trip The trees and hills looked magnificent with their covering of snow but the pair were not in the mood to appreciate such beauty.

In late September, the snow had melted, the weather was fine, and the vehicle was again available. The road was in good condition so Paul and Ian were soon on the summit. As the VLC did not have the reach to lift the whole tower upright, the pair settled for erecting the first section of the tower only. This was lifted onto the foundation

and happily it dropped over the foundation bolts perfectly. After levelling and bolt tightening, they assembled a gin pole to be used for lifting the other sections of the tower aloft. At this stage, rain started so the pair packed up and made the trip down the mountain.

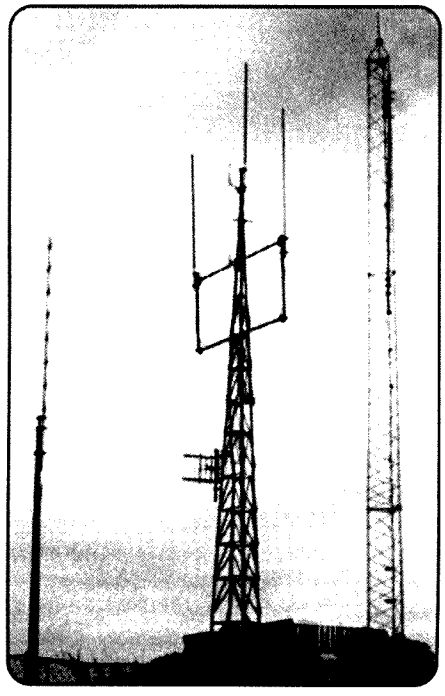
On a fine spring day a couple of weeks later, Gil, Ian, Neil, Phil(VK1ZPL), Colin(VK1HCC) and Ron (VK2TRL)gathered at Mt. Ginini for the next stage of the project. The gin pole was rigged with a Gant line and another was rigged from the top of the tower first section to the bottom of the gin pole. As the hauling party hauled the gin pole into position, Paul and Gil guided its passage and securely clamped it to the first section. A well earned break was taken and the group sat around and had a most enjoyable morning tea.

Next, slings were attached to the middle tower section and with Paul and Gil waiting at the top of the first section the lift began using the VLC to pull on the rope already fed over the gin pole,. However, there were a number of problems and the section had to be lowered and adjustments made to the rigging. The next lift was successful, and as the second section rose past them, the pair eased its passage past the first section. and slowly guided it into position. Podgers were used to temporarily lock the second section in place until all the bolts could be fitted and tightened. As it was now early afternoon, the party stopped for lunch. One more section to go!

The gin pole was now moved to the top of the newly installed section. The second lift of the pole was more complicated then the first, because temporary clamps had to be fitted and then removed as the pole passed. When finally the gin pole was firmly clamped in place the sun was low to the horizon, so the party decided they had achieved as much as was possible for that day and so packed up and headed home .

Three weeks later a large group set out for the mountain. Light, intermittent rain was falling as the group departed but by the time the summit had been reached, the wind has risen and rain was more frequent. Another unpleasant surprise awaited the group. One end of the rope over the gin pole which had been so carefully stowed after the last trip was now wrapped around the lower section of the tower and the other knotted end was aloft, jammed in the gin pole pulley. The high wind made it unsafe to climb the tower and so an unpleasant few hours were spent on the conduits from the tower base into the hut. The party then departed for shelter at Bull's Head where lunch was eaten before a roaring fire.

During the week, Gil and Paul got their heads together and decided that if they could make a light pole with a hook on the end it was worth trying to gaff the rope. Paul had a ferret around and by using his pool sweeping pole and a number of sections of aluminium tubing



he soon had enough length to do the job. A piece of 9mm threaded rod was bent into a rough hook. The weather forecasts were now studied with a lot of attention. As it seemed that the week-end would be unsuitable, Gil, John and Paul decided to make the trip on the Thursday.

Thursday dawned bright, clear and calm. Paul started out early while John and Gil followed later. Once on site, Paul assembled his pole, attached the hook and went "fishing". Holding the pole vertical was a little tricky, but after a number of fruitless attempts, he managed to get the hook into the knot. Slowly he pulled the rope through the pulley until the end was once again under control. In the meantime, John and Gil were slowed in their trip up the hill as their vehicle got a flat tyre near the summit of the mountain.

The trio had a quick morning tea and after attaching a rope to the tower section to guide the section past the lower part of the tower the lift began, this time using a 4WD vehicle winch to provide the pulling power. Soon the last section was suspended clear of the rest of the tower, with the flanges amply smeared with jointing paste. Paul and Gil then climbed to the top of the second section and attached their safety harnesses, ready to guide the last section into place, using podgers in the mounting holes to assist the line up. As John gently lowered the section, they guided it into place then secured it with bolts. After the nuts were tightened, Paul climbed to release the rope and Gil descended to assist John with rigging the head frame for hoisting. As the top of the gin pole was just above the top of the tower, there was not room to hoist the head frame clear, so Gil and Paul had to manoeuvre it into place in stages after it had been hauled up. First, they managed to get the whole piece onto the top of the tower in a horizontal position then tip it vertical and slide it around until the bolt holes were aligned. All the mounting holes in the Head Frame which Dennis had fabricated matched the holes in the tower exactly. This was vital, as this stage of the work was performed by two men suspended from the top of tower some 20 metres up.

The rope was then detached and the tower cleared of rope, pulleys and slings. By the time the climbing party reached the ground, John had cleared up most of the gear. Paul and Gil assisted with the last of the clearing up and the party departed.

Conduit Installation

Now the Tower was erected, discussions took place on the aerials and feeders. As the conduit placement had not gone as well as it could have, the decision was made to improve the job. Ron was of the opinion that a good job could be made by heating and bending the conduit. One Saturday afternoon, Ron, Ian and Paul met at Gil's QTH. The conduits were filled with sand and then Ron and Ian began the task of heating the tube. Slowly the tubes were bent into the desired shapes. One conduit bent well, but the other ended up with some ripple in the surface. Gil then purchased some

fractional sewerage fittings. These come in various angles and it was thought a good job could be made with them.

On a fine day, Ian, Gil and Paul again made the trip to the mountain. The two conduits which had been buried in the ground were dug up and removed. One was replaced with the smoothly bent conduit from Gil's place, but the second piece did not fit either position well and as it had ripples on the inside bore was not used. Various pieces of sewerage pipe were fitted together to make the second run of pipe from the foundation to the building. Once all the pieces were cut to the correct length they were glued together. With the two conduit in place the conduit entry was sealed with cement and the conduits were finally buried.

Plumbing The Tower

Early in year 2000, a small party made the trip to Ginini to ensure that the tower was true. Nick(VK1NK) set up two theodolites so he had a good view of two of the tower legs. Initial levelling had made the tower reasonably vertical but small adjustments were necessary to make it perfect. The bolts were then tightened to their final tension and the tower was again measured. No movement had taken place during this procedure so grouting was then placed between the bottom flange of the tower and the concrete base. The hold-down bolts were also given a coat of gal paint to protect them from rust and to make it harder for vandals to remove.

Antenna Installation

Shortly before Christmas of 1999, Paul (VK1BX), Gil and Paul (VK1TEE) made the trip to Ginini late one afternoon. On arrival, the cable hangers were removed and that night was spent removing the old screw together clips and replacing them with spring-loaded devices. The party arose the next morning to find that the wind was howling and light rain was falling. They set about constructing a frame for the 2m antennae. By mid-morning the frame was ready but the wind was as bad as ever and light rain continued to fall. Paul and Gil made a start on fitting the new cable hangers but after about ten minutes on the tower exposure became too great and that part of the job was abandoned. The rest of the morning was spent clearing up and measuring up for future jobs. The party departed early after-noon and work ceased on this part of the project until the New Year.

Towards the end of February, 2000, Gil and the two Pauls made the trip to the mountain to run the feeders and attach the antennae. The torsion clamp which had held the gin pole in place was hoisted to the top of the tower and attached to the stand-pipe. The twin VHF Dipole array was then hoisted and attached to the mount. Another mount had been fabricated from dural to carry the VHF receive antennae. This was then hoisted into position and the two VHF Collinear antennae were hauled aloft and secured to it.

After lunch, the cable hangers were placed on the top section of the tower and adjustments were made to the spacing of the hangers on the other sections of the tower. The crew set about the task of running the LDF5-50 RF feeder inside the tower. The feeders were numbered and a block and tackle used to haul them aloft. The cables were attached to the hauling rope some distance from the top end. with the leading part of the cable temporarily taped to the hauling rope. As the end of the rope arrived at the top, Paul removed the tape and the cable end was allowed to flop around. When the bottom end of the cable arrived at the conduits, the cable was lowered and fed back into the hut using a rope attached to the bottom end to guide it into the hut. It was then secured by clipping it into the cable hangers on the tower. The process was repeated until all the cables had been run.

The next day, the feeders for the VHF service were terminated and poked through the existing trap door.. The SWR for all antennae was well within expectation. The base stations were connected up and a few test calls were made. After the joints in the feeders were made watertight, the party departed. At this stage Laeli noticed that the screws holding the feeder clips to the brackets were rubbing on the jackets of the feeders. In time they would wear through and could cause problems.

A couple of weeks later, Gil and Paul made another trip to the mountain. As there had been a major refurbishment of the VHF filtering since the original plans had been made, a decision was taken to bring all the feeders through a new trap door close to the filter rack. Gil had fabricated a new trap door and the pair soon had the new trap door sitting in its new home. Next the holes were made for the feeders. This was easy but lining the feeders up and keeping them in place took some effort. Again, after a hard days work, the party made its way down the mountain.

There were two important tasks which needed to be completed before winter 2000 moved into the mountains. The colinear arrays had to be braced and the screws on the hangers needed to be replaced. With Winter fast approaching, a small party again made the trip. The first snows had fallen as Paul, Laeli, Neil and Mike (VK1ENG) made their way to the top. On arriving they found that the tower was covered on the western side with a build up of ice. Laeli climbed the tower and as the rest of the party stood well clear, she cleared the tower of the ice. Now the tower was safe, Paul climbed up and the brace was raised and fixed into place.

While this was going on, Neil and Mike replaced the lower hanger screws, after which Paul and Laeli removed hangers from the top of the tower and lowered them to the ground for the screws to be changed. Working in this manner, the task was soon completed. The party made its way down the mountain through the snow and all work ceased for the winter.

Conclusion

The ACT Division of the WIA now has an asset in the Brindabella Mountains of which it is extremely proud. There are a few minor tasks to be carried out to bring this project to its conclusion. The job has taken longer than expected. This was caused by weather, other committments and unexpected difficulties. The weather was beyond anyones control and this being an amateur activity was fitted in when other committments allowed. The unexpected difficulties were overcome by the combined efforts of everyone concerned. Everyones contribution was considered and a consensus decision was reached which was often a better solution than any one idea. Apart from the job being a lot of hard work, it has been a good team building activity and the participants can look forward to using this facility for many years into the future.

ar

Beyond Our Shores

David Pilley VK2AYD
davpil@midcost.com.au

Listening on the LF bands I know a few members receive magazines from Amateur Radio Societies overseas. How about sharing some of the news with us? Most of what you read in this column is obtained from the RSGB, ARRL, QNEWS and other Internet sources that we acknowledge.

Advertising on Packet in the U.K.

*Effective 1st April 2001, Amateurs in the U.K. may place advertisements on their Packet Radio network. There are a few restrictions such as only 5 items may be advertised and only one advertisement permitted every 28 days and this must be the personal effects of the Radio Amateur. No business such as offers etc., from potential buyers is permitted.

Permission was also granted that Amateur Radio can now officially be used for communication purposes on behalf of User Services (Such as Ambulance Service etc., which are defined in the government press release).

Dangerous Waters

*Wounded ham-sailor continues recovery: Sailboat skipper Bo Altheden, SM7XBH, shot and wounded after pirates attacked his vessel March 20 off Venezuela, continues his recovery in Trinidad. Following the incident, hams on the Maritime Mobile Service Net assisted Altheden and his wife, ViVi-Maj Miren, after Miren put out a call for help on 20 metres. Miren reports that Altheden had to be hospitalized for additional surgery after he developed an infection. The couple plans to fly to Copenhagen later this month. The couple and their 44-foot ketch Lorna were en route to Trinidad and Tobago when pirates—later described by Miren as six men in a fishing boat—pulled along side. Miren said the Lorna will be hauled out and stored in Trinidad for the next six months. "I hope Bo will recover during these months so we can come back and start sailing again," she told Eric Mackie, 9Z4CP, who was among the amateurs assisting in the rescue operation. —Eric Mackie, 9Z4CP

Finland

A little research on the Internet (and reading Qnews) revealed some interesting facts The Finnish Amateur Radio League (SRAL) currently has 5000 members. This number represents more than 95 percent of all Finnish amateur licensees! The League obviously employs some highly advanced initiatives, SRAL is quite possibly the only national Amateur Radio society that recruits new members through television commercials. The organisation is professionally run and the Finnish Ministry of Education supports its efforts. (OH1EH ari.korhonen@kolumbus.fi)

WRTC-2002 will be held in Helsinki in July 2002. (Do we have an Australian team ready to compete in this great HF event? – you've got to be in it to win it!). As the time draws near there will be a lot of interesting news relating to this event being published.

An e-mail from the Finland Navy Amateur Radio Society put a smile on my face and it may put a smile on yours! The OH (Finland) Naval Amateur Society is named "Finnish Navy Radio Society". It was founded ca. 1995 to be an international branch of Finnish Club "Laivaston Radioamatoorit", Navy's Radio Amateurs in English. FNARS has now about 42 members, of which 6 are Silent Keys, and 6 are clubs. FNARS regularly meets every Tuesday, beginning 5 o'clock PM and the club has a fine station and biiig masts, for HF and V/UHF. It is free to join the member, only 'phone or mail to Rauno, OH1WR (oh1wr@sral.fi). (On HF we have no skeds or net). FNARS has issued an award, named "Suomen Joutsen Award, Swan of Finland Award" according to an iron sailship, now a museum in Turku... For award you have to gather QSLs from the 8 lands which Swan of Finland has travelled to, in her good days, viz. EA8 (Canary Is.), KP4 (Puerto Rico), LU (Argentina), OY (Faeroe Is.), K (USA), YV (Venezuela), ZS (South Africa) and 4X (Israel). The award fee is US $ 10 or 8.4 Euros... The manager is OH1AJ Award Manager, P.O.Box 266, FIN- 20101 TURKU, Finland, Europe.

Well – did it put small smile on your face with their membership?

Internet Linking G – ZL

Ian Abel, G3ZHI, gave a talk to the Christchurch amateur radio club – without flying the 19,000 km to ZL. Ian gave his presentation about the IRLP (Internet Repeater Linking Project) system to the Christchurch club using iPhone, talking on his local 2 m repeater. After the talk he took questions from club members. Using this system, any club using iPhone could have a guest speaker from anywhere in the world, 'live'. Ian only used audio, but it is possible to also use video. *(I use Netmeeting to talk to my grandchildren; perhaps this would work for a remote lecture..deAYD).*

The first UK IRLP node is now up and running. G4CUL now has a node on the IRLP system and has been linking to a 70cm and 2m repeater.

WRC-2003 and the 40m band

The following was on the ARRL broadcast in May and I've reproduced it in full so that you can see what is happening in the U.S. of A. Some of the comments on digital commercial radio are interesting. Basically they are plugging for 300 kHz in the 40 metre band and Region 1 (Europe) are currently restricted to 100 kHz.

*The FCC's World Radiocommunication Conference 2003 Advisory Committee has approved several "preliminary views"—or PVs—on expected WRC-03 agenda items. Among these is a US preliminary view supporting a realigned 40-metre amateur allocation at 6900-7200 kHz on a worldwide primary basis. The FCC is

soliciting public comment on all preliminary views by May 9.

The preliminary view was developed by Informal Working Group 6, which is dealing with most issues of concern to amateurs. ARRL Technical Relations Specialist Walt Ireland, WB7CSL, serves as vice chairman of IWG-6. The PV says that, alternatively, the US could support a 7000-7300 kHz worldwide primary amateur allocation.

Amateurs in Region 2, which includes North and South America, have access to 7000-7300 kHz; the rest of the world has only 7000-7100 kHz, with the upper 200 kHz allocated for broadcasting. ARRL Technical Relations Manager Paul Rinaldo, W4RI, says the ARRL would prefer going back to the pre-World War II worldwide 7000-7300 kHz scheme. Some broadcasters, on the other hand, would like amateurs worldwide at 6800-7100 kHz, he said, so they would not have to move. A Radio Conference Subcommittee backgrounder from the Interdepartment Radio Advisory Committee—which reflects views of the federal government—said the issue "is liable to be very controversial."

Further complicating matters, Rinaldo said, is the fact that international HF broadcasters want to fold the 7 MHz realignment question into another WRC-03 agenda item examining the adequacy of HF broadcasting allocations from approximately 4 MHz to 10 MHz. Broadcasters are expected to seek additional HF elbow room to accommodate digital transmissions to complement their existing AM channels.

Any realignment scheme will involve having to move existing occupants—broadcasters on one side or fixed and mobile services, mostly government and Part 90 users, on the other.

"We want 300 kHz," Rinaldo said—reflecting the position of the International Amateur Radio Union, "but, we have some flexibility as to where it is."

Another PV with implications for amateurs would oppose the use of 420-470 MHz for use by the Earth Exploration-Satellite Service for so-called synthetic aperture radars, or SARs unless it can be shown that the satellites "do not cause harmful interference to amateur systems and stations." SARs are used to map regions on Earth's surface and are expected to be deployed primarily over tropical rain forest areas.

Rinaldo emphasized that the preliminary views do not represent formal US positions and are subject to change as preparations for WRC-03 move forward.

Comments on WAC preliminary views may be filed via e-mail to wrc03@fcc.gov. The FCC's WRC-03 Web site, http://www.fcc.gov/wrc-03, includes additional information as well as links to related documents.

WRC-03 is scheduled to begin June 9, 2003, and continue until July 4, 2003.

The conference is expected to take place in Venezuela.

ar

Education Notes

Brenda M Edmonds VK3KT
PO Box 445 Blackburn Vic 3130

Update review of WIA Exams Service

Readers will have seen elsewhere that there are modifications planned for the WIA Exam Service. This service has now been running for nearly ten years, and a few changes have been incorporated into the system from time to time, but this seemed an appropriate time for a review of the whole system.

The WIA is concerned that, as the numbers of examinations have dropped, the number of examiners has, if anything increased slightly. Some examiners registered a few years ago have held only one or two examinations. Others have let their interest in examinations lapse, but have not notified the WIA Exam Service of this, so remain on the list of names that can be given to persons enquiring about entry to the hobby. It is time to tidy that list and ensure that all on it are prepared to be there as persons to assist new recruits.

It is proposed that all currently on the list will be canvassed to determine their desire to re-register. However, to take some of the load off the Federal Office, registration will be through the Divisions. A full update of the examiner's manuals and procedures is also under way.

ACA Discussion Paper

A more recent development has been the receipt from the ACA of the long-awaited Discussion Paper on further devolvement of the amateur examinations. This paper raises a number of questions about the future of amateur examinations that must be carefully considered by the WIA before a submission is prepared. Unfortunately, the time line for response (closing date 22nd June!) is very short, so there will not be much scope for input from WIA members.

However, if you can find the paper on the Internet and have time to prepare any sort of response, the WIA Federal Office will be very pleased to receive your comments and pass them to the Education Committee who are co-ordinating the preparation of the responding submission. We are expecting to receive input from Divisions and possibly some clubs.

We will keep you informed of developments as they occur.

PS

To find the discussion paper on the Web, find the ACA Web page, then select either "What's new" or "Current issues" and scroll down to Discussion Paper.

ar

AMSAT

Bill Magnusson VK3JT

Evolution of a Satellite Earth-Station

"Amateur radio shacks don't just happen, they evolve, and amateur radio is supposed to be FUN. Scrounging can be fun."

Chances are the first thing someone will say when they walk into a ham radio shack would be something like "Wow, I bet that cost a pretty penny". My standard reply goes along the lines, "Well, it took a long time to evolve into what you see today and, if you have a close look, a lot of it is quite old, second or third hand and generations behind the latest technology but it does the job". I may then point out that they have an "entertainment unit" in their family room which cost more than all the gear in my shack put together. Perhaps even their teenager has more money tied up in a hi-fi system in their room. That will usually bring them back down to earth and we can start discussing things rationally, beginning by my telling how this is a life-long hobby interest and then, "Here's what it can do."

Ham radio shacks are always evolving. My shack has undergone many changes over the years. Looking back to 1950, I came on the air with a station that was pretty standard for the day: a home made 19 valve receiver and 7 MHz transmitter that had five valves including the power supply. The transmitter was crystal controlled and just about state-of-the-art for amateurs in those days. I still have the crystal. It's marked 7104.6 Megacycles. None of the other gear still exists but looking around my shack as I type this I can see many items of equipment that are 20—25 years old and one Eddystone receiver, still my pride and joy, which is 50 years old. I think I've obtained very good value for money from those pieces of gear, even if some were quite expensive in their day.

So it is with the satellite station. To assemble all the gear to make a versatile station from scratch would take a lot of money, but you can sneak up on it. My approach has been to look for versatility as well as economy in every purchase. Pretty well everything in the shack is multi-functional. The only exception is the elevation rotator. That is only used when working the satellites. But then it was purchased second hand, like most of the other gear, along with the azimuth rotator and of course it is used for the weather satellites too. I have one VSWR meter to make all measurements. It was purchased at a hamfest at least 20 years ago. My one and only computer came from a business that was upgrading. There were ten units altogether. They cost the princely sum of $100 for the lot. Its Pentium processor runs at the break-neck speed of 75 MHz and it has a mere 32 MB of RAM but with care it can be made to run everything from the ground station control and internet software to manipulating large image files from the 38k4 digital satellites. The transceivers are the so-called ICOM "twins", the IC-271 and IC-471 both purchased second hand more than 10 years ago. That duo was recently augmented to "triplets" with the addition of a second hand IC-1271. It will be used for uplinking to AO-40, for "aircraft-reflection" and 1.2 GHz DX work as well, perhaps even some modest EME work, "one of these days". Careful choice of a TNC will allow for the inevitable speed increases of modern amateur radio satellite work.

Home brewing still has a place. Good low noise receive pre-amplifiers are considered essential but before you start thinking about expensive commercial units, kits are available which are both good and inexpensive. One of the big problems when working "mode-J" is the de-sensing of the receiver due to the 3rd harmonic of the uplink signal falling close to the receiver passband. This can play havoc when working full duplex, which is often a requirement. A difficult problem to fix by throwing money at it. However, a viable solution to this problem is to construct a cavity filter either from printed circuit board or better still, copper tubing. The cost is small but the benefits are great. My 2.4GHz receive setup is equally modest. It consists of a discarded 1.6 metre satellite TV dish with a helix feed made from 1/8th inch copper refrigeration capillary tubing and a cut-down coffee can. Some research into design, a bit of panel-beating on the dish surface and an hour's work with pliers and soldering iron was enough to get a system going which will receive S-9 signals from AO-40 on 2.4 GHz and did not cost the Earth. Similarly, the RF can be handled with a modified MDS down-converter working into your two metre receiver.

I don't want to give the impression that you need to be a scrounger or engineer to get into satellites these days. There is no shortage of good, modern commercial gear around if you want to go down that path. But if the initial cost is a bit off-putting there are alternatives and – after all this is AMATEUR radio. Amateur radio shacks don't just happen, they evolve, and amateur radio is supposed to be FUN. Scrounging can be fun. It always has been. In the 50s in Melbourne it was Waltham Trading and "Ma" Dallie's, nowadays go along to any hamfest and you'll see what I mean. Before you discount the possibility of

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA 5001
Graham's email address is:
vk5agr@amsat.org

working the satellites, do some reading, set down a plan of action and then have a good long look at what you already have in your shack. You may be surprised to find you are more than halfway there.

Sunspots and Satellite Signals

Signal degradation due to ionospheric anomalies is a regular occurrence each summer. The disturbances which create excellent conditions for terrestrial DX on the VHF/UHF bands and big scores in the Ross Hull contest can often have the opposite effects for satellite signals which by definition have to travel 'through' the ionosphere. One would expect the effect to be worse around the predicted peak of a sunspot cycle. That has proved to be the case this year but I didn't think the effects would last as long as they have. A distinct falling-off became noticeable around September last year and we are still feeling the effects in autumn, some 8 months later. The usual summer 'silly-season' would account for around 3 months of this but the effects just keep hanging around. I will be off the air during May and I hope the situation has returned to normal when I stoke things up again in June. Weak, fluttery signals with random polarisation changes are the order of the day. At worst the signals do not come up to normal levels until halfway through a pass. I noticed just today that an otherwise potentially good pass yielded only around 250kb download rather than the 2+Mb that one would normally expect from UO-36. The situation is made even worse by UO-36 having a tendency recently to not be available every pass. This has been more frequent on the nighttime passes when the satellite is in eclipse. It must be running close to the power budget limit.

The Internet and Amateur Radio Satellites.

Please indulge me while I have a little 'whinge'. Some things get under my skin. I could have used the title "The Internet v Amateur Radio Satellites" but that would have been provocative. There should be no "either/or" situation here rather one that looks at the advantages of using the Internet as an aid to satellite work. The thoughts behind this item were prompted by a question posted to the AMSAT bulletin board. It was from an amateur who was new to amateur radio satellites and roughly went, "Why is it that much of what happens on this bulletin board would, it seems to me, be better conducted on the digital satellites themselves?" Now, new to the satellite field or not, this chap raised a good question. It's one that had been in my mind also for some time. I've watched the amount of traffic on the digital birds decrease and at the same time seen the amount of traffic on the Internet bulletin board increase dramatically. The newcomer received the usual host of courteous replies. They included the following points in no particular order. Most replies agreed with the writer. The consensus was that indeed much of the BB traffic would be better on the digital birds because it's hard to argue against 'radio comms for radio amateurs'. But it seems that the digital birds are losing popularity because a lot of people are disappointed (let's say impatient) with the baud rates and the fact that the satellites aren't hovering over their QTH all the time. I don't know how these people would ever be satisfied. It points up one of the definite changes that I've noticed in listening around the traps. These days much of the excitement of experimentation seems to have vanished in favor of instant gratification and the Internet serves this desire very well. No amateur radio satellite can ever hope to compete with the Internet, even a 'geo' hovering above everyone's QTH. If you are waiting for that to happen then you are wasting your time. And why should it anyway? We have the Internet to do that. Amateur radio is about radio communication and experimentation. Experimenting with new modes, faster modes, new techniques and the fascination of doing it by RADIO! I've seen the digital birds go from very low baud rates up through 1200 to 9600 and now 38k4 baud and this will be pushed even higher in the not too distant future. It's already much faster than my dial-up Internet connection ... but ... it's not "instant". Strange. The challenge is still out there. Where has the motivation gone? The 'heroes' of our great hobby keep designing and building these satellites and putting them in orbit for us. Yet again and again you hear people say "maybe when the baud rates are high enough to support the things we can do on the Internet, then I'll outlay the time and effort to get on the digital satellites". Don't hold your breath! I wonder how the satellite constructors react to this trend? Let's hope they don't give up and go back to stamp collecting! Perhaps the problem lies in the expense as mentioned in the earlier article. To keep up with the latest Internet practices is cheap and easy these days. Most new computers come "internet ready". They are very capable and within most people's means. Their GUIs can be mastered in a few easy lessons. The digital satellites and many of the analog birds however, take a bit more effort. But that's one of the reasons people climb mountains. When the digital birds first came on the scene the Internet and home computing was in its infancy. People were willing to make that effort. Perhaps it's the 'instant gratification' thing. Maybe that has robbed a generation of their curiosity, their acceptance of a challenge. Traffic on the BB seems to point that way. "What's the URL for that?" is the commonest question from newcomers. Seldom "Where can I get a book on that subject and study it?" URLs don't grow on trees. "Some-one" has had to do the hard mile and research the subject. That was another reason why this particular question from this particular newcomer was like a breath of fresh air. Perhaps many are simply overwhelmed at the complexity of setting up a station for the digital satellites or the more difficult analog birds. But lots of folks do. Perhaps many feel the results do not warrant the effort required. But lots of folks do. Perhaps many have trouble locating the mountains of information needed to put a station together. But lots of folks do. All these points came out in the replies and they give us all something to think about. The trend shows no sign of slowing let alone reversing. Wouldn't it be a shame if we faced a future where amateurs will sit down in front of a computer terminal or worse, a "black-box" and download messages and data from a web-server with the country's only digital satellite ground station attached. Don't laugh. This is already happening in the case of telemetry from the new AO-40 satellite and the demand is there for more judging by the traffic on the BB. Is all this a worrying trend for you too? Perhaps I've just out-lived my use-by date. Keep smilin'..... See you on the satellites.

Bill...VK6JT
ar

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

Recent Hamfests

ALARA had a table at the Gosford Field Day again this year, hosted by Dot VK3DB. and Nancy Karas. There was a lovely stream of visitors, too. Sheila VK4PAL, Val VK4VR and Ann VK4ANN were all down from the North, followed by Agnes VK2GWI and Nina VK2INZ. There were two other interstaters, Mary Moss from Ferntree Gully in Vic. and Lorraine Mencinsky from Sydney.

It is great to see regular visitors and especially people from other states. Whenever you are travelling make a point of discovering any Field days or Club meetings in the visited area, before you leave home or by contact with the local girls. Any excuse to further the friendship among amateurs!

Dot keeps a "Visitors' Book", a permanent record of who visited the table each year. It will be an interesting addition to our history collection.

Please remember that we want to know whenever anything of interest to women in radio and/or to ALARA members happens. Every now and then one of us is interviewed for radio or a local newspaper. Please, if this happens to you, send us a copy of the item or a tape of what you said. These are records that are so easily lost.

Tina VK5TMC QTHR the callbook is our historian. She will be delighted to collect any photos or bits and pieces for the history books we have on show at the ALARAMEETS.

A smaller Field Day, but just as enjoyable, was held in Ballarat. Mary VK3FMC and Judy VK3AGC were there, but I don't think there were any visitors from out of town. If I am wrong, please let me know and I will tell everyone about it next month.

Don't Forget The Change In The Date

The ALARA Contest will be held at the end of August, shortly after the Remembrance Day Contest while your gear is still running hot!

It will also run for 30 hours, starting on the evening of Saturday 25th August (0600 UTC) when most of the activity will be on 80 metres, and continuing through the next day to finish at 1159 UTC on Sunday 26th.

We hope that having the extended hours will make it possible for more people to participate, and those that do join in will be able to have more time to chat. The ALARA Contest is not about amassing an enormous score, but about having the chance to talk to your friends around Australia and in New Zealand.

OMs remember that the ALARA Contest is the best opportunity to work for an ALARA Award. You need ten contacts with ALARA members, from at least five states of VK or from ZL. They will all be there during the contest.

Do send in your logs, YL or OM or what about competing as a club? We have had some very good club scores in previous years. Logs may be sent in by mail or new this year, by email to Marilyn VK3DMS at gdsyme@hotmail.com

Dates For Next Year

Dear YL, dear friend,

As announced at the last year's wonderful and interesting and Meeting in Hamilton, New Zealand, we YLs from Palermo and Italy are pleased to tell you that we have started the planning of our project of the upcoming meeting.

Our homepage is still in 'baby-shoes' but we will update it often and hopefully being able to give you all the info you need to come and meet us in beautiful Palermo. Web site: http:l/www.qsl.net/y12002

The venue is going to be held at the sea-and beach resort of Palermo "Mondello", Hotel Splendid La Torre, which is located in the beautiful gulf of Mondello, just a 10 minute bus ride from the center of the town. We have booked rooms for 60-80 persons, a number that may be extended up to 100 persons. There are 2 other choices of Hotels, different categories, for your conveniences and pockets! All Hotels are close to each other.

In June, the climate is usually warm but not hot, temperatures 20°C during the day and pleasant in the evenings, hardly any rain, and much sunshine. We hope you will plan to visit the island before or after the Meeting with one of the tours. A local Travel Agency is preparing for the incoming friends.

We are looking forward to welcome many of you and share joyful days and pleasant evenings, tasting local food and let you feel our hearty hospitality. The organizing committee with the help of the local radio club will do their best to make the meeting an outstanding and unforgettable happening.

If you are interested in joining us for the Meeting, if you need more information, please write to the following address below, send a fax or e-mail.

33 de Maura IW9BO, Glovanna IT9ZJN , Vita IT9LAC, Alice IT9E0S, Ruth IT9ESZ

Fax: ++39'091'533330
Tel:++39'091'530659

And

First announcement for the ALARAMEET in October in 2002, from Friday 4th to Monday 7th. The venue booked is the Murray Bridge Community Centre and a program is at the planning stage.

As yet there is no web page but that is in the pipeline. If you would like more information so you can start planning your holiday trip next year to include Murray Bridge, please contact Jean VK5TSX rkopp@asiaonline.net.au

Watch this column for more information as it comes to hand.

Regular Luncheons

VK3 meet at the "Bella Vista Café" in Little Collins Street on the second Friday of each month.

VK5 meet at "Bertie's Pancake Kitchen" in the Southern Cross Arcade, King William Street, also on the second Friday of each month.

VK6 meet at the "Hyde Park Hotel" in North Perth last Thursday of the month.

Visitors are ALWAYS welcome, whether we expect them or not. If you are in town, please join us. If you have any family or visitors staying with you please bring them along, too. While it is nice to see the usual faces it is also nice to see some new ones.

ar

Adelaide Hills Amateur Radio Society

The April meeting of AHARS had Arno VK5ZAR, best known in VK5 for his involvement in packet radio, to talk to us about the TV side of the Sydney Olympics.

Following the very interesting talk about the lighting for the Olympics this gave us a different perspective on a very large scale project.

Arno was a technician in the main distribution centre for the TV coverage of the Olympics, of which the TV distribution in Australia was a very small part. Fortunately much of the preparatory work had been done by Sydney based TV teams but there was plenty still to be done when Arno arrived four weeks before the Opening Ceremony.

The enormous quantity of cabling of all sizes that had to be connected in and out of the distribution centre was quite mind-boggling. There were boxes and boxes of connectors, racks, TVs, keyboards etc., that had to be made up into a fully working unit. Only experts would have even known where to start.

The chaos of cables and boxes became an orderly arrangement in an amazingly short time. It all went together and it all worked.

As it was for the lighting, there were backups for backups all the way. With an event like the Olympics there are no second chances. If a camera doesn't work the picture doesn't get to the right place. Every eventuality had to be anticipated.

There were at least four cameras at every venue and for each camera there was at least one operator responsible for it at more than one interconnected control centre. As well there were more people responsible for the quality of the picture.

From the distribution centre the information from the sports venues was sent to something like 80 different "control centres" so that every country could access all the information about all 'their' athletes as well as all the other athletes.

Provision was also made for all competitors to be interviewed and for items of general interest or views of Sydney etc were available at all times.

Altogether a very interesting talk

Meetings of AHARS are held on the third Thursday of each month and the lecturers are always interesting, varying only in their technical content. Contact Geoff VK5TY or Alby VK5TAW if you are likely to be in Adelaide on the third Thursday. They will give you any more details you need to attend a meeting.

Help Dragons celebrate

Members of the Dragon Amateur Radio Club based in Anglesey have been making special efforts to contact Wahroonga, 20 km. north of Sydney.

To make their contact as authentic as possible the Welsh amateurs have, for each of the last 8 years, operated their station GB2VK from the historic transmitter site at Waunfawr near Caernarfon, North Wales, UK. It was from this transmitting station, originally built to span the north Atlantic, the first direct wireless signals were sent to Australia in 1918. The signals were received at an experimental receiving station run by Mr. E T Fisk of Amalgamated Wireless (Australia) at his home 'Lucania', Wahroonga. On the 22nd of September 1918, while in UK. the then Prime Minister of Australia W M Hughes, sent the first direct Wireless Telegram 'home' to Australia.

In recent years it has become more difficult to make this contact, as there seems to be a shortage of interested amateurs willing to put on an amateur station at Wahroonga.

Dragon A R C members have contacted the magazine to seek any amateurs who would be interested, and willing to put on a special station annually to celebrate this historic event. The Welsh special event station uses the callsign GB2VK and runs for the 24hrs of the 18th of September each year.

Special QSL cards are sent for contacts, which tend to be around 14.055 and 14.270 MHz. plus or minus QRM, at times to suit propagation. (0500 to 0700 UTC.)

Mrs. Jo Harris VK2KAA, has done much to promote contact between Wales and New South Wales over the years. And D A R C members wish to express their gratitude for her considerable efforts.

The Dragon ARC has a web page.... http://www.gw3vvc.freeserve.co.uk, and can be reached via Email at-iss00f@bangor.ac.uk

Oxley Region Amateur Radio Club

The May meeting of the ORARC, held in Port Macquarie, was dedicated mostly to their up and coming Annual June Field Day, to be held over the Queens Birthday weekend. Apologies were given for the VK2RCN voice repeater that had been off air for most of April having some necessary repair work done. Travellers with 2 metre equipment migrating on the Pacific Highway and passing by Port Macquarie have an option of using VK2RPM on 146.7 mHz or VK2RCN on 147.0 mHz (both off-set low). Federal WIA Director, David A. Pilley, VK2AYD, gave an interesting talk on the structure of the the WIA and the direction it is taking into the 21st Century. The ORARC meet at the S.E.S. Building in Port Macquarie on the 1st Saturday of each month at 1 pm. Visitors are always very welcome. They also hold regular club nets on Wednesday evening at 7pm on VK2RCN and on Sunday mornings at 8.30 am on VK2RPM. More information can be obtain from the Secretary Alan Nett, VK2GD, on e-mail anut@ozemail.com.au.de VK2GD

Novice Notes

Peter Parker VK3YE
12/8 Walnut Street, Carnegie, Victoria, 3163
E-mail: parkerp@alphalink.com.au
Novice Notes Online: http://www.alphalink.com.au/~parkerp/nonline.htm

Workshop and operating hints and tips

This month's column is a selection of hints and tips that I trust will be found useful around the shack and workshop.

Vertical dipoles from coax cable

With a Stanley knife make a cut around the coaxial feedline approximately one quarter wavelength from the end of the cable (length in metres = 71.5/ frequency). Then slit the cable to remove the outer jacket from the cut to the end of the cable. With a small screwdriver make a hole in the braid near the start of the outer jacket. With the screwdriver, lever the inner conductor out through the hole. Solder an eye terminal or washer to the end of the inner conductor to provide a support for hanging from a tree branch or curtain rail.

Uses for scrap circuit board material

These include small boxes, dividers where shielding is important, small nameplates (if etched) and square pads for 'paddyboard' construction. For the latter, tin snips or multipurpose shears will cut the material nicely.

Soldering two wires together without an iron

Wrap join with solder. Then wrap with aluminium foil. Hold a lighted match to joint until solder melts. Remove foil when solder sets.

Illuminated dummy load

A 12-volt 300mA light globe soldered into a PL259 plug makes a useful dummy load for HF QRP equipment running up to a few watts.

Cutting ferrite rods to size

Saw groove around rod with hacksaw. Hold rod in two hands and apply force. The rod should snap cleanly.

Determining loss of coil formers for antenna traps, etc

Place material in microwave oven with glass of water. High loss material will get very hot or melt. Material that stays cold or warms only slightly is suitable for use. Remember to remove all metal traces (e.g. wire or mounting screws) before doing the test!

Portable antenna mast

An eight or nine metre giant squid pole forms an excellent mast for portable operation. These lightweight poles (also called roach poles or telescopic poles) are available from fishing shops and collapse down to about 1.1 metres. Squid poles can support lightweight wire antennas for HF and VHF/UHF groundplanes. The poles will not support coaxial feedline unless it is supported by taping it to the pole.

Handheld antennas

Antennas that a quarter wavelength or less on handheld transceivers often benefit from the addition of a counterpoise. Clip a quarter wavelength of wire onto the earth connection of the radio's antenna socket.

Holding nuts in tight places

1. Blue-tac or small dab of glue on end of screwdriver
2. Rubber band across handles of long-nose pliers

Easy connectors

Terminal blocks cut up into strips make handy barrel connectors.

Insulators for wire antennas

For temporary portable antennas, use toothbrush handles. Otherwise use sections of plastic conduit.

Pedestrian mobile HF station

A case to hold a transceiver, gel battery and antenna can be made from pieces of 10mm-thick chipboard. Thread old coaxial cable through holes in the box to make carry handles. To prevent rubbing against the operator if the station is used whilst walking, glue carpet to the side of the box closest to the operator. For the transceiver, use a converted CB for 10 metres or Yaesu FT-817 for HF/ VHF/UHF coverage.

Spreaders for open wire feedlines

If you have a few more toothbrush handles, you can use them as spreaders in homemade open wire feedline. Alternatives include hair curlers, or my favourite, plastic irrigation tube about 6mm in diameter as sold by garden suppliers.

Doing well in contests

If you use a good antenna from a good location and consider yourself to be a 'strong station', spend most of your time calling CQ – others will find and work you. If your signal is weaker than others are, spend most time tuning the band and calling other stations. Once all stations heard have been worked, find a clear frequency and call CQ for a while.

Cheap VHF/UHF signal generator

An HF rig fed into a dummy load makes a crude signal generator for doing tests on VHF/UHF receivers or as a BFO for receiving SSB on an AM receiver. Set the transceiver to just above 28.8 MHz for harmonics in the 144 and 432 MHz bands.

Projecting sound forward from top-mounted speakers

Transceivers with top-mounted speakers can benefit from a yogurt container (with a forward facing cutout) placed over the speaker grille. The container projects the sound forward towards the operator.

Improving access to station equipment

When you next renovate the shack, consider placing the operating desk about a metre from the wall. This will

make it easier to access power and antenna connections and add new equipment.

Labeling leads

Cables should be labeled to minimise the risk of equipment damage, for example when transmitted power is applied to the antenna socket of a receiver. A good way is to write (with a ballpoint pen) labels onto strips of paper 5mm wide and as long as the label requires. Clear adhesive tape is placed over the front of the label and around the cable. The tape is then continued so that it sticks to the back of the paper and around to the front of the label, where it is cut with scissors. The result is a descriptive 'flag' at the end of the cable near the connector. A refinement could be to write on both sides of the paper strip instead of one.

Solder dispenser

Pierce hole in 35 mm film container. Wrap solder around pipe or tube to form coil. Thread one end of solder through hole, and place coil inside container. Replace cap.

Antenna accessories at fishing shops

Apart from squid poles (see previously) several other items useful to the amateur can be procured at fishing shops. Fishing reels are ideal for storing wire antennas. Depending on the length and thickness of the antenna wire, diameters between 10 and 25 centimetres are suitable. Sinkers and fishing line are also useful for raising antenna wires over tree branches.

Uses for octal valve bases and film containers

Octal valve bases screwed to 35 mm film containers form useful plug-in coils for receivers, dip oscillators and antenna coupling units covering the low HF bands. Octal plugs and bases are still stocked by major parts outlets. For coverage of higher frequencies, use 5-pin DIN plugs and formers approximately 12mm in diameter, such as conduit.

Use for old coax

Lossy or water-damaged coax can still be used for ground radials. The braid can also be used for earth connections.

Calling on repeaters

When putting out a call, press the PTT button, wait 5 seconds and then call. This gives time for people's scanning transceivers to stop on your frequency, for your call to be heard and increases the chance of getting a response.

On indicator

To add an on indicator for projects that operate from 12 volts, wire an LED in series with a 560 ohm resistor.

Polarity protected projects

Simply wire the positive and negative power leads to the positive and negative connections of a diode bridge rectifier. The polarity applied to the two AC inputs is not critical. This technique is only recommended for low-powered projects with plastic or non-earthed metal cases and in situations where the voltage drop across the bridge will not impair operation.

Learning about Spread Spectrum

An excellent web page about spread spectrum communication can be found at http://sss-mag.com/ The site includes an amateur section.

BFO for SSB

Cheap one or two band shortwave receivers seldom have a beat frequency oscillator required for amateur SSB reception. A portable AM broadcast radio placed near the receiver can be used as a BFO, with no connections required. Setting the radio near 1.3 MHz should cause a carrier to be heard near 3.5 MHz or 7 MHz. To use, tune for maximum 'duck talk', and carefully adjust the broadcast receiver until the signal becomes intelligible. Move the receivers closer together for strong signals and further apart for weak signals. It's fiddly, but it works!

Estimating thickness of enameled wire

Wind 10 turns onto a pencil, measure in millimetres with a ruler and divide result by ten.

Tuning indicator for base loaded HF antennas

Attach one side of a neon bulb to the top of the loading coil. Leave the other side of the bulb floating. Use 5-10 watts and aim for maximum brightness.

Use for computer power supplies

Many articles have described how two disused computer power supplies can be made into a high-current 13.8 volt supply for transceivers, etc. Not all constructors have found this project straightforward, and only competent builders should attempt it. However if you are willing to accept a reduced voltage (11.5 to 12 volts) and reduced current (up to a few amps), the 12-volt output from a single, unmodified supply will adequately power CB and low power amateur equipment.

Using small bits in large drill chucks

Wrap a few turns of solder around the bit, insert in chuck and tighten. The technique can also be used to salvage drill bits that have been broken.

Preventing components being lost

When assembling kits or constructional projects, place the parts in a shallow dish to prevent them rolling off the table or bench.

SO239 antenna mount

A square-type SO239 chassis mount socket makes a handy base for quarter wave ground plane antennas for two metres or seventy centimetres. The feedline can be fed up a tube (with an inside diameter larger than the PL259 diameter) or taped to a squid pole for a quick home station antenna.

Emergency supply of solder

Wrap solder around cord of soldering iron to form emergency supply of solder to use when your reel runs out.

Quick six metre antenna

It's worth a reminder that a 5/8 wavelength whip for two metres will operate effectively on six metres as a _ wavelength whip.

Cases from component stereo systems

1970s stereo equipment is now available cheaply from garage sales and car boot sales. The boxes from amplifiers, tape decks, graphic equalisers make fine enclosures for large projects, such as homebrew transceivers, antenna couplers and power supplies. Use printed circuit board scraps to cover holes if necessary.

The WIA regrets to announce the recent passing **of**:-

K C (Ken) SEDDON VK3ACS
(JOHN) Kelly VK3AFD
A (Al) BOWLEY VK3AP
W A TRENWITH VK3ATW
C W RICHARDSON VK3QY

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

The Parasol

A 160 metre top loaded vertical , The Parasol, was described in QST October 2000 by Al Christman K3LC. The antenna is a shortened vertical with top loading by three downward sloping wires which give it the name of The Parasol. The main vertical mast section is grounded at the base and the sloping wire top loading section is fed at the top of the vertical mast. A buried ground mat is used at the base of the antenna but this can be replaced with elevated radials without a great sacrifice in performance. While much of the article relied on computer modelling the antenna has been used with satisfactory results by commercial AM broadcast stations.

The antenna configuration is shown in Fig 1. The vertical section is a 70 foot tower. The tower base is bonded to the 120 quarter wave long buried radials. The coaxial feed is run up the inside of the tower and is bonded to the tower at the base, the mid point and at the top of the tower. The top of the tower is the feed point and the coax outer is bonded to the tower and the inner feed the three parasol wires which are joined together at the feed point. The parasol wires are each 46.533 feet long and slope downward at an angle of 30 degrees below the horizon. The circle at the apex of the tower is the feedpoint.

Matching can be by an L network at the base of the tower or you could use an impedance matching network at the feedpoint at the top of the tower. Feedpoint impedances of between 15 and 60 ohm are indicated by computer analysis.

The parasol whilst made up of three wires could be made up of more wires with the length adjusted for resonance. Two wires can be used but the pattern is not as circular. The downward slope can be varied but the length of the parasol wires will need to be adjusted for resonance. The support of the parasol wires should be non metallic rope. The tower guys can be non metallic but if necessary metal guy wires can be used if they are broken up into non resonant lengths.

The ground mat of 120 quarter wavelength radials can either be buried or run on the surface which gives the best computed result or elevated radials can be used. The elevated radials are in a gull wing form. They rise upward from ground level at the tower base at a 45 degree angle to a height of 12 feet and then run horizontally at this height. Eight elevated gull wing radials are used. This configuration of elevated gullwing radials is shown in Fig 2. The wingspan of the gullwing radials is 134.4 feet for 1830kHz. The parasol wires are 51.894 feet long. Another choice is to use inductively loaded radials.

The antenna characteristics obtained by computer simulation using EZNEC are given in Table 1. The characteristics of a full size vertical monopole are also given for reference.

While the computer simulations give a good indication of performance the final test is to buid the antenna. The values given by the simulation give a good starting point for the adjustments needed for the realisation of the satisfactory performance of the real world antenna.

EZNEC antenna software is available from Roy Lewallen W7EL PO Box 6658 Beaverton OR 97007. Email w7el@teleport.com. The price is $US89 plus $US3 post and Visa and Mastercard is accepted.

Table 1 Parasol and Quarter Wave Vertical performance compared using EZNEC at 1830 kHz. Unless noted the parasol wires slope downward from the tower Apex (feedpoint) at 30 degrees below the horizon.

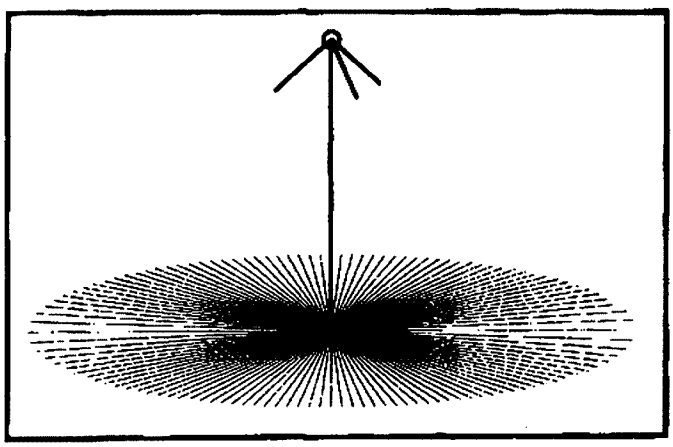


Fig 1. Parasol Antenna with 120 buried quarter wave radials. Circle indicates feed point.

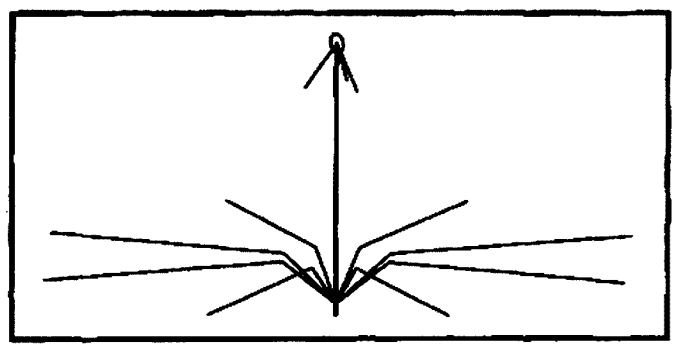


Fig 2. Parasol Antenna with eight gull wing bent radials each a quarter wave long above ground level. Circle indicates feed point.

Power Gain	dBi	Take-Off Angle	Feedpoint Impedance degrees ohm
Ground Mounted Quarter Wave base fed with 120 quarter wave radials.	1.28dBi	23 degrees	40.83 + j22.89 ohm
Ground Mounted Quarter Wave base fed with 120 buried 70 foot radials.	0.79dBi	22 degrees	45.05 + j20.35 ohm
Elevated (H= 30ft) Quarter Wave base fed with 4 quarter wave radials.	1.12dBi	19 degrees	34.18 + j1.99 ohm
70 Foot Parasol with 120 buried quarter wave radials. 46.533 foot parasol wires.	1.26dBi	24 degrees	28.62 + j0.0006 ohm
70 Foot Parasol with 8 quarter wave elevated gull-wing radials. 51.595 foot parasol wires.	0.51dBi	24 degrees	16.59 + j0.0034 ohm
70 Foot Parasol with 8 quarter wave elevated gull-wing radials. 51.894 foot parasol wires.	0.87dBi	23 degrees	15.16 + j0.0019 ohm
70 Foot Parasol with 8 quarter wave elevated gull-wing radials. 60.012 foot parasol wires.	0.76dBi	23 degrees	12.44 - j0.0044 ohm
70 Foot Parasol with 120 buried 70 foot radials. 46.758 foot parasol wires.	0.59dBi	24 degrees	33.15 + j0.0036 ohm
70 Foot Parasol with 120 buried 70 foot radials. 50.478 foot parasol wires sloping down at 45 degrees.	0.24dBi	24 degrees	27.93 + j0.0037 ohm
70 Foot Parasol with eight 70 foot elevated gull-wing inductively loaded radials. 51.397 foot parasol wires.	-0.43dBi	25 degrees	22.90 - j0.0049 ohm
70 Foot Parasol with eight 70 foot totally horizontal inductively loaded elevated radials. 61.69 foot parasol wires.	-1.15dBi	25 degrees	20.24 + j0.0069 ohm

Table 1

160 Metre Inverted L Antenna

In QST October 2000 Jack Belrose VE2CV describes a method of decoupling a tower from an inverted L antenna supported from the tower. The inverted L vertical section being supported from the top of a tower which also supports a 20 metre yagi may suffer from interaction with the tower due to induced currenbts flowing in the tower. The usual advice being to keep the tower and the vertical as far apart as possible by suspending the vertical from a yardarm. Jack shows how the interaction may be minimised.

The proposal is to use a decoupling stub spaced 39 inches from one leg of the tower. This is shown in Fig 3. The stub is attached to the top of the tower and tuned at the bottom by a capacitor connected between the tower leg and the stub. The stub is tuned to resonate at the operating frequency. The tuning results in minimum tower base current. The stub is tuned by monitoring the tower base current and tuning for minimum. For maximum effect all legs of the tower should be treated with a stub which will result in maximum decoupling of the tower.

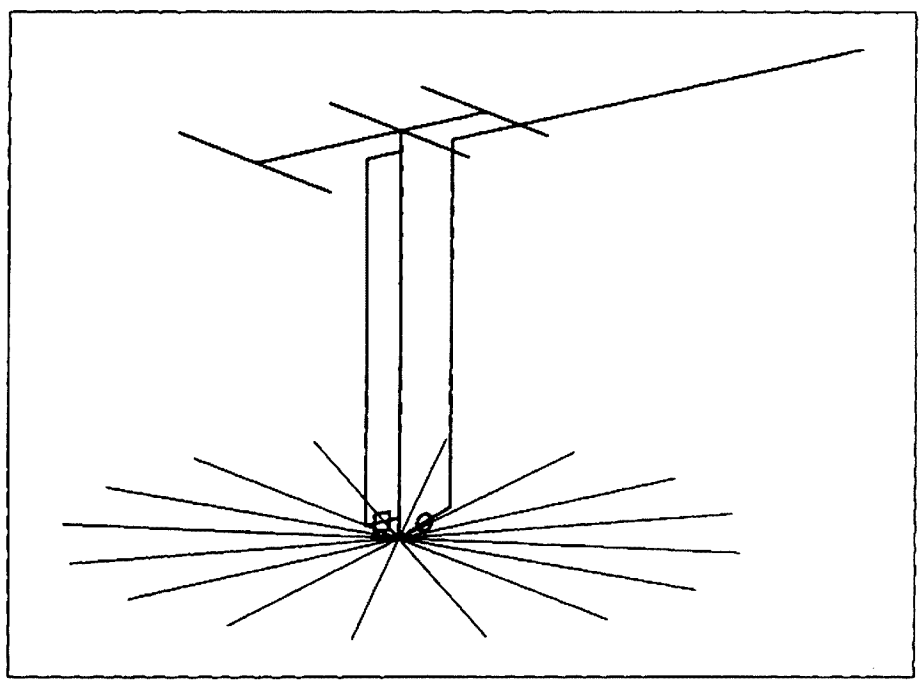


Fig 3. 160 Metre Inverted L supported by a 50 foot tower which also supports a 20 metre yagi. The tower is decoupled by a stub 39 inches from the tower leg. The stub is tuned for minimum tower current.

The advantage gained is that the tower supported inverted L with the tower decoupled will have a better pattern with more high and low angle gain in the favoured direction. The favoured direction is the direction opposite to the direction in which the inverte L points.

Multivibrator Overtone Crystal Oscillator

Overtone Crystal multivibrators were described in an item which appeared in the Technical Topics column of Pat Hawker G3VA in Rad Com November 2000. The item came from an article in Funk Amateur August 2000 by Herrman Schriber. Also noted was an earlier application in SGS Fairchild Application Report No 170 which is shown in Fig 4 and Fig 5.

The circuits shown in Fig 4 and Fig 5 are multivibrator generators using 32 MHz overtone crystals bult from discrete components.

Using HCMOS logic inverters overtone crystal multivibrators can be built with only a couple of additional components. This is shown in Fig 6(a) and Fig 6(b).

In Fig 6(c) a single inverter is used . This is made posssible by the addition of an inductor and capacitor. The values given for a 32 MHz overtone crystal would provide a starting point for other crystal frequencies. Operation at 50 MHz is claimed to be possible using HCMOS inverter chips such as 74HC00 and 74HC04. You should check the voltage limitations of the chips.

ar

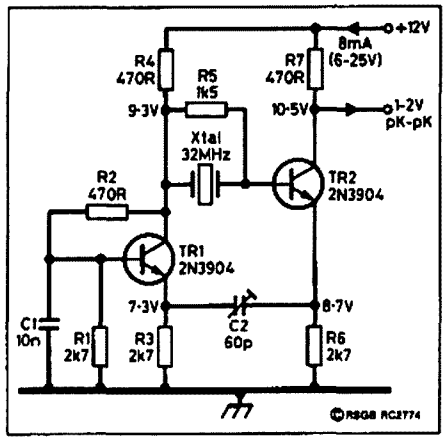


Fig 4. 32 MHz Overtone Crystal Multivibrator.

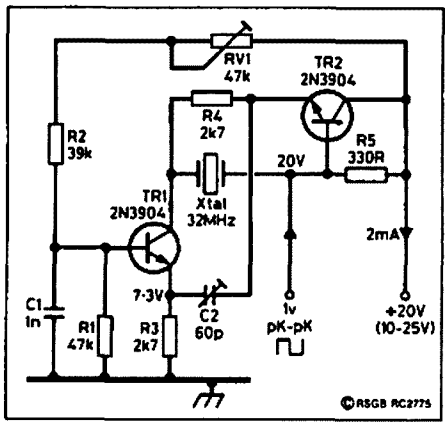


Fig 5. Alternative 32 MHz Overtone Crystal Multivibrator Generator.

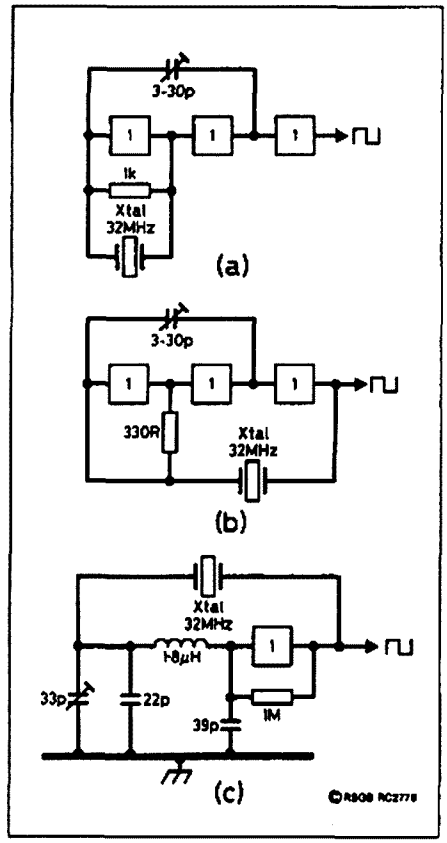


Fig 6. Overtone Crystal Multivibrators using IC Logic Inverters. In (c) the addition of a suitable inductor permits the use of a single logic inverter.

Silent Key

Roger Malcolm Bingham VK4HD 1945 - 2001

Roger VK4HD passed away peacefully late on the afternoon of March 1, aged 55 years.

Roger obtained his limited licence, joined the WIAQ and became a member of the Redcliffe and District Amateur Radio Club around the year 1980. Very soon he was voted to the position of Secretary-Treasurer, where he proved to be popular, hardworking and a very sensible ideas man.

VK4HD's next move was to full call in 1985.

A few years later, in 1990, he was given stewardship of President of the WIAQ. He served two terms and one as Vice President until he was suddenly taken seriously ill in 1996. On August 3 of that year he resigned from the WIAQ, ahead lay much medical treatment, hospitalisation and surgery. He was destined never to return to Amateur Radio.

It might be asked what was VK4HD's biggest contribution to AR in VK4 during his 15 years of administrative service. Put simply it was his ability to recruit new members when the Institute was in a period of stagnation, an ability not to be forgotten. Also his natural attributes i.e.; his lucid manner of speech into which he mixed a great deal of wit, suited his official position perfectly.

Another personality trait unknown to many was his generosity carried on after 'Biblical fashion' of not allowing one hand to know what the other was doing!

Past President Roger is survived by his wife Trish, two sons Malcolm and Christopher and daughters Ann-Maree and Janelle.

The WIA offers condolences to the family in their hour of grief and loss. Some comfort may be taken in the knowledge that Roger VK4HD will be part of WIA history as long as it survives and records remain.

VK4SS Alan Shawsmith
WIAQ life member

Spotlight on SWLing

Robin L. Harwood VK7RH

Winter has brought excellent conditions despite Sol playing up badly. Early May saw several major dropouts, with severe HF disruption for up to a week after the flares.

The usual midday propagation on the lower end of HF should continue, despite disappointing 2000 results. This could be due to fewer European broadcasters and not entirely due to propagation.

The China Syndrome

Last month I was hearing Falun Gong clandestine stations between 12100 and 12150 kHz. This informationwas obsolete at press as, mysteriously, the stations disappeared early in April.

Coincidentally, on April 1 an US spy plane was forced to land on Hainan island after colliding with a Chinese jet fighter in international airspace. The US crew were released after a fortnight but the plane is still held and is the centre of a diplomatic dispute between the US and China. The pilot of the jet was killed and diplomatic relations between US and China rapidly deteriorated.

The incident has caused short-wave broadcasting to dramatically increase between the two nations as a result. Also the jamming of stations such as Radio Free Asia (US), the VOA and the Chinese service of the BBC has intensified.

Chinese broadcasts to Taiwan, which mainland China historically regards as a renegade province increased after the US decided to sell Taiwan sophisticated anti-invasion weaponry. Taiwan does not jam Chinese programs to the island, but broadcasts emanating from Taiwan have been jammed since the Nationalist Chinese fled to the then Formosa.

This jamming is within the 40-metre amateur allocation, especially on 7105 kHz and 7255 kHz, which is shared with broadcasting. The jamming has clearly spilled across our exclusive allocations.

The Falun Gong station was not in Asia; Bulgaria being nominated as a site by some. Perhaps diplomatic pressure from Beijing on Bulgaria or the aircraft incident may have stopped them. All I know is that they are not being heard.

Pirates and patriots and the US extreme right on about rights

The US clandestine station, United Patriot Radio (UPR) has been heard often on 3260 kHz on USB, primarily in the USA, around 0200 UTC. I did hear them in Australia on 12182 USB at around 2230Z. The modulation breaks were so many as to be obviously intentional.

Slightly different programs from those on WFUV in Georgia on 12172 USB also came from the Genesis Network. WFUV is FCC licensed. UPR is a pirate, born of a dispute between right-wing organizations and WFUV for non-payment of airtime.

Allegedly, the operator of UPR, Stephen Anderson of Somerset, Kentucky, came up on one of WFUV's short-wave channels after they signed off and made disparaging comments.

The FCC monitors cited Anderson, an amateur, for operating on a channel for which he was not licensed. Anderson then voluntarily relinquished his amateur status as he no longer recognizes the legitimacy of the US government. UPR claim they promote the First Amendment (free speech) and Second Amendment (the right to bear arms).

UPR is operating on or near 6890; deliberately close to WFUV. Irregular, it may already have been raided by the FCC, and possibly FBI, in view of his Second Amendment statement.

DRM : Who knows?

You may have heard recent experimental broadcasts of Digital Radio in existing HF broadcasting allocations. It appears in analogue with English and other European language messages followed by short music bridges. The same announcements are then repeated in digital format (DRM).

Experiments have been conducted from Juelich in Germany, Pori, Finland, and Bonaire in the Netherlands Antilles. I queried an Internet forum if it was possible to receive DRM signals, converting them via a computer soundcard. Joe Buch in the USA answered with some basic facts on DRM:

> "Most analog receivers will not be adaptable to the DRM format. All the digital modes you use as examples are much lower in data rate than that which will be used in DRM. Because of this, the spectral width of the signal is narrow compared to the IF bandwidth of typical SW receivers. With DRM, signal components are contained throughout the IF bandwidth. For this reason the time delay across the IF bandwidth must be constant to prevent distortion of the digital signal. Crystal filters and mechanical filters have poor delay characteristics at the edges. Phase shift across the audio bandpass will also need to be controlled to do what you suggest. Analog signals generally are not affected by phase linearity. For this reason nobody I know is working on a sound card solution.
>
> "One of the advantages of the DRM format is that the receivers will be able to follow frequency changes automatically keyed by information in the data stream. Your old analog radio would not be able to do that unless the computer software also had a link to your remotely programmable radio."

As the existing analogue receivers will not be adaptable to decode DRM, I asked about DRM receivers, referring to the AM stereo fiasco, wondering if DRM would end up similarly. Apart from the handful of monitors with DRM receivers, nobody knows how DRM is performing.

It supposedly will offer economic savings to broadcasters and consumers, once sufficient receivers are out there. But nobody is making them!

Disappointingly, because of the proprietary nature of DRM, only the few broadcast engineers doing tests know anything about it. We monitoring DRM signal interference with the adjacent existing analogue signals as these will continue for many decades to come.

Swiss radio: Stiff Cheese

In April, I mentioned that Swiss Radio International (SRI), Berne, was reducing their short-wave output.

Hans Kiesinger of Maroochydore (QLD) sent me the SRI press release, confirming axed broadcasts to Australasia and eastern North America. By the end of October SRI will be only broadcasting to Africa and Asia and this and all other satellite activity will cease in 2004. Then it will be only on the Internet as swissinfo.com.

Well that's all for this month. Good listening these winter months and 73.

ar

DON'T MISS THE ACTION!

PHONE, FAX OR VISIT ANY OF OUR STORES TO RECEIVE A FREE COPY OF OUR NEW DICK SMITH ELECTRONICS 2001 CATALOGUE

Please fax or phone or bring this coupon into any of our stores.

ONE FREE CATALOGUE

Name.....

Address.....

direct link

Direct Link is equipped with the service centre to supply you with a hassle free delivery.
PHONE: 1300 366 644 (Local Call Charge) **FAX:** (02) 9642 1155

Yaesu FT-90R 2m/70cm micro mobile

Another engineering breakthrough from Yaesu – a tiny dual-band mobile rig with high power output, a remoteable front panel, and a rugged receiver front-end. The FT-90R provides 50W RF output on the 2m band as well as 35W output on the 70cm band, a solid die-cast casing with microprocessor controlled cooling fan for reliable operation, and a large back-lit LCD screen, all in a package measuring just 100mm x 30mm x 138mm.

Also includes:

- Wide dynamic range receiver for greatly reduced pager breakthrough.
- Huge receiver coverage – 100-230, 300-530, 810-999.975MHz (Cellular blocked).
- 180 memories and a variety of scanning functions.
- Built-in CTCSS encode/decode, battery voltage metering.
- Designed for 1200 and 9600 baud packet operation.
- Tiny remoteable front panel (requires optional YSK-90 separation kit)
- Includes MH-42 hand mic, DC power lead, and easy to follow instructions.

D 3312

YAESU

AMAZING VALUE!

$599

SAVE $100

2 YEAR WARRANTY

YSK-90 Front Panel Separation Kit $144

D 3317

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

Yaesu VR-500 Multi-mode Scanner

The new VR-500 is more than just a scanning receiver, it's more like a miniature high performance monitoring station! Providing almost continuous coverage of the 100kHz to 1300MHz range, the VR-500 includes reception of narrowband FM, wideband FM (for FM and TV broadcast audio), SSB (for Amateur, CB, and HF reception), CW, and AM (for shortwave and broadcast station) signals. A large backlit LCD screen not only displays the receiver operating frequency, but also displays channel steps and reception mode. For monitoring band activity above and below your current listening frequency, the VR-500 even provides a 60 channel Bandscope to display local activity (within a range of 6MHz max when used with 100kHz steps).
A total of 1091 memory channels are provided, with 1000 of these being "regular" memories with alpha-numeric tagging, and the balance being for special features (such as Search band memories, Preset channel memories, Dual Watch memories, and a Priority memory channel). A Smart Search™ function, which sweeps a band and finds in-use channels, allows you to allocate up to 41 memories that can automatically note these active frequencies. The VR-500 operates from just 2 x "AA" size alkaline batteries, and can be connected to an external 12V DC source (such as a vehicle cigarette lighter) using the optional E-DC-5 adaptor. For easier operation, the VR-500 can also be connected to your PC using the optional ADMS-3 interface/software package.

D 2799

YAESU $599 SAVE $100

2577 DPS S/COL

DON'T MISS THE ACTION!

YAESU VX-150 5W 2m handheld

Compact yet incredibly rugged, the new Yaesu VX-150 2m handheld is designed to perform under the most demanding conditions. The VX-150's diecast aluminium case provides excellent transmitter heatsinking, allowing 5W RF output as standard, while assisting the radio to meet the tough US MIL-STD 810D/E shock and vibration ratings. A large high-output speaker, heavy-duty belt-clip plus illuminated keypad and LCD screen make the VX-150 a pleasure to use.

Features:

- Tx: 144-148MHz, Rx: 140-174MHz • RF Output: 5W with supplied 700mA/h NiCad pack
- Direct keypad frequency entry, CTCSS and DCS encode/decode, battery voltage metering
- Simple Menu system • Over 200 memories • 7 digit Alpha-numeric memory labelling
- Tx and Rx Battery Savers • Case measures just 58 x 108.5 x 26.5mm WHD
- Comes with FNB-64 7.2V 700mA/h NiCad, flexible antenna, and overnight AC charger

D 3648

2 year warranty

$345

NEW FOR 2001

YAESU FT-1500M Heavy Duty 2m FM Mobile

Another Yaesu transceiver breakthrough, the new FT-1500M blends an efficient transmitter with an almost bullet-proof receiver front end, and is packaged in rugged die-cast aluminium casing. You get powerful 50W RF output, direct keypad frequency entry, Alpha-numeric memory labelling, easy data interfacing, and much, much more.

- Transceiver coverage of the 2m Amateur band (144-148MHz), with extended receiver coverage of the 137-174MHz range.
- 50W RF output, with selectable 5, 10, or 25W lower power levels. The efficient PA stage only draws 8A at 13.8V DC for full RF power output.
- High-performance receiver front-end circuitry using Yaesu's renowned Advanced Track Tuning (ATT) tracking bandpass filter design.
- Includes MH-48B6J DTMF microphone for direct keypad frequency entry, plus convenient Menus with 35 "set and forget" functions.
- 149 memories are provided, with 130 regular memories, 9 pairs of sub-band memories, and an instant recall "Home" memory.
- Additional features: Supply Voltage Display, transmit Time-Out Timer, Auto Power Off, and S-meter RF Squelch.

D 3638

2 year warranty

$399

SAVE $37

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

PHONE FAX AND MAIL ORDERS direct link

PHONE: Within Australia: 1300 366 644 (Local call charge)

FAX: (02) 9642 9155 within Australia and (+612) 9642 9155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 500, PO Box 500, Regents Park DC NSW 2143 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 30/6/2001. All prices shown are in Australian dollars and are inclusive of GST.

2577 DPS S/COL

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Teny Davies	VK2KDK
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9289
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Old. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Colin Gladstone	VK4ACG
Secretary	David Jones	VK4OF
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	David Minchin	VK5KK
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@linet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.30pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $56.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK8 WIA website

Annual Membership Fees. Full $69.00 Pensioner or student $59.00. Without *Amateur Radio* $38.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $52.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

Division News

VK1 notes

Forward Bias

Peter Kloppenburg VK1CPK

By the time you read this, the ACT Division has begun to share accommodation with the Long Gully Scout Group in Longenerong Street in Farrer. Two rooms, in a building that was surplus to the Scout's requirements, are now used for committee meetings, Novice classes, and radio shack. One of the rooms is a lounge where light meals can be prepared, and adjacent to this is a section where shower, wash and toilet facilities are located. In addition to this, the contract allows us to use the scout's sports hall for general meetings once a month. Most importantly, and as every amateur knows, location is very important in regard to putting up antennas and the like, such as towers and radio masts. The area in front of the building provides ample space for this purpose, and is fenced as well. Planning for an antenna farm is in progress, as the Division has accumulated plenty of hardware for this purpose over the years. When the rooms have been fitted out for our purposes with equipment, furniture, tools and storage space, we can truly call it our home. Are you coming too?

Changes of a different kind have been happening at the ACT committee level. Leading up to the Federal AGM, the call went out for filling various positions at WIA Federal. Our Treasurer, Ernest Hocking, nominated for Federal President. He went to Melbourne as an "observer" and came back as WIA President! Another, but local, appointment was that of our Vice-President, Phil Longworth, to that of Alternate Federal Councillor. Phil's appointment became necessary when we looked at the agenda of the Federal AGM. Many important decisions were going to be made, affecting the future directions of the WIA. Our President, Gilbert Hughes, who was appointed Federal Councillor earlier this year, also went to Melbourne for the annual convention.

The next General Meeting will be held on June 25, 2001 at the Scout facility in Longenerong St., Farrer, at 8 pm.

VK4 Notes

Qnews

by Alistair Elrick VK4MV

DX And Net Advice

The Gold Coast Amateur Radio Society of VK4 has turned up the wick and is making some great contacts on their VK4WIG DX nets. These are on Wednesday around 3.605 MHz at 7:30 EST, then on to 20metres on 14.226 MHz at 8.30pm EST. Net controllers are Doc AF4MI, located in Georgia USA and Chris VK2UW and Mal VK6LC in Australia.

VK4WIG would like to hear from any Short Wave Listeners, if they heard the activity and would like a QSL card to confirm any of the QSOs, can write to the GCARS at 85 Harper Street, Nerang 4211, Queensland Australia.

New Old Timer

John-Jaques Bon has sat and passed AOCP theory and 5wpm Morse. Not unusual you say? Well except all this at and on his 72nd birthday, obtaining the call VK4JJL. We must congratulate him, especially as his main language is French! He did some theory courses with Redcliffe & Caboolture Clubs and studied by himself. Rick VK4EMA tutored him in Morse. John-Jaques sat the exam with the City of Brisbane Radio Society, this in the middle of that bad storm in the Brisbane area recently.

And is he on air?

You bet, even at 72, restoring a Tri-band beam and putting up his tower! C'est épatant, formidable!

Music On The Airwaves

Jonathan Dimond VK4DJD is both a musician and Ham operator and has passed on this news with connections to both interests.

December this year marks the 100th Anniversary of Marconi's first trans-Atlantic radio transmission, and to celebrate, Arts Queensland, The Brisbane Biennial Festival, and the Brisbane Powerhouse have supported two fine contemporary groups of musicians to put on shows entitled "Airwaves: A century of radio". The performances occur on the evenings of July 24, 28, and November 3.

Jonathan, VK4DJD is the Jazz Department Convenor at the Queensland Conservatorium.

Tel: 3875 6268 or E-mail vk4djd @ qsl.net.

Presentation

Recently at a Redcliffe Radio Club meeting the WIAQ presented Don Clark VK4DC, with his richly deserved Merit Award. Well done Don. This nomination as with that of Laurie VK4BLE was written and researched by Dave VK4OF then nominated by Bill McCarthy VK4WMC.

Don't forget, you need not wait till years end to submit a nomination, when you see someone doing an exemplary job for Ham Radio, like Don, send a nomination into the WIAQ PRONTO!

continued next page

Cop This

Have you ever been stopped by the police and questioned as to what that mobile or hand held is for and do they understand just what Amateur Radio is? Yes and No, in that order, says a VK4 Amateur. Having been stopped for a 'routine licence check', the officer spotted VK4AKP's Handy and proceeded with - What's the radio for? Amateur Radio, what's that? I have never heard of it... Why do you have it with you? Can you listen to our radio transmissions with it?

Perhaps it is time we sent out a complementary flier or even cheaper than that; E-mail's to major police and rescue services outlining what Amateur Radio & WICEN is all about. Maybe worth carrying that copy of your ACA licence at all times too.

Tall Poppy Lopped

The Cairns Amateur Radio Club has had repeater equipment installed on Mt. Bellenden-Ker for the past 25 years. The location, which is almost the highest point in Queensland, has provided 2-metre voice repeater coverage for a huge service area up and down the coast and inland to the Atherton Tablelands. The 2-metre Digipeater has provided the packet link from Townsville to Cairns for many years and as yet, no alternative has been found to maintain this link. The Club has been struggling to meet the site fee, which was imposed a few years ago and has regrettably decided that it can no longer continue to maintain this facility. The VK4RCA 2-metre voice repeater and VK4RCA 2-metre Digipeater will therefore cease to operate before 30th June 2001. The actual date for removal of the equipment is still to be decided.

A New Home

Some busy negotiations and no small amount of lobbying have resulted in the Sunshine Coast Club having a new home. The new club house, in one of the old motorway toll booth buildings. Then how's this for a generous mob! The Sunshine Coast Club members really do get behind their club, Angus VK4QV has donated a tower to the new club rooms, Bernie VK4BBH 12 chairs, Ron VK4GZ an 8 pint electric kettle and June VK4SJ a three burner gas barbecue! I can't wait for the "house warming party".

Presidential Plane Talk

(The VK4WL progress report)

Further to last month's news, we've heard more about Bill VK4WL, Intrepid Ultralight Pilot, via WIAQ VP Far North Region Dale VK4DMC. At last report on Sunday April 15th Bill was in Middlemount, Central Queensland safe and sound after breaking a wing on the ultralight! Bill will be on the way again shortly after he solves this "niggly engineering problem". As they say "on a wing and a prayer!"

VK3 Notes

Website www.wiavic.org.au Email wiavic@wiavic.org.au

By Jim Linton VK3PC

AR Magazine

The new Amateur Radio magazine deadline for VK3 Notes and all material implemented to restore the delivery of WIA journal closer to the start of each month is most welcome.

A memo from the recently re-appointed Editor, Colwyn Low VK5UE, to all contributors, has put in place a tighter production schedule.

In another change to AR magazine, it will be publishing some appropriate articles from overseas journals. With the high cost of foreign magazines due to the Australian dollar exchange rate, now make them prohibitive to most radio amateurs.

It will be good to see some high quality articles from the journals of other radio societies, appear from time to time in Amateur Radio.

Centenary of Federation

Among the many reflections to be made in this, the year of the Centenary of Federation, will be the role of radio communications. One particular event, Australia's first official ship-to-shore wireless communication, occurred on 6 May, 1901 at Queenscliff, Victoria. This milestone in communications is clearly of national significance, and is an integral part of the centenary of federation. To celebrate the centenary of federation and the the communication achievements over the past 100 years, WIA Victoria has a special event station VI3PMG on air until the end of August.

WIA Victoria
40G Victory Boulevard Ashburton 3147
Tel. 9885 9261 Fax. 9885 9298

VK2 Notes

By Pat Leeper VK2JPA

Due to the lack of a quorum, the VK2 Division Annual General Meeting was re-scheduled for 19th May. As this column was written before the date, I cannot tell you if a quorum was reached this time. However, the new Board of Directors was notified in the May issue of AR, and only needs to be ratified at the coming meeting.

Due to the re-scheduling of the VK2 Annual General Meeting, the Conference of Clubs meeting due in May has been moved to 16th June - please note - 16th June 2001 at Amateur Radio House Parramatta. Clubs were notified of the change of date by email by the Secretary.

Finally - does anyone know of tests of power line data transmissions outside of the South Coast one? If you do, we would like to hear about it. Email us at vk2wi@ozemail.com.au.

More news next month

VK7 Notes

QRM Tasmanian Notes

Things certainly quieten down around the State as the shorter days arrive.Both the northern and the southern Branches have been favoured at their May meetings with an address by Rex Moncur, VK7MO, on the ramifications of the new E.M.R. regulations to amateur installations. It would seem that provided commonsense is the criteria for any installations most amateurs will not have any problems abiding by these regs. Rex had us all answering a long list of questions related to our own installations to test our own compliance.

The southern branch has ceased their famous foxhunts until Spring.The north-west branch has got all their repeaters working again after a break-in on the 3000 ft. Mt.Duncan site resulted in the loss of one of our solar panels which cut our battery power. We have now installed alarms that will tell us all that someone is doing the wrong thing up the mountain. Amazing, isn't it that some idiot will climb that height and carry a big panel back down the mountain. Must have wanted it very badly!!.

The Tasmanian branch welcomes the new Federal directors including, of course, our new Federal President as they say, "thrown in at the deep end". We thank Peter Naish for his untiring work over the past years. The new executive can be assured of our Tasmanian support.

Cheers for now Ron, VK7RN

John Kelleher VK3DP, Federal Awards Officer
4 Brook Crescent, Box Hill South Vic 3128, (03) 9889 8393

Back on deck again, with renewed vigour (if that is possible). Applications for WIA awards are still being received accompanied with a fee of only USD5.00. It must be all of 18 months ago that fees were raised to USD10.00. Because of this shortfall, I am forced to delay sending out awards until I have sufficient funds to do so.

I am trying to clear up this situation before I hand over the reins of Federal Awards Manager, coming up in August. It is my intention to resign immediately after publication of the WIA DXCC listings (August edition).

Two Pacific Island entities have given notice that their QSL bureaux are now closed. They are ZK1 Cook Islands, and A3, Tonga. If you require QSL cards for contact with these two countries, it will have to be direct to the station concerned, or through a QSL Manager.

Those among you who were lucky enough to work VK9RS (Rowley Shoals) may now include VK9RS in any applications for WAVKCA awards. This special call sign was issued to Mal, VK6LC by the ACA, and so becomes official.

The following are listed as being the top 10 most wanted countries (entities).

1. P5 North Korea
2. BS7H Scarborough Reef
3. E4 Palestine
4. FO 0xxx Austral Islands
5. FO 0xxx Marquesas Islands
6. H40 Temotu Province
7. BV9P Pratas Island
8. VU4 Andaman & Nicobar Isls.
9. 7O Yemen
10. A5 Bhutan.

If I were to proffer any comment on this list, it would be that the list was not altogether true. I can think of several other entities that could be included. This list was taken off the Internet!!

Northern Ireland: Six counties Award.

Earn 12 points by contacting GI stations. Club station GB4SPD = 3 points and all other GI stations = 1 point. You need at least one contact from each of the six counties of :-Armagh, Antrim, Down, Fermanagh, Londonderry, and Tyrone. All bands and modes. SWL OK. No time limitations. No repeater contacts. GCR list and fee of UK two pounds or 8 IRCs go to :-Ivor McKinney, "Wyn Vor", 175 Staffordstown Road, Randalstown, County Antrim, Northern Ireland BT41 3LT.

Papua-New Guinea: Bird of Paradise Award

Contact P29 stations after 16 September 1975. Oceania stations need 7 contacts in at least 5 provinces, while others must contact 5 in at least 3 provinces. GCR list and fee of 10 IRC (or equivalent) goes to: -Awards Committee, P.O.Box 204, Port Moresby, Papua – New Guinea.

The Provinces are: Capital District, East Sepik, Milne Bay, Southern Highlands, Central, Enga, Morobe, West New Britain, Chimbu, Gulf, New Ireland, Western, East New Britain, Madang, Northern, Western Highlands, Eastern Highlands, Manus, North Solomon and West Sepik.

Puerto Rico:Zone 8 Award.

Work 8 KP4 and 1 each of 8 other CQ Zone 8 countries on any band or mode. GCR list and fee of US$1.00 or 4 IRCs to: -Radio Club of Puerto Rico, PO Box 1061, San Juan, P.R. 00901.

Thailand: The Siam Award.

Contact any 10 HS stations. No time limit. SWL OK. GCR list and fee of 10 IRCs for surface mail or 15 for airmail, to: -Hans D Hollstein HS1BG, Awards Manager, 86/1 Sukhumvit soi 23, Bangkok 10110, Thailand,

Best 73, and thank you for your continued interest in awards, de John VK3DP.

ar

DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

First, thank you Jim VK6JP for the information on the Meissner Signal Shifter mentioned in last month's *DX Notes*. Jim says he used one shortly after the war at the RAN Belconnen transmitting station in Canberra where he was stationed from 1947 until 1949. Apparently the unit is an external VFO for a transmitter.

It was ruggedly built, he remembers, appromimately 18" x 15" x 9". There was an internally regulated power supply using VR150 regulator valves. When Jim was at Belconnen he remembers that it was used to excite an American THR transmitter (8kW on CW) that had a faulty VFO. Spare parts were difficult to come by for the THR so the Meissner unit was pressed into service and performed faultlessly while he was there and "probably long after". He reckons that it was a "beautifully engineered piece of equipment; if not a Rolls-Royce then certainly a Cadillac". He thinks it covered up to 20MHz at least and perhaps to 30MHz.

There was a very interesting article in one of 'The Daily DX' bulletins regarding a QSO conducted across the Atlantic Ocean on 136kHz. The CW QSO (an exchange of signal reports) began on 5th February and finished on 19th February. No, the operators were not incompetent! The QSO between Laurence, G3AQC (UK) and Larry, VA3LK (Eastern Ontario, Canada) was conducted via very slow Morse using a software package, ARGO. This presents the Morse characters in a visual format on a PC monitor screen. Each 'dit' was 90 seconds long and a 'dah' 180 seconds. The equipment at each end was a mixture of homebrew transmitters and commercial receivers. Wavelengths at these frequencies are about 2200 metres long (imagine erecting a dipole for this band!) and amateur antennas can be expected to be very inefficient. At G3AQC the ERP was approx. 350mW. The web page at http://www.rac.ca/infodx.htm has some very interesting information on LF operating and is well worth a visit.

Some years ago a VK3 station was granted an experimental licence for operating at or near these frequencies (approx. 176kHz I think) and signals were transmitted to gain information on propagation via signal strength reports. Perhaps the WIA should make an approach to the ACA regarding access to a band at VLF, preferably on 136kHz. Many countries now have access to it (New Zealand certainly has) and I see no reason preventing VK amateurs enjoying the same privilege. If amateurs in Europe can achieve communication over some hundreds, sometimes thousands of kilometers then we in Australia, with our wide open spaces and lower background noise (especially in the outback), should be able to equal or surpass these achievements. Space is at a premium in the HF, VHF, UHF and µwave bands but surely a narrow slot could be found at these lower frequencies, especially as we are destined to lose part of the 70cm band!

The DX

3C, Equatorial Guinea. Martin, 3C5J will be operating from an oil platform for the next six months. This activity will not count for DXCC, but there is a possibility to operate from Malabo. Visit Martins web page for more info at http://www.cleddau.com/3c5j/cw.html [TNX The Daily DX and 425 DX News]

4N8, Kosovo, Yugoslavia. Boyan, LZ1BJ, was signing 4N8/LZ1BJ from Pristina this past week. He seems to be active on the bands 40 to 10 metres on CW and SSB. QSL via his home callsign. [TNX OPDX]

8Q, Maldives. Phil, G3SWH will be in the Maldives (AS-013) between the 4th and 11th of June. He will be using the call 8Q7WH. Phil will be on air when time allows on all bands from 40 to 10 metres. Operation will be on CW. QSL is via G3SWH either direct or through the bureau. [TNX G3SWH and 425 DX News]

9A, Croatia. Franjo, 9A2MF, has begun operating from the Croatian lighthouse Savudrija. Franjo is the lighthouse keeper and has been a keeper for twenty years with service on many of Croatias lighthouses. SAVUDRIJA is his most recent posting and he will be here for the next several years. Franjo wasted no time in erecting an antenna on the lighthouse building. The "Lighthouse Savudrija" is valid for Croatian LightHouse Award (CLH-73). Hams interested in the Croatian LightHouse Award can find more information and details at http://www.qsl.net/9a7k [TNX 9A2MF, 425 DX News and OPDX]

9Q, Congo. Pierre, HB9AMO, is back in Congo, he expects to be there until late July. He hopes to be able to operate with the call he used in 1997 (9Q5BQ). If he can gain permission to operate he will try the bands 40 – 10 metres, CW only. Pierre is hoping to get on the air during his free time in the evenings and weekends. QSL via HB9AMO, Pierre Petry, 3 Hutins-des-Bois, 1225 Chene-Bourg, Switzerland. [TNX HB9AMO and 425 DX News]

C9, Mozambique. Joe, G3MRC (also 5X1P) is going to be in Mozambique for the next three months. He has applied for, and hopes to be issued, a licence when he arrives. [TNX G3MRC and The Daily DX]

E4, Palestine. Gunter, E4/OE1GZA is going to be in Palestine until the end of 2002. He says he will be active mainly on Saturdays. Currently he is active on 30 – 10 metres but later this year hopes to get on 40 and 80 metres as well. QSL direct to Gunter Zwickl, c/o SICT, P.O.Box 1133, Ramallah, Palestine. QSLs can also be sent via the buro to OE1GZA however, please note, that "due to the operator's permanent absence from OE it will take a real long time to respond". [TNX OE1GZA and 425 DX News]

EA9, Spain. Yuki, JI6KVR intends to operate as EA9/JI6KVR from Ceuta from the 8th until the 12th of June. QSL is via EA5KB (Jose F. Ardid Arlandis, Apartado 5013, 46080 Valencia, Spain). [TNX JI6KVR and 425 DX News]

FP, St Pierre & Miquelon Islands. Wendell, K4JZ, will mount what he calls "The Poor Boy DX-Pedition" from the 14th until the 18th of June. Wendell says he will operate from FP using the call FP/K4JZ. Operations will be on 40-10 metres SSB. QSL to K4JZ with a SASE.

Wendell says that this is a one-man operation, and any donations will be appreciated. [TNX K4JZ and OPDX]

GJ, Jersey. Rainer, DL1ZBO, Tilo, DJ5BX and Ekki, DF4OR will be signing the prefix MJ/ from the island of Jersey on the 7th until 12th of June. Rainer and Ekki will participate in the ANARTS Contest and will be active on CW and SSB before and after the contest. [TNX DF4OR and 425 DX News]

JT, Mongolia. Nicola, I0SNY, Gianni, I8KGZ and possibly a number of others will be active from Mongolia beginning the 29th of May. They are planning to use the call JT1Y from Ulaan Baator and also to operate from call area 7 too. [TNX I0SNY and 425 DX News]

SV5, Dodecanese. A recent report in OPDX says Carl, GW0VSW, will be active from Dodecanese as SV5/GW0VSW from 16th until 30th of June. Activity will mainly be CW on all bands from 40 – 10 metres. Carl hopes to be active around 0500-1600 UTC. He will be using an IC-706 with dipole antennas. He will be frequenting the IOTA and QRP frequencies. QSL via GW0VSW. [TNX GW0VSW, The Daily DX and OPDX]

VE, Canada. Fred, K2FRD intends to operate as VO2/K2FRD from zone 2 from approx. 6th June until the end of August. He hopes to be active on 40 - 10 metres on SSB and CW. Fred will be operating from a tent about 90km West-Southwest of Churchill Falls, Labrador (I hope he has an anti-aircraft gun as the flies in Labrador are huge, ferocious and fly around in squadrons). QSL is direct only to K2FRD, Fred Stevens, 263 Keach Rd, Guilford, NY 13780, USA. [TNX K2FRD and 425 DX News]

VK6, Troughton Island. Dan Holloway, VK8AN is going to be active from Troughton Island (OC-154) as VK8AN/6. He hopes to pay a number of visits to the island between April and June. By the time you get to read this you should be ready for his 5th – 19th June visit. He will operate in his spare time between 0300 and 1300 UTC on the 10, 15 and 20 metre bands. However, this time he will have a linear amplifier along with him. He might try a vertical on either 12 or 17 metres and a long wire for 40, 80 and 160 metres. QSL direct only to VK4AAR, Alan Roocroft, P.O. Box 421, Gatton 4343, Australia. [TNX VK4AAR, VA3RJ and 425 DX News]

ZA, Albania. Loreto, IK7VJP will be staying in Albania for two months and expects to be able to operate as ZA1/ IK7VJP from Durres (Durazzo). QSL is via his home call either direct or through the bureau. [TNX IK7VJP and 425 DX News]

Dxpeditions

JW, Prins Karls Forland. A multi-national team will mount a DXpedition to Prins Karls Forland (EU-063) from the 1st until the 9th of June. The callsign to be used is JW0PK and the team will be active on all bands and modes. A list of suggested frequencies is given below.

CW 1822, 3505, 7005, 10105, 14020, 18080, 21020, 24895, 28020, 50095 and 144025 kHz;
SSB 1840, 3790, 7060, 14195, 18145, 21295, 24950, 28460, 50145 and 144250 kHz;
RTTY 14080, 21080 and 28080 kHz;
PSK31 14071, 21071 and 28071 kHz;
FM 29200 kHz.

QSL can be direct via SP5DRH, Jacek Kubiak, P.O. Box 4, 00-957 Warszawa, Poland or through the bureau. Further information on the DXpedition can be found on the operation web page at http://www.dxpedition.org [TNX IK2XDE and 425 DX News]

IOTA Activity

I received a short note from Gwen VK3DYL that a group of YL operators are off on another DX holiday, this time to Aland Island. The group will meet up with a team of Scandinavian YL's and will operate from the contest station of Martii OH2BH using the special call OH0YLS (Young Ladies Society). The operation is from 30thJune until 6th July. Gwen says exact numbers of operators or details of the QSL route have not been finalised but at least three of the YL's were on the Norfolk Island trip.

AS-056. Masa, JA6GXK, is planning on being active from Danjo Archipelago (Meshima Island) during a number of visits to the island. By the time you read this we will have missed his April and May visits but hopefully he can be caught during his 1st until 12th of June visit. Masa points out that this is not a DXpedition and he will only be active during his spare time from the lighthouse on Meshima Island. He suggests that we try catching him on 7 MHz, 14260 +/-10kHz or 21260 +/- 10kHz. QSL only via the Bureau to JA6CXK.

Special Events

The International Lighthouse/Lightship Weekend will take place on 18th and 19th August. Last year's event was a huge success with hundreds of stations converging on the nearest lighthouse for a bit of fun on the air. This is not a contest, it is simply a chance to get on the air from an unusual location. More details will be posted in the July issue of AR. Details of this event can be found on the Internet at http://www.vk2ce.com/. [TNX GM3SUC and The Daily DX]

Round up

Various reports on the recent D68C operation reveal a few interesting facts and figures. The team of operators must have had a very busy time on the air. The total number of QSO's was over 160,000. This is a spectacular achievement and included over 4000 RTTY contacts, more than 1000 PSK-31contacts and 3200 on FM. The D68C operators clocked up an impressive 278 contacts in the first hour alone! The weather was extremely hot with temperatures reaching over 50°C. The heat and sunburn gave everyone a bit of a hard time and the local fauna did not make conditions any easier, the ticks made themselves very conspicuous. The supply boat, which ferried their meals from the ship, was capsized by large waves. These guys should be thanked for their efforts and a job well done. [TNX OPDX and The Daily DX]

Kirill, UA6CT, is currently working as a Russian television reporter in Chechnya. This will be a good opportunity to work this rare Oblast, the current crisis in the country makes amateur operation rather difficult. He will be operating with simple equipment, 100 watts and dipole antennas, in his spare time. QSL via RK6AXS, either direct or bureau. [TNX UA6CW and OPDX]

Sources

Thanks to those who supply information for this column and for permission to use excerpts from the various DX bulletins and magazines. This month our thanks go to VK3DYL, G3SWH, 9A2MF, HB9AMO, G3MRC, OE1GZA, JI6KVR, K4JZ, DF4OR, I0SNY, GW0VSW, K2FRD, VK8AN, VK4AAR, IK7VJP, IK2XDE, JA6GXK, GM3SUC,UA6CW, The Daily DX, OPDX and 425 DX News.

ar

Contests

Contest Calendar June – August, 2001

June 9	QRP Day	(CW)	(May 01)
June 9	Portugal Day Contest	(SSB)	
June 9	Asia-Pacific Sprint	(SSB)	(May 01)
June 9/10	WW South American CW Contest		
June 9/10	ANARTS WW RTTY Contest		
June 16/17	VK Novice Contest		(May 01)
June 16/17	All Asian DX Contest	(CW)	
June 23/24	Marconi Memorial Contest	(CW)	
June 23/24	ARRL Field Day	(All Modes)	
July 1	RAC Canada Day Contest	(CW/SSB)	
July 7/8	Internet 6m Contest	(CW/SSB)	
July 14/15	IARU HF World Championship	(CW/SSB)	
July 21	Pacific 160 Metres Contest	(CW/SSB)	(May 01)
July 21/22	SEANET Contest	(CW)	
July 28	Waitakere Sprint	(SSB)	(June 01)
July 28/29	Russian RTTY WW Contest		
July 28/29	IOTA Contest	(CW/SSB)	
Aug 4	Waitakere Sprint	(CW)	(June 01)
Aug 4	European HF Championship	(CW/SSB)	
Aug 4/5	Ten-Ten Summer QSO Party	(SSB)	
Aug 5	YO DX Contest	(CW/SSB)	
Aug 11/12	Worked All Europe DX Contest	(CW)	
Aug 18/19	Remembrance Day Contest	(All)	(June 01)
Aug 18/19	Keymen's Club of Japan Contest	(CW)	
Aug 25/26	ALARA Contest	(CW/SSB)	

It's time to think about the Remembrance Day (RD) Contest again. Although two months away yet, the rules are published this month to give plenty of time for everyone to prepare their stations. Please take this opportunity NOW! And at the same time, don't forget the other local contests, viz. Novice, ANARTS RTTY, Pacific 160 metres and Waitakere Sprints (see dates in Calendar).

Results IOTA 2000

(VKs only)
(Posn\call\score)

CW 12 hours			SSB 12 hours		
22	VK4UW	89526	16	AX4EJ	306,516
17	VK6NU	291,060			
75	VK5EMI	2,516			
85	VK2CZ	300			

Congratulations to all of these contestants.

Waitakere Sprints 2001

There is one rule change from last year.

THE NEW SECTION for Dual Operators has been dropped for lack of support

The contests are of one-hour duration on 80m, and are open to all licensed amateurs in ZL, VK and Oceania call areas.

Object of the Sprints.

The operator's basic goal in the sprints is to make as many contacts as possible, without duplication, during an hour of operation on a single band. Any contact with ZL, VK or Oceania stations on 80 during the contest period can be counted, but a station may be claimed only once.

Eligibility

The Waitakere Sprints are open to all licensed amateurs anywhere in the ZL, VK and Oceania call areas. SWL logs will also be welcome.

Contest Periods

Phone	1000 to 1100 UTC, on July 28th 2001
CW	1000 to 1100 UTC, on Aug 4th. 2001

Frequencies

Phone Frequencies between 3.550 to 3.700 may be used.
CW Frequencies between 3.500 to 3.550 may be used.

Power

In fairness and consideration to others we request that NO LINEAR AMPLIFIERS be used in the contest

Contest call

CQ Sprint, CQ Test or CQ Contest.

Exchanges

Minimum exchange for a valid contact will consist of a serial number, sent and received. The serial numbers must start at 001 and increment by one for each contact made.

Note: - Time and signal reports are no longer required.

Awards

Certificates will be awarded to the overall winner and to the best score in each ZL call area and to the best three scores from VK/Oceania. Other certificates may be awarded at the discretion of W.S.R.C.

Special Awards

To encourage contestants to enter both Sprints we have decided to issue a Special Certificate to the entrant with the Highest combined score. The method of calculation will be- (Phone points+ CW Points) x 2.

All logs received will be considered for this award. To qualify for the multiplied points each log must contain a minimum number of valid contacts. I.e. Ten (10) for Phone, and Five (5) for CW.

Logs

A separate log must be submitted for each Sprint and must be clearly marked PHONE or CW.

Contest logs must show for each contact: - Callsign of station worked, serial number sent, serial number received.

SWL logs must show both Callsigns in the QSO also both serial numbers.

Logs may be sent by Packet Radio please use three columns only with no commas or other delimiters. Any logs received by packet will be acknowledged by the same medium.

Logs are to be in the hands of the contest manager,

ZL1BVK. Alex.Learmond, 14 Takapu Street Henderson Auck. 1208.

Packet to ZL1BVK @ ZL1AB. Email zl1bvk@xtra.co.nz

no later than 1st September 2001

Operator Information

Each log must show the following details: Mode; Callsign; Name; Address; Operating area (e.g. ZL1, ZL2); Total Number of contacts claimed; a declaration that the operator has abided by the rules and spirit of the contest

Any entry which is clearly in violation of the rules or spirit of this contest or which contains an excessive number of duplicate contacts (this does not refer to duplicates which have been indicated as such and are not claimed) may be disqualified. The decision of W.S.R.C.Inc. In respect of interpretation of these rules, the granting of awards and disqualifications will be final and no correspondence will be entered into.

Alex.H.Learmond ZL1BVK Contest Manager W.S.R.C.

2001 Remembrance Day Contest

18/19 August 0800z Sat - 0759z Sun

Presented by Alek Petkovic VK6APK

Purpose: This contest commemorates the amateurs who died during WWII and is designed to encourage friendly participation and help improve the operating skills of participants. It is held close to 15 August, the date when hostilities ceased in the southwest Pacific area. It is preceded by a short opening address by a notable personality transmitted on various WIA frequencies during the 15 minutes prior to the contest. During this ceremony, a roll call of amateurs who paid the supreme sacrifice is read.

A perpetual trophy is awarded annually to the WIA Division with the best performance. The name of the winning Division is inscribed on the trophy, and that Division then holds the trophy for 12 months. The Division also is given a certificate, as are leading entrants.

Objective: Amateurs in each VK call area will endeavour to contact amateurs in other VK call areas, ZL and P2 on **Bands** 1.8 - 30 MHz (no WARC). On 50 MHz and above amateurs may also contact other amateurs in their own call area.

Contest Period: 0800Z Saturday, 18 August to 0759Z Sunday, 19 August 2000. As a mark of respect, stations are asked to observe 15 minutes' silence prior to the start of the contest, during which the opening ceremony will be broadcast.

Rules:

1. **Categories:**
   (a) High Frequency for operation on bands below 50 MHz;
   (b) Very High Frequency for operation on and above 50 MHz;
   (c) Single Operator;
   (d) Multi-operator;
2. Within each Category the **Sections** are:
   (a) Transmitting Phone (AM, FM, SSB, TV);
   (b) Transmitting CW (CW);
   Note: Digital modes such as Packet, RTTY, AMTOR, PSK31 etc are excluded from the contest.
   (c) Transmitting Open (a) and (b);
   (d) Receiving (a), (b) or (c).
3. All amateurs in Australia, Papua New Guinea and New Zealand may enter the contest, whether their stations are fixed, portable or mobile.
4. Cross-band and cross-mode contacts are not permitted.
5. **Call** "CQ RD", "CQ CONTEST" or "CQ TEST".
6. On bands up to 30 MHz stations may be contacted once per band using each mode, i.e. twice per band using CW and Phone.
7. On 50 MHz and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous contact on that band and mode.
8. Both single and multi-operator entries are permitted. To be eligible as a single operator, one person must perform all operating and logging activities without assistance, using his or her own callsign. More than one person can

use the same station and remain a single operator providing that each uses his or her own callsign, submits a separate log under that callsign and does not receive operating or logging assistance in any way during the contest.

9a. Multi-operator stations are only allowed one transmitter per band/mode at any one time. Simultaneous transmissions on different bands are permitted. Simultaneous transmissions on the same band but different modes are permitted.

9b. Automated operation is not permitted. The operator must have physical control of the station for each contact. CW and voice keyers are permitted, as is the use of computers for logging.

10. For a contact to be valid, numbers must be exchanged between stations making the contact.

10. Exchange RS for phone and RST for CW, followed by three figures commencing at 001 and incrementing by one for each successive contact.

11. Contacts via repeater (including satellite) are not permitted for scoring purposes. Contacts may be arranged through a repeater. Operation on repeater frequencies in simplex is not permitted.

12. Score: on 160m two points per completed valid contact; on all other bands one point; on CW double points.

13. Logs should be in the format shown below and accompanied by a **Summary Sheet** showing callsign; name; address; category; section; for multi-operator stations a list of the operators; total score; declaration: **I hereby certify that I have operated in accordance with the rules and spirit of the contest**; signed; date.

14. Entrants operating on both HF and VHF are requested to submit **separate logs and summary sheets** for each category.

15. VK entrants temporarily operating outside their allocated call area, including those outside continental Australia as defined for DXCC, can elect to have their points credited to their home Division by making a statement to that effect on their summary sheet(s).

16. Send logs and summary sheets to: RD Contest Co-ordinator, A Petkovic VK6APK, 26 Freeman Way, Marmion, WA 6020, by Friday 21 September, 2001. Endorse envelope **"Remembrance Day Contest"** on front outside. Late entries will not be eligible.

17. Certificates will be awarded to the leading entrants in each section, both single and multi-operator; in each Division; P2 and ZL. Entrants must make at least 10 contacts to be eligible for awards, unless otherwise decided by the Contest Manager.

18. Any station observed as departing from the generally accepted codes of operating ethics might be disqualified.

Determination of Winning Division:

Unless otherwise elected by the entrant concerned, the scores of VK0 stations will be credited to VK7 and the scores of VK9 to the mainland call area that is geographically closest. Scores of P2, ZL and SWL stations will not be included in these calculations.

For each Division, an "improvement factor" will be calculated as follows:

(a) For transmitting logs only, HF and VHF "Benchmarks" for each Division will be established, against which its performance for the current year is judged. The same formula will be used for HF and VHF, inserting the appropriate figures:

$$B = 0.25P + 0.75L$$

where B = this year's benchmark, P = last year's total points, and L = last year's benchmark.

(b) For each Division, HF and VHF Improvement Factors will then be calculated. Once again the same formula will be used for both HF and VHF, inserting appropriate figures:

I/F = Total points (this year)/Benchmark

where I/F = improvement factor.

(c) For each Division, the HF and VHF Improvment Factors will then be averaged:

Overall I/F = (HF I/F + VHF I/F)/2.

(d) The Division which achieves the highest overall improvement factor will be declared the winner.

2001 Benchmarks

These are the total scores that must be obtained by each Division to improve on its results of last year:

Div	HF	VHF
VK1	680	152
VK2	4693	65
VK3	3852	8727
VK4	4050	1219
VK5/8	4039	1467
VK6	2670	4504
VK7	1841	1025

Receiving Section Rules

1. This section is open to all SWLs in Australia, Papua New Guinea and New Zealand. No active transmitting station may enter this section.
2. Rules are the same as for the Transmitting Section.
3. Only completed contacts may be logged, i.e. it is not permissible to log a station calling CQ.
4. The log should be in the format shown below.

LOG and Summary Sheet Formats

Example Summary Sheet

Remembrance Day Contest 2001

Callsign: VK3$^*
Name: Jim Wombat
Address: Big Hole, Stumpy Gully, 3195
Category: HF/Single Operator
Section: Transmitting CW
Total Score: 1000
Declaration: **I hereby certify that I have operated in accordance with the rules and spirit of the Contest.**
Signed: Jim Wombat
Date: 30 August 2001

Example Transmitting Log

Remembrance Day Contest 2001

Callsign: VK1XXX
Category: HF/Multi Operator
Section: Transmitting Phone

Time (UTC)	Band	Mode	Call	Nr Sent	Nr Rcvd	Pts
0801	14	SSB	VK2QQ	58001	59002	1
0802	14	SSB	VK6LL	59002	59001	1
0806	14	SSB	VK5ANW	59003	59001	1
0808	14	SSB	ZL2AGQ	56004	57004	1
0811	14	SSB	VK4XX	59005	59008	1

Example Receiving Log

Name/SWL Nr: L33071
Category: HF
Section: Receiving Phone

Time (UTC)	Band	Mode	Calling	Calling	Nr	Nr	Pts
0801	14	SSB	VK1XXX	VK2QQ	58001	59002	1
0802	14	SSB	VK1XXX	VK6LL	59002	59001	1
0806	14	SSB	VK5ANW	VK1XXX	59001	59003	1
0809	14	SSB	VK7AL	VK2PS	59007	58010	1

The 2000 Oceania DX Contest

Congratulations to all the winners in the 2000 Oceania DX Contest. Conditions were not great but there were still plenty of high scores and happy punters.

Oceania Phone Results

Martin Luther VK5GN is the winner of the Oceania Single Operator All Band Phone category and first recipient of the new Ron Wills ZL2TT Memorial Trophy. He scored 3.39M points which sets a new record for this category.

Top place in the Multi-Operator Multi-Band Phone category goes to the Wellington Amateur Radio Club who used their big antenna farm at ZL6QH to achieve 3.73M. The other multi-op teams at VK4WIL and ZL3DXC were not far behind.

May Excell VK5AM put in an extraordinary effort to take top place in the 15m Single Operator Phone category with a score of 1.13M - another new record. The Single Operator 20m and 10m Phone categories were won by Christian Paun VK3MS and Denys Brosnan ZL2AWH respectively.

The winner and only entrant in the SWL Phone category is 15 year old James O'Hare ZL3501 who logged 1326 points - an excellent result considering this is his first contest.

Oceania CW Results

John Loftus VK4EMM is the winner of the Oceania Single Operator All Band CW category. He scored 2.33M and receives the Frank Hine VK2QL Memorial Trophy for his superb efforts.

Top place in the Multi-Operator Multi-band CW category goes to ZL6QH who notched up a huge 4.84M (although still less than their record score of 6.86M in 1999).

The Single Operator 40m, 15m and 10m categories were won by Mike Dorman W7DRA/KH6, Eduardo Salcedo DU1ODX and Denys Brosnan ZL2AWH respectively.

Non-Oceania Results

Special congratulations to Ken Keeler N6RO who logged an awesome 24.4K points in the CW Single Operator All Band category - the highest score in North America and worldwide. Several Oceania stations were thrilled to work Ken on 5 bands.

Another significant effort was from Igor Suckov RZ4HF who scored 18.0K to win the top Single Operator All Band Phone category in Europe. Vasily Romanyuk ER4DX was close behind with 17.0K points.

The full 2000 results (including band breakdowns for non-Oceania stations) will be published on the web at www.nzart.org.nz/nzart/update/contests/contests.html.

Conditions

Conditions were generally poorer than last year. The following comparison of the total number of Phone and CW QSOs logged by Oceania stations shows that the high bands were better on the Phone weekend and the low bands on the CW weekend.

Band	PH QSOs	CW QSOs
160m	14	68
80m	40	266
40m	148	1992
20m	2433	2875
15m	7982	2363
10m	4740	662

Logs

Approximately 50% of the 301 logs received were sent via email. The remainder were paper logs (except for one log on diskette) via snail mail.

All of the logs were checked for the required information and cross-checked against other logs. Approximately 29% had their score adjusted downwards and another 13% were adjusted upwards.

Most of the upward adjustments were related to entrants summing individual band scores rather than multiplying the total points by total multipliers to calculate the final score. Others were due to entrants not counting multipliers correctly, e.g., not realising that each prefix can be counted once on each band. These issues will be clarified in the rules for the 2001 contest.

Participation and The Future

The following table shows the number of logs received from each continent for the 2000 contest

Continent	PH logs	CW logs
Oceania	28	15
Asia	46	52
Europe	72	64
North America	10	10
South America	2	2
Total	**158**	**143**

Overall participation from Oceania stations has been trending downwards for some time. A recent analysis by VK6NE shows that we have moved from around 100 Oceania entrants in the early 70s to less than half that number in 2000. The contest is in danger of dying if we do not reverse this trend.

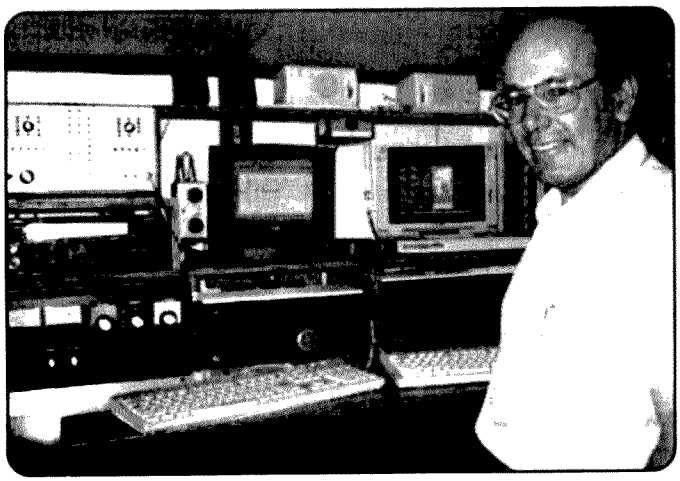
There are a range of issues that need to be addressed to improve the participation and give the contest a new start. Here is a brief summary

- More publicity. Create a web page dedicated to promoting the contest. Ensure that the full rules and results are published well in advance of the contest - on the web and in local and overseas journals. We are also sending a copy of the 2000 results to each of the entrants and encouraging them to participate again in 2001.
- More trophies and awards. The Ron Wills ZL2TT trophy is a welcome addition but additional awards like this are required for the various categories within and outside Oceania.
- Start the contest earlier on Saturday. The current start time is 10:00 UTC on Saturday which means that ZL

stations do not finish until 11:00 pm local DST on Sunday - which really is too late for those who have to work on Monday.

- Change the focus from VK/ZL to ALL of Oceania. The change of the contest name from "VK/ZL & Oceania" to "Oceania" in 2000 is a step in that direction. The idea is to encourage more of the rarer Pacific DX stations to become involved in the contest. The increased participation from Indonesia this year (4 Phone entries) is a good start.
- Promote contacts on the 160m Band. This band was removed from the contest some years ago but was reinstated in 2000. The idea is to encourage participation by 160m enthusiasts as well as adding another dimension to the contest strategy for all-band entrants.
- Promote contacts between Oceania stations in the same country. Intra-country contacts were reinstated for the 2000 contest. These contacts are essential if we are to encourage activity on the 160m and 80m bands where it is often difficult to work overseas DX.
- Availability of logging software. We have to make the logging and score calculation tasks as easy as possible for the punters - and the Contest Manager!. The objective is to build the Oceania rules and scoring into all of the major contest logging programs.
- New management structure. The contest is currently managed alternately by VK and ZL each year. This is producing a lack of consistency in the rules, log checking, and publicity. NZART and WIA have recently agreed to form a joint management committee to address this issue and focus on the future development of the contest.

An email discussion group for the contest has been set up at oceaniadxtest@yahoogroups.com. Anyone who is interested in the contest is welcome to join the group - just send a blank email to oceaniadxtest-subscribe@yahoogroups.com.



John Loftus VK4EMM, winner of the Frank Hine VK2QL Memorial Trophy and Oceania CW SOAB category, is ready for operation from his custom built trailer - affectionately known as "ComPort1". The two main radios are an FT1000MP and TS850. John's antenna farm includes three rotatable yagi beams on armstrong poles for 20m to 10m and multi-element wire arrays on the lower bands.

Phone Soapbox

'Had a nice rate on 15m to EU - I think that was my best hourly rate ever.' - AX3TZ

'Condx were excellent at the beginning but not so good later in Sunday - low bands were universally bad!' - VK5GN

'Great fun - huge pileups late sat night - having a hundred Europe stations calling me at once was a real blast!' - VK1JDX

'I am in my 88th year. Plenty of DX so was disappointed to lose my voice for the weekend!' - VK4PJ

'This was my 520th contest - condx were not as good as last year. California QSO party and Japan contests also made it more difficult.' - VK2APK

'Great fun - my 1st Oceania contest!' - VK3MS

'Our first ever contest - we had a ball - thanks to contest manager for all the help and support' - ZL3DXC

'Did not know that ZL-ZL QSOs were OK until Sunday pm - keep it that way!' - ZL3TX

'Best propagation was 700 UTC with stations in ZL, VK, YC, 3D2 all 59+20! This is the first time the club has participated in this contest - we are glad to take part. CU next year.' - LU4DRC

CW Soapbox

'Biggest problem was not aurora but lack of activity from Pacific' - LY2OX

'Met a lot of old friends from the last 40 years - it was a very fine contest' - HB9IK

'Your contest is an enjoyable event and could be more so with increased promotion ..... ' - N6RO

'Poor condx to EU on 15m and 10m - 40m was best point earner. Pleased to work N6RO on 5 bands! -VK4EMM

'Can hardly wait until next year to do it again!" - W7DRA/KH6

'Poor condx - only 50% of last year's score' - ZL2AZ

'TNX for the coolest test, sorry about poor condx between JA and OC' - 7K2PBB

'So many JA's, including me, cannot enjoy this contest as it is now at the same time as the Zenshi-Zengun domestic JA contest' - JA9SCB

'Nice to participate again this year. Hope to receive certificate - still admire my first one from over 30 yrs ago as SWL!' - PA0MIR

'Activity in the contest always seems horrendously low from here. Very few OC stations to be worked' - N7DR

2001 Contest

The 2001 Oceania DX contest will be held on 6/7 October (Phone) and 13/14 October (CW). This will mark 66 years since the contest first started in 1935. Lets have a big turn out in 2001 for Oceania's longest running and premier DX contest!

Thank You!

Finally thank you to all the participants who made the 2000 contest a reality and a special thanks to the team from the Wellington Amateur Radio Club (ZL2AOV, ZL2BSJ, ZL1AXG, ZL2BSW, ZL2AMI and ZL2AOH) who sacrificed many summer evenings to help with the log checking process.

Brian Miller ZL1AZE
2000 Oceania DX Contest Manager

2000 Oceania DX Contest: Phone Results

Oceania

Call Sign	Categ	160m QSO	160m Mult	80m QSO	80m Mult	40m QSO	40m Mult	20m QSO	20m Mult	15m QSO	15m Mult	10m QSO	10m Mult	Total QSO	Total Points	Total Mult	Total Score
Australia																	
VK4WIL *	MOAB	0	0	0	0	5	5	99	84	760	339	675	268	1539	3669	696	2553624
VK5GN + # *	SOAB	0	0	0	0	6	6	375	211	632	292	774	341	1787	3991	850	3392350
VK4EMM	SOAB	6	4	4	3	13	11	180	126	463	245	559	258	1225	3008	647	1946176
AX2FHN	SOAB	0	0	0	0	0	0	81	70	468	218	518	220	1067	2571	508	1306068
VK4UC	SOAB	2	2	2	2	8	8	56	49	151	96	328	212	547	1442	369	532098
VK4ADC	SOAB	0	0	0	0	2	2	211	150	251	155	136	96	600	1131	403	455793
AX3TZ	SOAB	1	1	6	5	1	1	163	120	234	140	78	65	483	950	332	315400
VK1JDX	SOAB	0	0	0	0	0	0	100	95	152	143	2	2	254	410	240	98400
VK2CA	SOAB	0	0	2	2	0	0	9	5	86	69	3	2	100	210	78	16380
VK7JAB	SOAB	0	0	7	5	2	2	26	25	24	21	4	4	63	166	57	9462
VK3ER	SOAB	0	0	0	0	0	0	15	13	20	15	0	0	35	55	28	1540
VK4PJ	SOAB	0	0	0	0	0	0	18	17	2	2	0	0	20	22	19	418
VK7LUV	SOAB	0	0	0	0	0	0	0	0	13	11	1	1	14	29	12	348
VK3KTO	SOAB	0	0	0	0	0	0	7	7	2	2	3	3	12	20	12	240
VK5AM # *	SOSB/15	0	0	0	0	0	0	0	0	1341	489	0	0	1341	2682	489	1311498
VK2APK	SOSB/15	0	0	0	0	0	0	0	0	661	297	0	0	661	1322	297	392634
VK3MS # *	SOSB/20	0	0	0	0	0	0	32	30	0	0	0	0	32	32	30	960
Indonesia																	
YB8BHC *	SOAB	0	0	0	0	4	4	70	62	351	213	0	0	425	792	279	220968
YC3IZK	SOAB	0	0	0	0	0	0	0	0	7	7	11	5	18	47	12	564
YB0LBK *	SOSB/15	0	0	0	0	0	0	0	0	354	244	0	0	354	708	244	172752
YC6LAY	SOSB/15	0	0	0	0	0	0	0	0	142	96	0	0	142	284	96	27264
New Zealand																	
ZL6QH # *	MOAB	5	3	11	9	36	23	684	343	737	322	481	236	1954	3991	936	3735576
ZL3DXC	MOAB	0	0	7	6	67	54	233	139	270	145	774	333	1351	3500	677	2369500
ZL3TX *	SOAB	0	0	1	1	2	2	29	22	22	14	1	1	55	96	40	3840
ZL2AWH # *	SOSB/10	0	0	0	0	0	0	0	0	0	0	258	133	258	774	133	102942
ZL3501 # *	SWL	0	0	0	0	2	2	16	16	2	2	7	6	27	51	26	1326
Northern Marianas																	
KH0M *	SOAB	0	0	0	0	0	0	29	24	656	300	43	37	728	1470	361	530670
Phillipines																	
4D68LER *	SOAB	0	0	0	0	0	0	0	0	181	92	84	55	265	614	147	90258

ASIA

India		
VU3DJQ *	SOSB/20	9
Israel		
4Z5CP *	SOSB/15	60
Japan		
JH4CPC *	SOAB	4524
JH2WHS	SOAB	1239
JA4AQR	SOAB	1098
JA1BBA	SOAB	864
JA2GHP	SOAB	799
JH1UUT	SOAB	731
JG2REJ	SOAB	468
JG4OOU	SOAB	440
JL3RDC	SOAB	360
JA3YPL	SOAB	300
JF3BFS # *	SOSB/10	1530
JR2TRC	SOSB/10	798
JA4ETH	SOSB/10	702
JA6EFT	SOSB/10	405
JA6UBK	SOSB/10	351
JA7BEW	SOSB/10	351
JA1AAT	SOSB/10	189
JE2SOY	SOSB/10	126
7K2PBB	SOSB/10	3
JF2FIU	SOSB/10	3
JK2VOC	SOSB/10	3
JR9NVB # *	SOSB/15	2184
JA4JJI	SOSB/15	570
JR7LVK	SOSB/15	560
JK1BII	SOSB/15	476
JA1ALX/9	SOSB/15	160
JA9SCB	SOSB/15	98
JI8GZS	SOSB/15	72
JA1KK	SOSB/15	18
JA1STY	SOSB/15	18
JG1GCO	SOSB/15	8
JN1YUU	SOSB/15	8
7L4IOU # *	SOSB/20	1400
JA5-3278 # *	SWL	4387
JA2-3803	SWL	84
Kirghizstan		
EX2A *	SOSB/15	126
Russia		
UA0IBB # *	SOAB	4662
UA0LCZ	SOAB	2726
RA0JJ	SOAB	1007
RN9XA	SOAB	560
RA9ST	SOAB	525
RU0SU *	SOSB/10	576
RZ9IB *	SOSB/15	408
UA0-107-181 *	SWL	3161

EUROPE

Belarus		
EU1SA *	SOAB	1575
Belgium		
ON4CAS *	SOSB/15	782
Bulgaria		
LZ1LZ *	SOAB	3298
LZ1HB	SOAB	1173
LZ3YY	SOAB	312
LZ2RF # *	SOSB/20	165
LZ1DM	SOSB/20	16
Croatia		
9A4KA # *	SOSB/10	27
9A2GA	SOSB/10	6
Czech Republic		
OK1VSL *	SOAB	8304
OK2BCJ	SOAB	1050
OK1DOL	SOAB	510
OK1ZSV	SOAB	135
OK2SAT *	SOSB/15	972
England		
G3GLL *	SOAB	1898
RS178500 # *	SWL	2541
Finland		
OH6IU *	SOAB	4080
OH2LYP	SOAB	360
OH8JSZ *	SOSB/15	286
OH2HMB	SOSB/15	32
Germany		
DL1TC *	SOAB	231
DL6UAA *	SOSB/15	1064
Hungary		
HA8IH *	SOAB	2871
HA5FA *	SOSB/15	504
Italy		
I2MME # *	MOSB/20	1100
IK6SNQ *	SOAB	6192
IZ4DJZ	SOAB	324
IC8JAH	SOAB	0
IK5WGK *	SOSB/10	12
Latvia		
YL2LY *	SOSB/15	18
Lithuania		
LY1DR *	SOAB	1943
LY2OX	SOAB	1508
LY2LA *	SOSB/15	432
Moldova		
ER4DX *	SOAB	17095
Netherlands		
PA0MIR *	SOSB/15	640
Poland		
SP4GFG *	SOAB	2728
SQ9AOR *	SOSB/15	736
3Z6V *	SOSB/20	30
SP4AAZ	SOSB/20	1
Romania		
YO2BEH *	SOAB	3162
YO4ATW *	SOSB/20	72
Russia		
RZ4HF # *	SOAB	18090
UA1ANA	SOAB	13860
RN4LP	SOAB	10974
UA4LU	SOAB	3325
UA6LP	SOAB	220
UA3LHL	SOAB	209
RN3RQ # *	SOSB/15	1386
UA4RC	SOSB/15	850
RW3VZ	SOSB/15	240
UA3-170-847*	SWL	893
Slovakia		
OM4JD *	SOAB	2912
OM4KK *	SOSB/15	532
OM3YCZ *	SOSB/20	88
Spain		
EA5GPP *	SOAB	1620
EA4YK	SOAB	840
Sweden		
SM5CSS *	SOAB	2520
SM7ATL	SOAB	900
SM7BJW	SOAB	816
8S0W	SOAB	84
SM3EAE *	SOSB/15	48
SM3-8055 *	SWL	481
Ukraine		
UR2E # *	MOAB	1612
UZ7U *	SOAB	3404
UU4JO	SOAB	704
UW7I	SOAB	152
UT3QT *	SOSB/15	1026
UR6MX	SOSB/15	936
UT7MD *	SOSB/20	48
UT1ZZ *	SWL	680
UU-J-1	SWL	84
Yugoslavia		
YU7SF *	SOSB/10	12

NORTH AMERICA

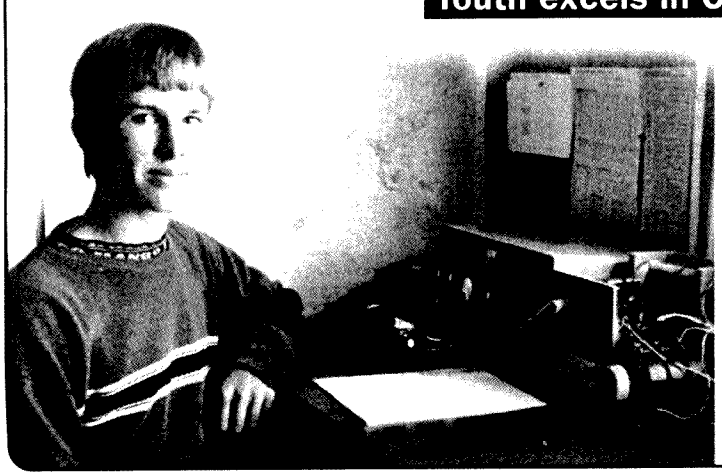
Canada		
VA3IX *	SOAB	48
USA		
K3ZO # *	SOAB	5134
KG9N	SOAB	588
WB4SQ	SOAB	77
W3NC # *	SOSB/10	663
N7DR	SOSB/10	462
W7/JR1NKN	SOSB/10	216
N4MM	SOSB/10	144
W8KNO	SOSB/10	24
WB0IWG	SOSB/10	18

South America

Argentina		
LU4DRC # *	MOSB/15	810
LW7EGO # *	SOSB/10	12

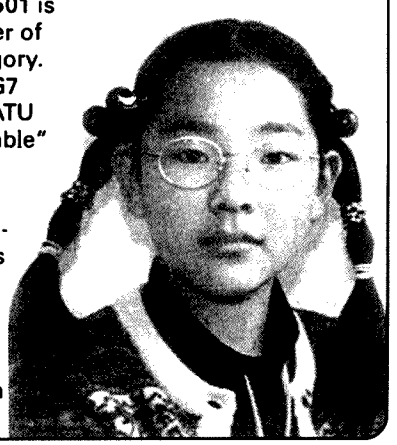
\+ ZL2TT Memorial Trophy
\# Continent Leader Certificate
* Country leader Certificate
MOAB = Multi Operator All Band
SOAB = Single Operator All Band
MOSB/XX = Multi Op Single Band XX
SOSB/XX = Single Op Single Band XX
SWL = Shortwave Listener

Youth excels in Oceania Contest



Left: James O'Hare ZL3501 is 15 years old and winner of the Oceania SWL category. He used a Yaesu FRG7 receiver, home brew ATU and "30m of speaker cable" for the antenna.

Right: Saori Shizu 7M4JVV was the operator at JN1YUU. Saori is 12 years old and probably the youngest entrant in the contest. She used an Icom 706 radio running 10W to a dipole.



2000 Oceania DX Contest: CW Results

Oceania

Call Sign	Categ	160m QSO	160m Mult	80m QSO	80m Mult	40m QSO	40m Mult	20m QSO	20m Mult	15m QSO	15m Mult	10m QSO	10m Mult	Total QSO	Total Points	Total Mult	Total Score
Australia																	
VK4EMM+#*	SOAB	7	4	10	10	328	162	507	256	255	168	164	90	1271	3389	690	2338410
VK2APK	SOAB	7	4	22	16	297	184	434	236	195	126	67	49	1022	2870	615	1765050
VK2AYD	SOAB	5	3	58	47	247	143	426	221	134	84	31	23	901	2702	521	1407742
VK4UC	SOAB	10	6	10	10	147	101	103	83	112	90	125	83	507	1737	373	647901
VK2PS	SOAB	6	6	7	7	0	0	62	49	326	102	23	20	424	973	184	179032
AX3TZ	SOAB	1	1	42	32	72	45	37	31	4	4	0	0	156	845	113	95485
VK5GN	SOAB	2	1	0	0	0	0	70	54	141	85	41	29	254	515	169	87035
VK6HQ	SOAB	0	0	0	0	52	28	167	110	10	9	0	0	229	447	147	65709
Hawaii																	
KH7L*	SOAB	0	0	0	0	46	41	5	5	28	24	12	11	91	327	81	26487
W7DRA/ KH6 # *	SOSB/40	0	0	0	0	103	61	0	0	0	0	0	0	103	515	61	31415
New Zealand																	
ZL6QH#*	MOAB	24	16	83	56	437	231	559	286	511	256	96	58	1710	5364	903	4843692
ZL2AZ*	SOAB	6	4	29	20	253	150	105	83	43	35	19	15	455	1923	307	590361
ZL1AIH	SOAB	0	0	5	5	10	9	400	214	215	117	27	22	657	1011	367	371037
ZL2AWH#*	SOSB/10	0	0	0	0	0	0	0	0	0	0	57	41	57	171	41	7011
Phillipines																	
DU1ODX # *	SOSB/15	0	0	0	0	0	0	0	0	389	201	0	0	389	778	201	156378

Asia

Israel		
4Z5AX *	SOSB/10	60
Japan		
JA4YPE *	MOAB	1659
JH4CPC *	SOAB	5652
JH1AZO	SOAB	4752
JA1JQY	SOAB	3904
JA2CUS	SOAB	2632
JL7AIA	SOAB	2024
JA7ARW	SOAB	1716
JA1KI	SOAB	1239
JA0ADY	SOAB	1104
JH3JYS	SOAB	1102
JA3AA	SOAB	940
JH6CQY	SOAB	736
9M2JI	SOAB	675
JA0XD	SOAB	630
JA2QVP	SOAB	615
JK2VOC	SOAB	602
JA1HFY	SOAB	496
JA1HHU	SOAB	495
JA3YPL	SOAB	494
JA1BBA	SOAB	450
JE3UHV	SOAB	147
JF7GDF	SOAB	144
JH5OXF	SOAB	126
JA5IDV	SOAB	112
JF2FIU	SOAB	55
JH1NXU	SOAB	14
JE2SOY # *	SOSB/10	75
JA6UBK	SOSB/10	72
JA1AAT	SOSB/10	48
JR2TRC	SOSB/10	48
JA4AQR # *	SOSB/15	140
JK1LUY # *	SOSB/20	77
JH1PXY	SOSB/20	35
JA3HBF # *	SOSB/40	405
JA2FSM	SOSB/40	210
7M4KSC	SOSB/40	20
JE1KDM/1	SOSB/40	5
JA5-3278 *	SWL	4625
JA2-3803	SWL	935
JA1-42366	SWL	64
Kirghizstan		
EX2X *	SOAB	532
EX2A *	SOSB/15	108
Russia		
RW9C # *	MOAB	1968
UA0LCZ # *	SOAB	6764
UA0LS	SOAB	3503
RZ90U	SOAB	2834
RX9FB	SOAB	385
RA9ST	SOAB	40
RW9TA *	SOSB/20	36
UA0-107-181#*	SWL	4814
Taiwan		
BV7FF *	SOAB	144

Europe

Belarus		
EU1SA *	SOAB	248
EW6AL *	SOSB/40	175
Bosnia-Herzegovina		
T92M *	SOSB/20	35
Bulgaria		
LZ1LZ *	SOAB	704
LZ1XL	SOAB	352
LZ3YY	SOAB	98
LZ3AB *	SOSB/20	1
LZ2RF *	SOSB/40	600
Croatia		
9A3SM *	SOSB/20	35
Czech Republic		
OK2HZ *	SOAB	248
OK2BHE	SOAB	70
OK2ZJ	SOAB	45
OK2EQ *	SOSB/40	105
OKL-329 *	SWL	256
Denmark		
OZ5DX *	SOAB	1824
OZ7BQ *	SOSB/20	6
England		
G3GLL *	SOAB	637
G3JJZ	SOAB	175
Finland		
OH2LYP *	SOAB	220
OH2HMB *	SOSB/15	12
Germany		
DK3KD *	SOAB	372
DJ2IA	SOAB	276
Hungary		
HA5FA *	SOAB	476
Latvia		
YL2LY *	SOAB	2225
YL3IZ *	SOSB/20	20

Lithuania

LY1DR *	SOAB	1232
LY2VAD	SOAB	770
LY2OX	SOAB	560
LY3BA	SOAB	84

Moldova

ER1CW *	SOAB	126

Norway

LA9HFA *	SOSB/20	6

Poland

SP9KRT # *	MOAB	637
SP2BMX *	SOAB	1300
SP5CJQ	SOAB	1134
SP8BAB *	SOSB/20	28
SP5CGN	SOSB/20	2

Romania

YO2BEH *	SOAB	455
YO3APJ	SOAB	198
YO9FJW *	SOSB/15	30
YO4ATW *	SOSB/20	54

Russia

RA1ACJ # *	SOAB	5814
RZ4HF	SOAB	4624
UA3TU	SOAB	2678
RW0IZ	SOAB	1955
UA4LU	SOAB	1235
RA3UT	SOAB	1064
UA3-155-28 # *		SWL 300
UA3-170-847	SWL	105
UA3-155-75	SWL	75

Slovakia

OM5NL *	SOAB	200
OM7RC	SOAB	84

Slovenia

S59ZZ # *	SOSB/15	48

Spain

EA5GPP *	SOAB	330

Sweden

SM7BJW *	SOAB	119

Switzerland

HB9IK *	SOAB	1121
HB9CBR	SOAB	40

The Netherlands

PA5GU *	SOAB	120
PA0RRS *	SOSB/20	4

Ukraine

UR2E *	MOAB	210
UZ7U *	SOAB	1054
UT3QT	SOAB	170
UW7I # *	SOSB/20	70
UR5QU # *	SOSB/40	700

Yugoslavia

YU7SF # *	SOSB/10	3

North America

Panama

HP1AC *	SOAB	105

USA

N6RO # *	SOAB	24420
K3ZO	SOAB	6549
N6ZZ	SOAB	4896
WO6M	SOAB	2208
N7DR	SOAB	1273
N4MM	SOAB	84
K4IU	SOAB	40
W7/JR1NKN#*	SOSB/10	231
K0COP # *	SOSB/40	10

South America

Argentina

LU1EWL # *	SOAB	162

Uruguay

CX9AU *	SOAB	16

+ VK2QL Memorial Trophy

Continent Leader Certificate
* Country leader Certificate
MOAB = Multi Operator All Band
SOAB = Single Operator All Band
MOSB/XX = Multi Op Single Band XX
SOSB/XX = Single Op Single Band XX
SWL = Shortwave Listener

Station Operators for PHONE Multi-Op Entries

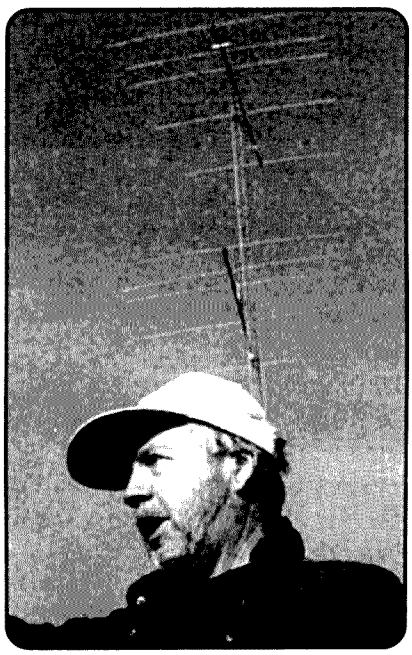
Call Sign	Operators
I2MME	I2MME, I2RTF, I2CZQ
LU4DRC	LW1DTZ, LW6DKO, LU3EUO
RS178500	BRS32525, RS177448
UR2E	USE-073, US6ET
VK4WIL	VK4DZ, VK4CEJ, VK4FJ, VK4SN
ZL3DXC	ZL3NZ, ZL3GA
ZL6QH	ZL1AZE, ZL2AOV, ZL2AMI, ZL1AXG, ZL2CA, ZL2BSJ

Station Operators for CW Multi-Op Entries

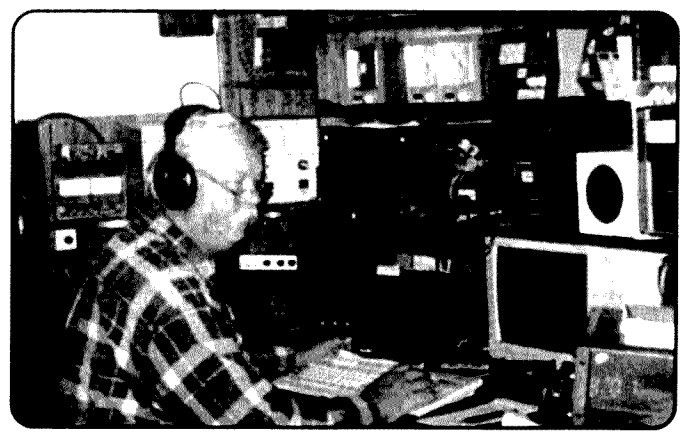
Call Sign	Operators
JA4YPE	JF3EBO
RW9C	UA9CGA, RW9CF
SP9KRT	SP9ADU, SP9EMI, SP9-1753
UR2E	USE-073, UR5EFJ
ZL6QH	ZL1AZE, ZL2AOH, ZL2BSJ

Check Logs gratefully received from

3Z3CUG, DL1JMS, DL2AWW, DL3ZAI, DL5ST, DL8WAZ, DU1/DK3GI, EA1CBX, OK2BNC, RN3AY, RX3DTN, SM0LZT, SP2FWC, SP4IGV, SP5GMJ, SP6IEQ, UA9ZBN, ZL1TM



Ken Keeler N6RO, grows stacks of yagis "out of his head"! Ken posted the top score outside Oceania in the CW SOAB category. He uses FT1000MP radios and a huge antenna farm consisting of beverages, 4 square wire arrays for 160m to 40m, a 2el quad for 80m, a 4/4 el yagi stack at 135ft/65ft for 40m, a 5/5/5 el yagi stack at 135ft/90ft/45ft for 20m, a 6/6 el yagi stack at 135ft/95ft for 15m and a 5/5/6 el yagi stack at 100ft/66ft/33ft for 10m.



Martin Luther VK5GN, winner of the Ron Wills ZL2TT trophy and Oceania Phone SOAB category. He uses two Icom 765 radios and an impressive antenna farm consisting of beverages, an 80ft vertical for 160m, a quarter wave vertical for 80m, sloping dipoles with reflector wires on 40m, a 9 el log periodic at 60ft for 20m to 10m, a 4 el yagi at 70ft for 15m and a 6 el yagi at 70ft for 10m.

Ross Hull Contest 2000 - 2001

There were some surprises in the 2000 - 2001 Ross Hull Contest. The main one is that 6 metres delivered the goods again and decided the outcome of the contest. Probably not a surprise, really, considering that the last 6 metre scoring bonanza was 11 years ago.

The outcome is that the trophy has moved north to **Glenn, VK4TZL**. Second place goes to **Gordon, VK2ZAB**, and third to **Ross, VK2DVZ**. In the two day section, the prize goes to **Neville, VK2QF**, closely followed by **Ross, VK2DVZ**. Congratulations to these top scorers, and to all others who sent in logs.

There were two logs of special interest. One was from **Yutaka, JH1WHS**, who is well known to Australian 6 metre operators and currently holds an Australian Digital Modes record for 6 metres.

The other unexpected log came from **Bert, ZS6HS**, who has been a licensed amateur since 1935. He first came on the air with equipment built from a QST article by Ross Hull, so he thought it would be appropriate to submit a log in honour of the man who effectively gave him his start in amateur radio.

As usual, thanks to all those who sent in logs, and I hope you will be back again next time.

Ross Hull Contest 2000 - 2001: Results

Call	Name	6 m	2 m	70 cm	23 cm	12 cm	6 cm	3 cm	TOTAL
Section A: Best 7 Days									
VK4TZL	G. McNeil	**3986**	876	110	-	-	-	-	**4972**
VK2ZAB	G. McDonald	18	**1539**	**1655**	**712**	-	-	-	3924
VK2DVZ	R. Barlin	-	1485	1450	600	-	-	-	3535
VK3BJM	B. Miller	7	426	350	80	**30**	**80**	**130**	1103
VK4KZR	R. Preston	-	543	340	200	-	-	-	1083
VK3AFW	R. Cook	9	603	320	-	-	-	-	932
VK2TG	R. Demkiw	36	402	385	-	-	-	-	823
VK3CY	D. Clarke	-	306	225	-	-	-	-	531
VK3KAI	P. Freeman	-	225	205	64	-	20	-	514
VK3GK	L. Moyle	11	177	175	144	-	-	-	507
JH1WHS	Y. Katoh	400	-	-	-	-	-	-	400
VK3AUI	G. Sones	19	66	150	48	-	-	-	283
VK5FD	A. Dunn	21	12	10	-	-	-	-	34
Section B: Best 2 Days									
VK2QF	N. Mattick	**1401**	-	-	-	-	-	-	**1401**
VK2DVZ	R. Barlin	-	**528**	**560**	**232**	-	-	-	1320
VK3AFW	R. Cook	8	267	180	-	-	-	-	455
VK3CY	D. Clarke	-	252	180	-	-	-	-	432
VK4KZR	R. Preston	-	186	160	80	-	-	-	426
VK3GK	L. Moyle	11	150	145	104	-	-	-	410
VK3KAI	P. Freeman	-	165	165	64	-	-	-	394
VK3AUI	G. Sones	9	66	150	48	-	-	-	273
VK2TG	R. Demkiw	27	99	135	-	-	-	-	261
ZS6HS	B. Howes	3	9	15	8	-	-	-	35
VK5FD	A. Dunn	7	9	5	-	-	-	-	21

Jack Files Contest 7th July 2001

The Wireless Institute of Australia ,Queensland Division announces the Jack Files Sunshine State Contest. This is to offer a practice run for the Rememberance Day Contest and also in memory of Jack Files a long serving Queensland WIA member. It is open to anyone and overseas amateurs are most welcome to try a hand. Worked all Queensland awards for contact with more than ten shires of Queensland are available with the inclusion of 5 IRCs with the log, for stations outside VK and ZL. All qualifying VK and ZL logs received will be sent the WAQ award regardless of position in the contest.

Date :7th July 2001 6:00pm AEST 8:00 UTC to 07.59hrs UTC 8th July 2001

Duration: 24 hours

Categories: (1) Full Class, (2) Novice Thats it!

Modes: Anything

Cypher: Signal report plus operators age Ladies use 00 eg 5900 or 59900 Gents use 59 + in my case 41. Queenslanders will also notify you of their shire or city which is the multiplier.

Bands: 160~10m No Warc

Multiplers: Queensland Shires only, count once for each band viz:Toowoomba on 160 through ten would be 6 multipliers.

Points per QSO: One (1) regardless of band or mode

Duplicates: Only one contact per band with another station regardless of mode

Contacts: Once only per band (forces multiband operation)

WAQ Contest Award for more than 10 Queensland Shires 5 on 80 and 5 on 40 counts as ten!

Any contact is valid but must be with Queensland for multipliers. DX to DX is OK but log must have at least one VK4 contact to be a valid log!

Scoring Example: Total contacts on all bands say 40, multiplied by total VK4 shires one per band say 40 X 6 = 240

Logs to Jack Files Contest, PO Box 199 Waverly Heights,QLD. 4012. **By** 6th August 2001

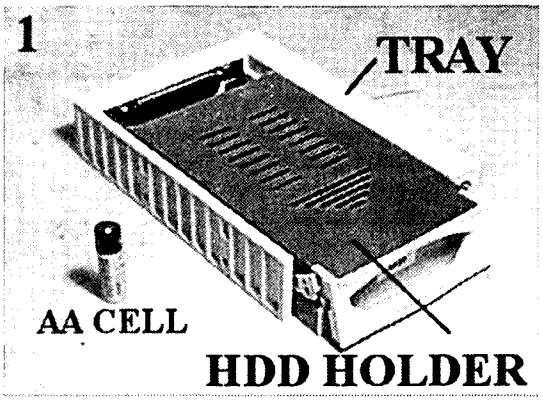
Trent VK4TI
ar

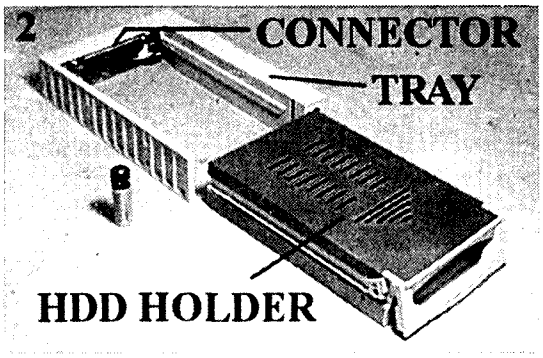
Repeater Link

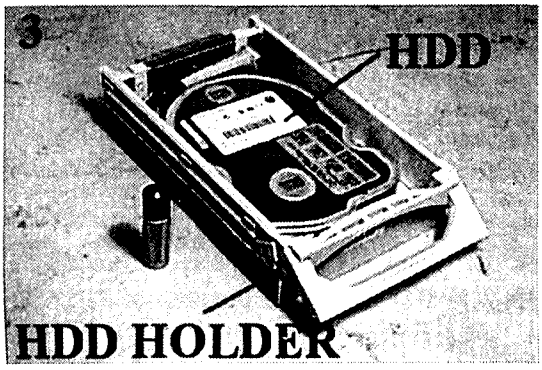
Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076 will2@iinet.net.au VK6UU@VK6BBR

Power Supply

As previously reported, the 13.8 volt mains power supply running the International HF Beacon, VK6RBP, has been a source of problems. The output voltage of the power supply drops to a low value under load some of the time, with the output amp meter reading 30 amps. Suspicion was that RF from the beacon was getting into the power supply and causing the erratic behavior. The power supply was removed from site and had extensive RF filtering fitted, including toroids and capacitors on the mains input and 13 volt output. Tests, including the pulse type of operation, indicated all was well, but there was no easy way to simulate the possible RF problem. However when re-installed, the power supply behaved as before. Just in case this was the outcome, I took my power supply, the same make and model as the HF Beacon's and installed it. Problem solved. The Beacon's original supply will reside in my shack and hopefully the beacon will behave.







HDD

Many of us rely on computers for all sorts of applications and what we dread most is a hard disk crash, or problems with software that just can't be resolved. Often it is easier to reload the complete hard drive rather than be frustrated by a particular problem. However this is easier said than done. Re-formatting a hard drive and reloading the operating system, along with all the software and sorting out the drivers for printers etc can take up a lot of time. This down time can put the computer out of action for a long time.

Even upgrading the operating system can be a real pain, if only there was a way to keep the computer as is, while you rebuild the hard drive. There is one way and that is to buy another hard drive and swap between them, while you build up the new hard drive. Still this requires taking off the covers of the computer and swapping plugs between the hard drives. There is another way that is easy and fun to do, and that is to install a removable hard drive frame that allows hard drives to be plugged in and out from the front of the computer.

After much thinking about the problem, I decided to buy one of these hard drive trays and install it. Firstly my computer has two hard drives, C and D. C contains the operating system along with all my programs. The D drive is only for saving data, such as text, pictures and the like. I do an original save on the C drive and then a back up on the D drive. This setup made the swapping of C drives easier.

These removable hard drive trays fit in a spare bay on the front of the computer, the same as where your CD ROM drive fits. Hopefully you have one spare. The removable hard drive trays come in two parts. The first part screws into a spare bay and the IDE cable and power supply lead, that normally goes to your hard drive, plug in the back of this tray. The second part is to hold your hard drive, which is screwed into place and a IDE lead and power supply cable, that is part of this holder, plug into the hard drive.

With your hard drive now secured into the holder, this holder then slides into the frame fitted into a spare bay. At the back of the holder is a multi pin connector that makes the IDE and power connection, which connects to a socket at the rear of the frame. Difficult to describe but simple in principle.

Once installed, any number of hard drives can be fitted into a holder and than slipped into the frame mounted into the computer. You now have a simple way to swap hard drives from the front of your computer. The computer has to be shut down between swaps of course, but it is now easy to maintain your existing computer hard drive, while you load a latter version operating system, along with all your software onto a new hard drive. At your leisure you can re-build a hard drive, yet still have your original computer setup while you do so.

Having a D drive makes it even easier as any software or data you want saved for both C hard drives can be accessed from either C drive. It is important to repeat my setup has the second drive as is, a D drive. This drive remains in the computer and is not fitted into a

removable tray. It could be, but for the moment it is not.

So what you end up with is an easily swapped C drive. I have Windows 95 on my original C drive and Windows 98 on the new C drive. Once I'm happy with the new drive, I can reformat the 95 drive and upgrade it to 98 along with all the software. As long as the two drives are setup the same, any serious crash with one of them can be laughed at by replacing it with its mirror image.

Cost is about $20 for the tray and hard drive holder, they come as one. The units available now come standard with a small fan to remove heat from the hard drive as it is enclosed inside its holder.

Of course there is the cost of another hard disk drive. I bought a 20 GHz new one for under $200. Cheap considering the frustration of having a hard disk crash.

Included are three photographs of the tray and holder. Photo 1 shows the HDD holder almost all the way inside the tray. Photo 2, the HDD holder removed from the tray and photo 3, the holder with its cover removed to show the hard disk drive. The AA cell is for size comparison.

Provided your computer supports auto HDD detection in its BIOS, the swap over is simple. One slight silly problem I had was that upon installation and turning the computer on, I received a failure message "HDD failure". The tray comes with a key on the front and I had not turned it to the lock position. This not only locks in the HDD but also applies power to the hard disk. No power no work, hence the failure message. Sure increased the Heart rate for a while.

Hope the explanation and photographs are sufficient, as this really is a great way to go. I now have the second hard drive completely set up with Internet and all my programs. I also now have Windows 98, which is better than 95 in a number of areas, in particular USB support. Never tried the USB ports before as Windows 95 reported them as not functioning. Windows 98 set them up and I celebrated with a new printer plugged in and working on the USB port.

Still, as we all know Windows is still Windows. Clicking on my external modem icon generates a message "you have no modem," yet it lets you talk to the modem and dial my ISP along with normal Internet use. Not bad for a modem that is there.

ar

Support for WIA Contests

I had a chuckle over DJ7YE's long diatribe in May's OTY about contests. I think his main point was that he didn't like them!

While Bernd's comments are not all without validity, he displays a gross ignorance of the subject that he seeks to criticise. Before writing to an Australian magazine, he would have done well to acquaint himself with the local contesting scene, which attracts far more VK participation than do the international contests.

Bernd and others may wish to consider the following facts about local contests:

- Contests are not 'taking over' amateur radio. Even during our busiest contest (the Remembrance Day), there is still sufficient band space for non-contest activity.
- Local contests are more relaxed than the major DX contests, and many participants do exchange names, locations and even genuine signal reports.
- Contests dramatically increases activity on most bands. In a sparsely populated country such as Australia, this is a major benefit, as we are told to "use 'em or lose 'em".
- Particularly on VHF/UHF, being able to operate portable and be assured of a good number of contacts in a contest is godsend to those living in poor locations or unable to erect effective antennas at home.
- Contests benefit other facets of amateur radio, such as home construction of equipment and antennas, emergency preparedness, and promotion of the hobby. Three months ago, my local club had its field day station pictured in the local paper. This would not have happened had there been no contest. I would not be planning the construction of a new VHF/UHF antenna system if there were no contests in which to use it.
- There is indeed a large number of contests in most countries (including Australia). However most are quite small and coexist happily with other amateur activity. That contests are run means that there is continued interest in them. Long may this continue!
- Contesting is just one of a large number of legitimate amateur radio activities. Many of us, who enjoy contests are also active in many other aspects of amateur radio and WIA activity. Fortunately we are ignoring Bernd's amateur psychology and are happily enjoying amateur radio.

Bernd calls himself a DXer. As many examples of sloppy operating (59 reports, distorted audio, bad phonetics, excessive power, short listening times after calls, etc) we hear from his own continent are as attributable to his fellow 'DXers' as contesters. He would do well to direct his barbs to those responsible for his gripes rather than parading his prejudices about contests in a country where these are demonstrably untrue.

73, Peter Parker VK3YE

WIA members: loyal and bold

Much has been written about preserving the strength of our Institute and ways of increasing membership.

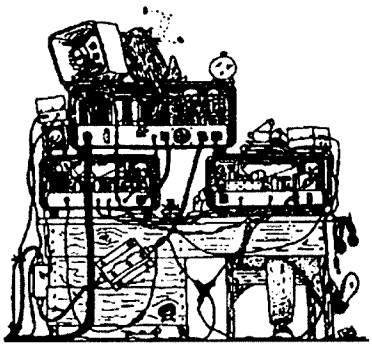
It is obvious that we have to attract members of a younger age lest the W.I.A will die with us. There is no room any longer for old style elitism.

However there is another way of nurturing loyalty to the W.I.A. Let us first reward and acknowledge the loyalty of our existing members by printing their call book entries in bold type.

This will engender pride in membership and encourage (or shame) those who remain outside but partake in membership benefits and use our repeaters.

73, John Hinsch VK5ARL

more letters on page 55 and 56



Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 3 – Software

Logging and Control Systems

If you are lucky to own a modern Icom, Kenwood, Yaesu or Ten Tec transceiver or receiver then you are in for a nice surprise. The multi-Windowed image shown on this page highlights a just a few of the attributes of YPlog written by Tony Field, VE6YP (1).

In short, YPlog not only controls your rig, but has a comprehensive logging program that tracks all your contacts, automatically provides beam headings, displays a world map, calculates prefixes and modes used for DXCC lists etc.

It can upload-download memory settings, flag zones, countries, counties, club stations, types of licensees, prints QSL cards; AND acts as an automatic packet radio DX cluster tracker all at the same time. Phew! And there's more as well!

Your computer will need MS Windows 95 or later, at least 32 MB of RAM with three or more communications ports.

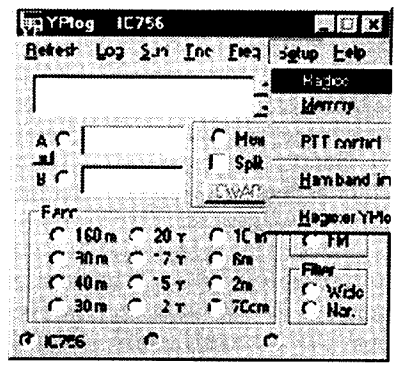
One port for the mouse, the second for a packet radio modem, and the third to send and receive control signals to your radio. In fact, YPlog can control up to THREE radios allowing you to switch between them and operate each radio set all from just one computer screen. The joy of hunting DX on the HF bands and being simultaneously prompted from the DX cluster postings all at the same time is magnificent.

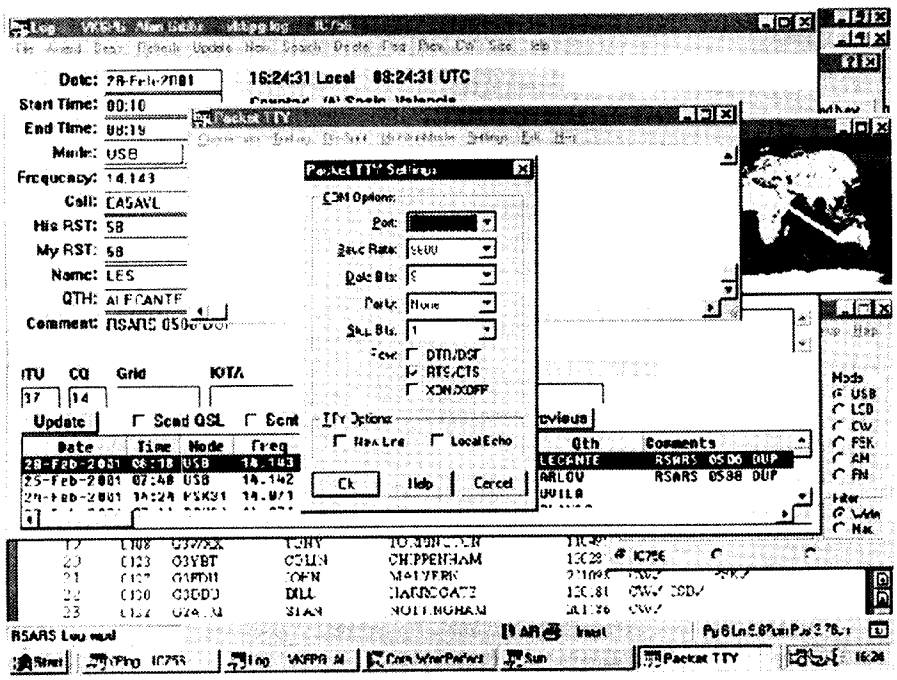
One Example

One "click" on a DX cluster posting, YPlog automatically programs the call in the log, AND sets the frequency and mode ready for you to call the DX station by Morse or SSB. In fact you don't need to have the transceiver in front of you to operate it anymore. Operating this way now demonstrates the total union between AR and the world of computing. Once tried you will never go back to the old ways!

In the picture overleaf, YPlog is running in the background while this article is being written in MS Word™. Careful observers will also see that Coral WordPerfect™ is also in the background acting a database to track award claims.

YPlog is so comprehensive it would take up the contents of a one-inch thick book let alone the contents of just two pages in this magazine. But luck is on your side. The HELP option at the top right hand end of the ribbon reveals all the fine details needed to setup, operate, and maintain the YPlog computer software.

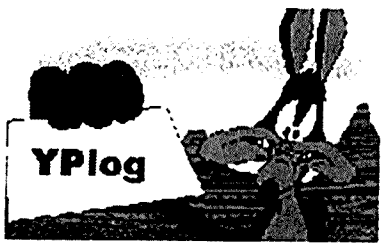




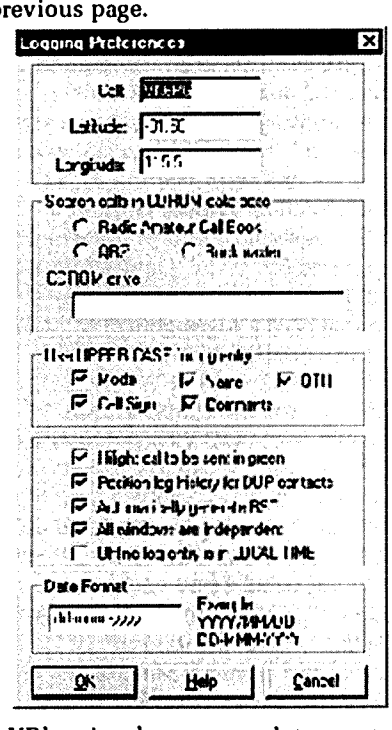
YPlog Setup

YPlog is "self-extracting" prompting a new FOLDER in the directory C:\WINDOWS\PROGRAMS or default **YPlog Logging** folder. By "clicking" NEXT, YPlog installs in seconds placing YPlog into your START, PROGRAMS menu on your computer. Next, go to the Windows, START, and PROGRAMS. "Click" YPlog to start the program and select Setup then Radios to enter your own data into the program. Memory, PTT control, Ham Band Limits and finally your NAME, CALLSIGN and LICENSE NUMBER in the last window. 'Click" OK and close the program down. Re-open YPlog and select Log to open the log window, then select File, Preferences and Logging Preferences. Enter your own data as shown in the picture.

YPlog needs to know where you are



in the world so you can be found on the map and as a basis to calculate how far it is from your QTH to Timbuktu or wherever! Once done, start remote controlling your rig and have some real fun with Amateur Radio. Additional features are too numerous but, for example, by selecting TNC, your packet radio parameters can be entered at the prompts shown in the centre of the previous page.



YPlog is also a complete contest logging and control program and even supports QRQ CW transmission. With other systems, users must become familiar with a DX log in Windows and then learn a DOS contest log with completely different keyboard usage and look/feel characteristics.

In many cases it is difficult to merge a DOS contest log with a Windows DX log. All this is easy with the YPlog software. In addition, the program includes YPserver allowing several DX stations computer networked information without resorting to software duplication.

All this information might seem overwhelming for the newcomer. Take heart, work SLOWLY through all the prompts until everything works correctly.

TRY before BUY?

YPlog is "shareware" meaning that you can use the program to see if it suits your own needs. Users are prompted to purchase a *User's Licence* from Tony Field, VE6YP by Internet email (1). Of course, you will have to post a cheque for US$50:00 to gain full authorisation. Once the user's licence number is entered – the world will open up to you! For Internet users, VE6YP offers first class online help via email. In addition, registered users are automatically sent updated information regularly, which is more than can be said for most computer program writers!

YPlog has been used successfully for over three years at VK6PG with several upgrades and DXCC updated files to keep everything fresh. Very good value and highly recommended software for proactive AR computer users.

Bonus for PSK Operators

YPlog also "dovetails" with WinPSK and HamScope freeware written by Moe Wheatley, AE4JY. Once a PSK station is entered into WinPSK or HamScope, the data is automatically updated into the YPlog logbook, *and* YPlog picks out duplicate contacts at the same time.

Ham Tip No. 3

Computers use complex switch-mode PSU's. If they fail, they can cause considerable damage. Once each year, keep the PSU clean by brushing out grit, grime, cat and doggy hairs with a small paintbrush and a vacuum cleaner. One drip of sewing machine oil in the fan bearings will keep your computer running cool and calm.

Ham Shock Computers, Part 4 looks at Networking two computers together. Possibilities include running PSK31/DX cluster from a comfy, remote air-conditioned sitting room instead of a cold (or hot) Ham Shack! XYL permitting.

(1). YPlog and Tony Field, VE6YP at: www.field@nucleus.com

ar

Intro To Automatic Packet/Position Reporting System (APRS)

Bob Bruninga, WB4APR, APRS Engineering LLC
LIVE APRS web site at www.aprs.org

APRS is different from regular packet in three ways. First by adding maps and other data displays, second, by doing all communications using a one-to-many protocol so that everyone is updated in real time, and third, by using generic digipeating so that prior knowledge of the network is not required. APRS turns packet radio into a real-time tactical communications and display system for emergencies and public service applications (and global communications). Normal packet radio has only shown usefulness in passing bulk message traffic from point to point. It has been difficult to apply conventional packet to real time events where information has a very short life time.

Although the recent interfaces to the Internet make APRS a global communications system for live real-time traffic, this is not the primary objective. But like all of our other radios, how we use APRS in an emergency or special event is what drives the design of the APRS protocol. Although APRS is used 99% of the time over great distances, the protocol will always be optimised for short distance real-time crisis operations.

APRS provides universal connectivity to all stations by avoiding the complexity and limitations of a connected network. It permits any number of stations to exchange data just like voice users would on a voice net. Any station that has information to contribute simply sends it, and all stations receive it and log it. Secondly, APRS recognises that one of the greatest real-time needs at any special event or emergency is the tracking of key assets. Where is the Event Leader? Where are the emergency vehicles? What's the Weather at various points in the County? To answer these questions, APRS is a full featured automatic vehicle location and status reporting system too. It can be used over any 2-way radio system including HAM, CB, Marine Band, and Cellular Phone. Now there is even a nation- wide [USA] LIVE APRS tracking network on the Internet!

The user channel for APRS is on 145.175 MHz in Australia but locally the beacons are being distributed via some of the packet BBS user ports to help get users started using their local packet channel. [editor]

VHF/UHF AN EXPANDING WORLD

David K Minchin VK5KK
Postal PO Box 789 Salisbury South Australia 5108.
Fax +61 8 8292 4500 Phone 0403 368 066
E-mail: tecknolt@arcom.com.au Web page: http://members.ozemail.com.au/~tecknolt
All times are in UTC. NOTE NEW FAX NUMBER FOR CONTRIBUTIONS

50 MHz Equinox wrap-up

Ray VK4BLK, Yepoon reports "List of DX worked during April 3D2,CE0,DU,FO,FW,HL,H44,JA,KH2, KH4,KH6,KH8,T30,T88,TI,TG,V31, V63,V73,VK9M,W,XE,YS,ZK,ZL" .. Ray VK4BLK

Mike Vk2FLR reports activity for April 2001, 3/4 1225 VR2XMT 55, 5/4 2315 VE7XFD 319 heard only, 0015 V73SIX/ b 519. 6/4 2303 XE1KK/b 519, 7/4 2140 TG9AJR 58, 2145 ZF1DC 59, 2150 V31RH 59, 2330 YS1RR 53 8/4 2310 V31RH 59, 2317 YS1RR 59, 2328 KH8/ N5OLS 59, 2345 FO3BM 54, 2353 V73JK 57, 9/4 0030 KB6WW 539 plus many W6 heard, but looking for VE, 0052 TI5KD 57, 0110 VK8MS 59+ direct F2, 10/4 0346 JK8VMB 57. 12/4 2215 TI5KD 57, 2229 TI2ALE 55, 2235 TI5BX 55, 2245 HP2CWB 55, 2330 ZL2TPY 55, 2336 3D2AG 59. 13/4 0030 KH6SX 579, 0207 WH6O 59 plus vast VK1,2,3,5,7 pileup, 0456 DS5ISO 569, 0514 JH1WHS 59, 0518 DS5MHD 55, 0520 JA3APL 59, 0523 JE2DWZ 59, 0525 JA7JH 59, 0526 JA1ETO 59, 0527 JF3XWM 59, 0528 JA2WP 59, 0529 JI9EDN 55, 2234 KH8/ N5OLS 569, 2245 VK2BA 52 F2 b/s, 2313 3D2AG/p 559, 29/4 0130 TX0C 57. Could have done with some more!" ... Mike VK2FLR

Meteor Scatter on 50 MHz

Rex VK7MO reports .. "Good results this am (6/5/2001) on 6 metres. Glenn VK4TZL completed QSOs with VK3AXH (1660 km) and VK7MO (2027 km) on fast hell. One burn was readable for 2 minutes, detectable for 5 minutes. I monitored the Doppler shift of this burn on Spectrogram and the Doppler moved 20 Hz in 30 seconds indicating a significant change in the upper winds speed, or a change in the scatterings originating region (possibly different decay rates at different levels) with differing wind speeds in various regions.

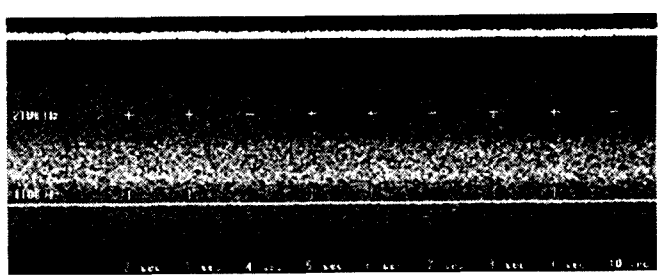
Glenn found no overlap as he copied a number of pings and burns from both VK3AXH and VK7MO, who were transmitting simultaneously. This indicates a narrow beam width of the scattering stations as they are within 10 degrees of each other to Glenn. It fits the view that diffraction due to blocking of the wave front is the mechanism (i.e. the same process provides enhanced signals for aircraft scatter and requires the blocking object to be closely in line). It suggests that with small beams at our power levels the meteor trail must be in line. This will be proportionately more difficult at 2 metres.

Power levels were 100 watts peak, 20 watts average. Antennas, VK7MO 3 element beam, VK3AXH 7 element beam and VK4TZL, I think a 5-element beam. Anyone interested in joining us in Hell please let me know. Listen in between 0645 and 0715 EST on 50.145 each morning." ... Rex VK7MO

World's First 23cm Auroral Contact

What looks likely to be confirmed as the worlds first auroral contact in the 23cm band took place on the 11th of April. Carl Mohlin ["Mo-LEEN"], SM3AKW, had the contact with SM5QA at 1650UTC and exchanged '33A' reports.

Carl said the signal sounded like auroral signals on the lower bands. Both stations transmitted on 1296.200MHz, but a plus-5kHz Doppler shift each way meant signals were received on 1296.205MHz. Both stations were running 500 watts to high-gain antennas. (Courtesy of the RSGB)



Spectral Snapshot of Auroral signal from last month courtesy of John VK3KWA

Portable from Mt Manara

An excerpt from Barry Millers VK3BJM's report on his portable expedition to Mt Manara, from 20/4 to 22/4/2001 at Latitude 32° 28' 34.7", Longitude 143° 56' 5.3"; QF17xm. Barry worked into the Sydney area on Aircraft Scatter "..The strength of the signals was most amazing. After the night of 21/4) where I was squinting into the earpiece to hear Charlie and Ron on CW, and even the initial contact with Gordon at 4x1 on voice, to suddenly hear Gordon at 5x6 was just amazing. Perhaps my isolation heightened this? And Gordon reported that 70cm attained similar levels.

The 2m/70cm highlights of the log (* indicates new Grid for this station): 20/ 4/2001 1100Z VK3AFW 57-58 Mob. Heathcote Elmore, 1109Z VK3CY 57-59 Mob. Elmore, 1135Z VK3CY 55-55 Mob. Echuca, 1145Z VK3AFW 52-52 Mob. Moama, , 1200Z VK3AFW 52-52 Mob. 45km sth of Deniliquin, 1230Z VK3CY 41-51 Mob. 10km sth of Deniliquin, 2130Z VK3KEG 41-51 Mob. 40km nth of Hay (*QF25 - 460km path), 2140Z VK3CY 51-52 Mob. 70km nth of Hay

21/4/2001 from Mt Manara at 1123Z VK3FMD 41-41 (*QF17), 2136Z VK2ZAB 41-31 (*QF17), 2148Z VK2ZAB 41-41, 2230Z VK2ZAB 56-55, 2327Z VK2ZAB 51-52 70cm (*QF17). 22/ 4/2001 0105Z VK2DXE 41-41 Mt Manara (*QF17), 0622Z VK3FMD 41-41 Mob. Deniliquin, 0640Z VK3XPD 41-41 Mob. Mathoura, 0747Z VK3XPD 51-41 Mob. 45km nth of Heathcote, 0817Z VK3XPD 51-51 Mob. Heathcote. Thanks to all who came up on 2m or 40m-liaison frequency. I had a fantastic time. Can't wait for the next opportunity - hopefully tropo

Microwave Primer Part Thirteen:

Microwave Transverter IF Frequencies, filtering and switching

Last month we discussed IF transceivers for use with microwave transverters. Now to tackle IF frequencies, improvements to audio and transmit/ receive switching.

Not long ago, when 50, 144 & 432 MHz transverters were in vogue, 28 MHz was a popular IF. Some early 1296 MHz converters and transverters also used 28 MHz but most had poor image rejection. I recall early converter difficulties with airport radar from the lower end of 23cm; image rejection was probably non-existent. With the proliferation of 144MHz transceivers, this soon became the IF standard for 23 cm and above transverters. The IC202 /FT290 helped ensure that nearly everything published in European and USA literature for the past 20 years used 144 MHz.

144 MHz is probably the worst IF frequency to use at home or on a mountaintop! As all operation tends to revolve around the calling frequency of 144.1 and etc higher, Microwave Bands are simply superimposed on top of 144.1 MHz. The average 144 MHz transceiver isn't that well shielded, I heard VK3AUU (on 144.1 MHz) while I was working into VK3 on 10 GHz (IC202 IF), 400km's away portable at Robe, SA!!! If you are near 144.1 as a talk back frequency you will also have backwash while working cross band. 3 watts into a transverter goes a fair, far distance .

The easiest solution is to pick a different section of the 144 MHz band. With an IC202 you have little choice but 144 MHz plus or minus a bit! For 1296 MHz I use 95.833 MHz crystal rather than 96.000 MHz. This means 1296 MHz = 146 MHz giving another significant digit (MHz) in the frequency display. For 2403 MHz I use a 94.000 MHz xtal 2403 MHz = 147 MHz. When we had 3456 MHz, I ran this to a 146 MHz IF in a similar manner to 1296 MHz.

Now if your IF rig happens to cover outside of 144 – 148 MHz (as most transceivers built since 1990 do) then think about using 140 – 150 MHz e.g. 2400 =140 MHz, 3400 = 140 MHz and etc. Channel 5A is seldom used in Australia so the spectrum is clean. It doesn't matter if the IF is outside our band as long as you carefully shield the IF attenuator! The only problem may be 10368 = 148 as this segment is still hyperactive with paging transmitters.

Some would say a better solution is to go higher. I use 430—440 MHz for my portable transverters on 5760, 10368 and 24048 MHz. There is no reason why it can't be used for 2400 & 3400 MHz. With 1296 MHz the third harmonic will manifest itself around the same level as the mixed product on transmit. Using 432 MHz as an IF frees up 144 MHz for talkback or cross band operation. Almost all transceivers (except IC402!) have 430—440 MHz coverage so you can implement transverter conversions like 2400 = 430 MHz and so forth easily.

Another spin off from using 432 MHz as an IF is the reduction in RF selectivity required to remove the image, now 864 MHz away rather than 288 MHz. This is especially significant on 10368 & 24048 MHz. The Japanese use 1200 MHz as an IF for 10,368 MHz (and higher) aided by a far better selection of 1200 MHz transceivers in Japan. Those lucky few with an IC1271/5 or a TS790A may consider this. Using a 1296 MHz transverter is an option but IF frequency (2nd IF now) will need to be selected to avoid the 144.1 MHz problem again.

Now moving to the audio end. In many VHF transceivers IF and AF filtering is not as good as their HF counterparts. In 20 plus year old transceivers, like the IC202, IF and AF gain is often higher than needed (three IF amplifying stages) and produces too much white noise. A common modification is to tap the product detector to the output of the second IF amplifier while leaving the AGC connected to the third. You may have to set the AF gain a bit higher but the transceiver is just as sensitive with lower internal noise.

Transceivers, except perhaps the latest DSP types, improve with AF filtering. Circuits and commercial boxes are available to do this. The battery box in the IC202/FT290 has room to accommodate filters. Or use one of the many Sound Card programs about and run the audio via a PC. OK for home and vehicle but a bit over the top to drag the Laptop out portable!

Most professional communications systems use expanders to improve the signal-to-noise ratio on voice circuits. An expander is AGC driven circuit in reverse. A worthwhile addition to a receiver, with some audio pass band shaping, making weak signal working a little more comfortable. It doesn't make signals appear it but enhances readability of marginal signals. DSP units do likewise but there is a theoretical limit to what can be gained. If you want to play with an Active filter/ expander have a look at Russell VK3ZQB's article in a recent edition of Radio Communications. It does work!

Transmit receive switching.

Three methods have evolved. The traditional connection of the PTT circuit to Rx/Tx switching of the transverter via an external PTT connection. For those transceivers with no external switching you could either modify them or use RF sensing to switch over the transverter, as most Solid State Amplifiers do.

RF sensing is OK if you use FM but a chattering microwave relay on SSB switching expensive devices is enough to scare anyone! A better and perhap safer solution than a separate PTT connection is to switch the transverter via a DC voltage down the IF line. The FT290R is set up with the perfect solution ... 9 Volts down the coax on transmit. The IC202 is the reverse but easily modified to the same standard by placing a 4.7K resistor from the Tx rail to the antenna connector. The Europeans have adopted this as a psuedo standard.

Sequencing of Transmit and Receive stages helps keep relays and devices safe when using a high power. Circuits exist which give a few 100mS of delay. Actual switching of RF between the TX & Rx stages requires safety features. You must be able to sink about 3watts of RF from the transmitter. You must limit the amount of RF the receiver can see; usually done with back-to-back PIN diodes. Switching between the two ports can be done with a relay or PIN diodes (quicker).

Another safety feature is perhaps a 1/ 8-watt low ohm resistor as an RF fuse before the switching circuit. This may help when you accidentally connect 25 watts to the same port! To stop inadvertent cable swapping disasters I use TNC connectors for all IF connections on transverters. TNC's seem to be more robust that the average BNC too. And while on connectors I recommend that the polarity of IC202 & FT290R power plugs be reversed to what is considered the norm today, the outer being at negative potential . Many a fuse has been blown by a loose DC lead hitting a coax connector!

ar

HF Predictions

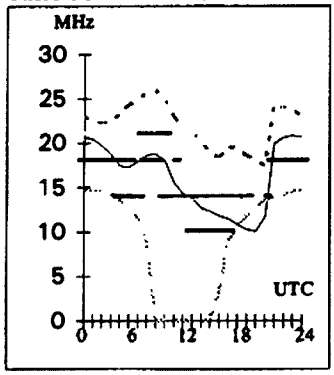
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

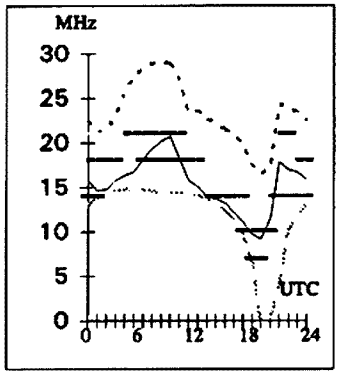
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the ionospheric Prediction Service program: ASAPS Version 4

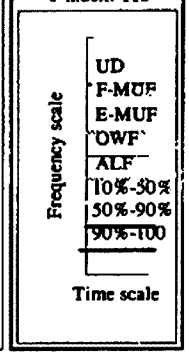
Adelaide-Achorage 30
First F 0-5 Shor 12466 km



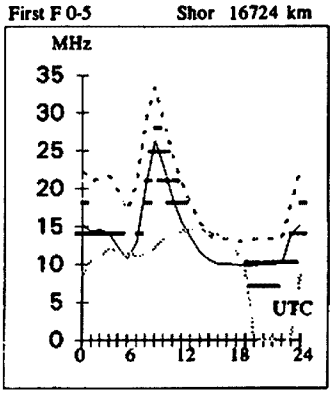
Brisbane-Berne 315
First F 0-5 Shor 16321 km



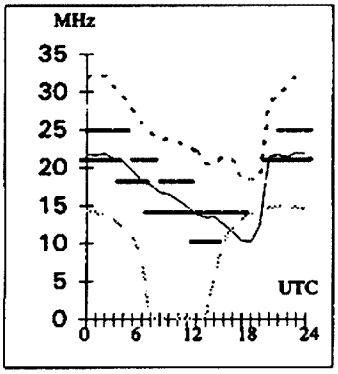
June 2001
T index: 113



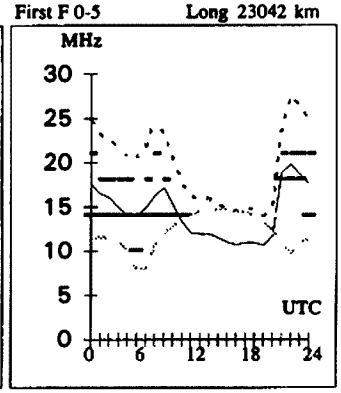
Adelaide-Dakar 238
First F 0-5 Shor 16724 km



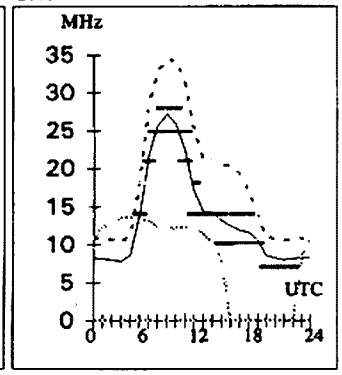
Brisbane-Los Angeles 59
Second 4F3-8 4E0 Shor 11564 km



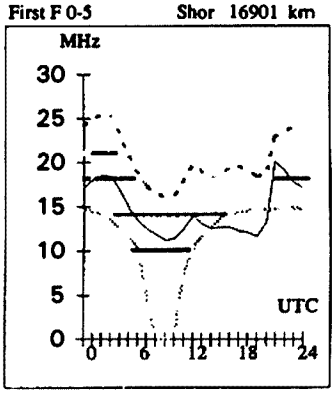
Canberra-London 136
First F 0-5 Long 23042 km



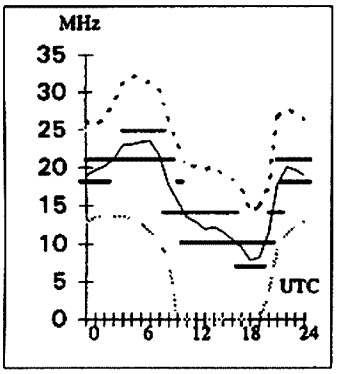
Darwin-Capetown 231
Second 4F3-5 4E0 Shor 11221 km



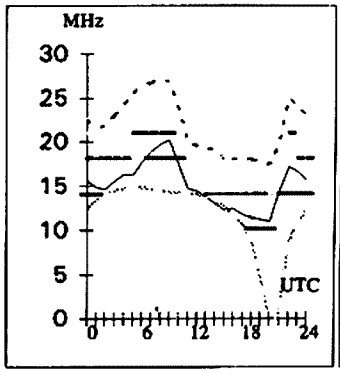
Adelaide-Ottawa 58
First F 0-5 Shor 16901 km



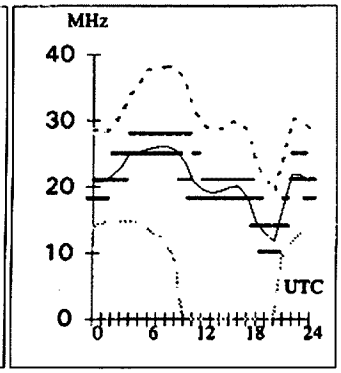
Brisbane-Osaka 344
Second 3F6-12 3E0 Shor 7149 km



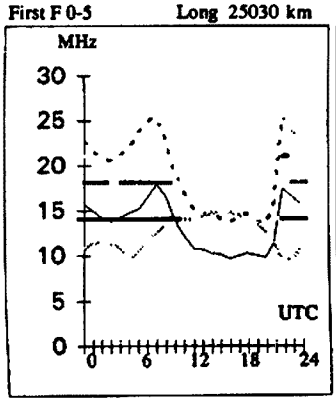
Canberra-London 316
First F 0-5 Shor 16982 km



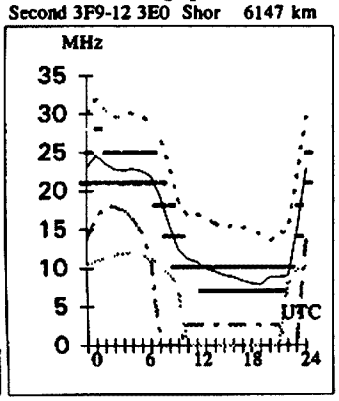
Darwin-Tokyo 10
First 2F4-9 2E0 Shor 5426 km



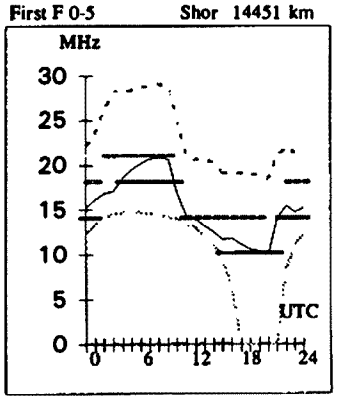
Adelaide-Stockholm 142
First F 0-5 Long 25030 km



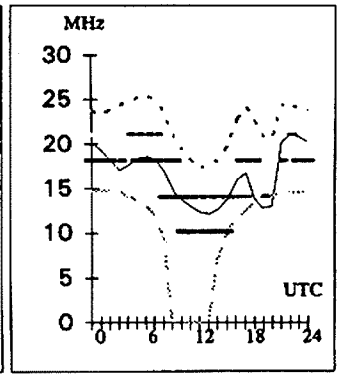
Brisbane-Singapore 293
Second 3F9-12 3E0 Shor 6147 km



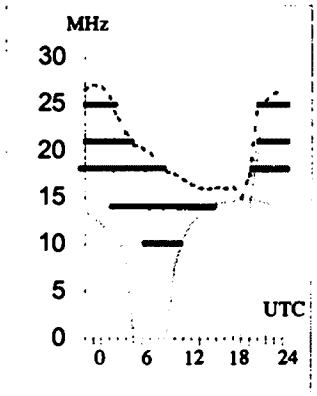
Canberra-Moscow 319
First F 0-5 Shor 14451 km



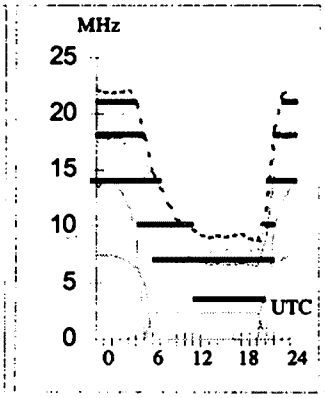
Darwin-Vancouver 42
First F 0-5 Shor 12212 km



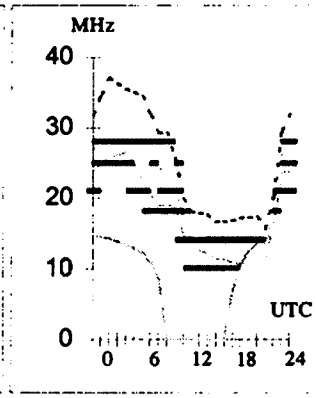
Hobart-Boston 78
First F 0-5 Short 6895 km



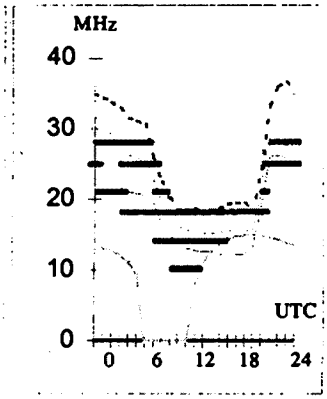
Melbourne-Auckland 97
Second 2F18-19 2E Short 2623 km



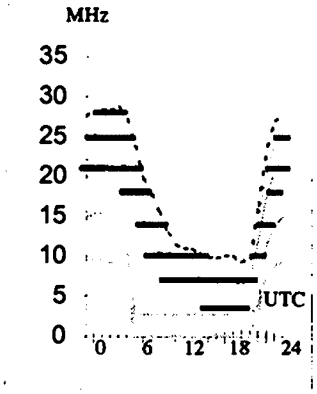
Perth-Honolulu 70
Second 4F4-8 4E0 Short 10905 km



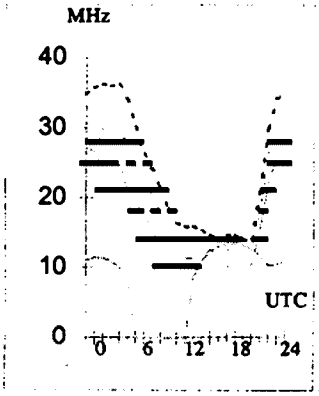
Sydney-Miami 86
First F 0-5 Short 5026 km



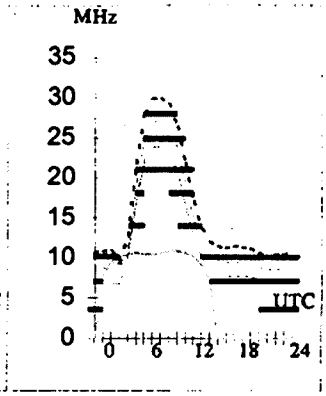
Hobart-Christcburch ##
Fisst 1F9-10 1E0 Short 2040 km



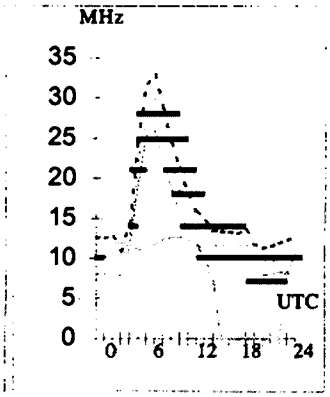
Melbourne-Lima ##
First F 0-5 Short 12950 km



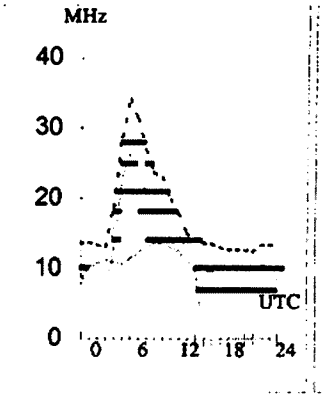
Perth-Johannesburg ##
Second 4F8-10 4E0 Short 8315 km



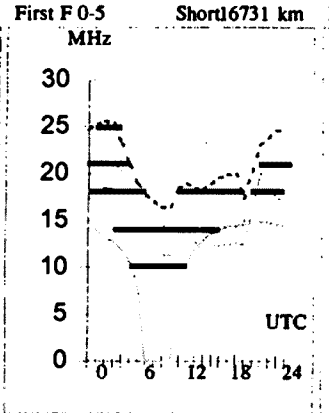
Sydney-Pretoria ##
Second 4F4-5 4E0 Short 11063 km



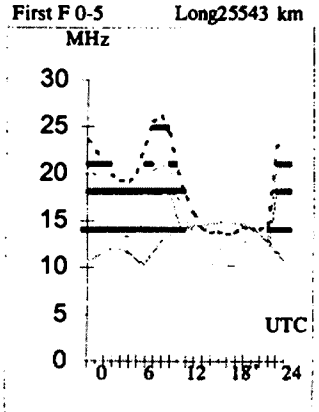
Hobart-Lusaka ##
Second 4F4-5 4E0 Short 11045 km



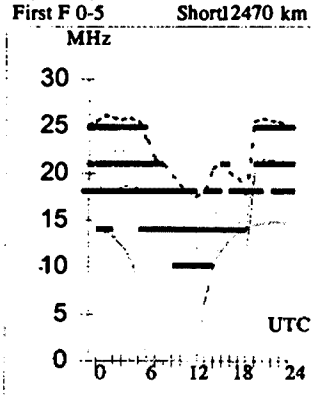
Melbourne-Montreal 62
First F 0-5 Short 16731 km



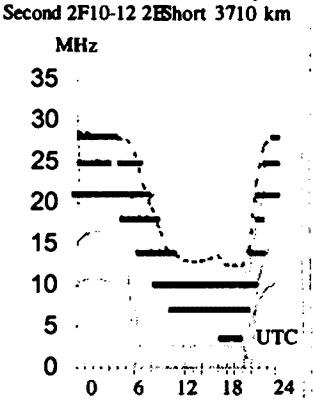
Perth-London ##
First F 0-5 Long 25543 km



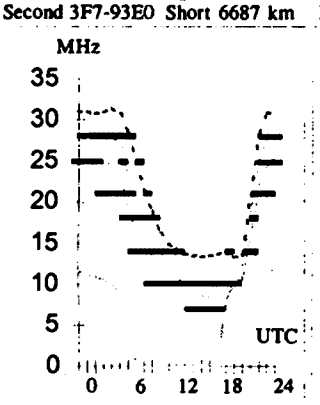
Sydney-Seattle 47
First F 0-5 Short 12470 km



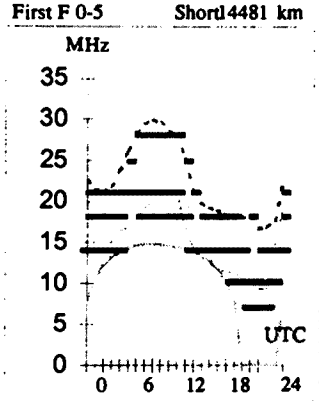
Hobart-Port Moresby 0
Second 2F10-12 2E Short 3710 km



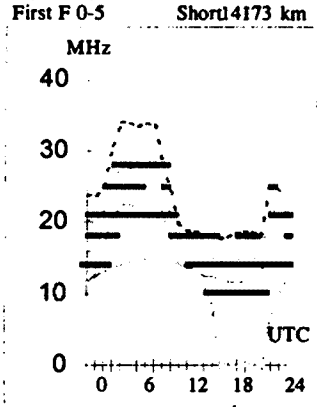
Melbourne-Papeete 90
Second 3F7-93E0 Short 6687 km



Perth-London ##
First F 0-5 Short 14481 km



Sydney-Tel Aviv ##
First F 0-5 Short 14173 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsl@webtime.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE - ACT

• ICOM IC-728 HF transceiver 100 watt vgc $440, Tektronix 7704A oscilloscope 250 MHz vgc $360. VK1VP QTHR, Phone 02 6249 6348

FOR SALE - NSW

• Valves. Four boxes of new and use valves for sale. Includes 807, 5R4GY, 12AX7, 6AU7, 6J7G, 6V6G, etc. Any offers considered. Ring for full list. John, VK2WW, Phone 02 9546 1927

• Yaesu FT-101E $280. Yaesu FT-920 $1900. Alinco DR-135, 2 metre, $580. Jaytech power supply $300. GAP Challenger aerial still in box, $550. All in excellent condition. I will consider all reasonable offers as I must sell. Glenn, Phone 02 4965 7727

• Kenwood TS50 mint condition $1000. Peter VK2BZA, Phone 02 6585 5349

• Yaesu FT-890 HF transceiver all HF bands and all modes, last of Yaesu's best, used for receive only VGC $900. Icom IC-T8A tri-band hand held transceiver 6m-2m-70cm softcase spk/mic AA battery back VGC $350. Chris VK2YMW QTHR, Phone 02 9487 2764 AH

• Kenwood TM733A FM dual bander, never used, $650. Call Ted, VK2JAU, Phone 02 4625 4959

• Yaesu FT1000MP $3200 ono. Kenwood TS50 with Kenpro Speech Processor $1200 ono. Kenwood MC60 mike $150. Yaesu SP102 speaker $60 ono. Yaesu FC 102 Tuner $220 ono. Multi Band Vert 10m to 80m $120 ono., Cushcraft R7000 Vert 10m to 40m top cond $420 ono. Philip Reedman VK2QG Phone (H) 02 9626 3537 (M) 0419 297 996

WANTED - NSW

• Require late issue printed copy of American call book. State price including postage. VK2EVK QTHR, Phone 02 4388 3300

• Heathkit TX-1 (Apache), RX1 (Mohawk) and SB-10, also Hallicrafters SX-28 and matching transmitter. Greg VK2GWP Phone 02 4958 1541

FOR SALE - VIC

• HF, VHF and UHF antennas and accessories. Aluminium towers, HD wire, guys, insulators, TX tubes and transistors. Free cat. ATN antennas. Ray, Box 80 (Morrison St.), Birchip, 3483. Phone 03 5492 2224 Fax 03 5492 2666

• Oscilloscope BWD 509B s/n 20650 with handbook and spare 5UP1(F) CRO tube $400 ono. Allen VK3SM, Phone 03 9386 4406

• IC-24AT dual band 2m/70cm hand held, with heavy duty BP84 battery pack and ctcss option fitted. Complete with charger and book. $240.00 ono. 6 metre hand held with 2 channels - Rptr VK3RMS & simplex 53.500MHz. Complete with desk top charger $75.00 IC-T8A tri band hand held, in mint condition in original box $470.00 ono. Ian VK3AYK Phone (M) 0418 309 037

WANTED - VIC

• Circuit diagram or name of Australian agent for Datong electronic morse tutor model D70. John Christian VK3HJC Phone 03 5985 6678

• Yaesu 736R with 50 MHz Jim VK3AEF QTHR Phone 03 5391 3045 Fax 03 53913263

FOR SALE - QLD

• YAESU OVS 1 Digital voice memory unit,fits many Yaesu radios $35 new Ray VK4BLK, Phone 07 4939 2284

• Antenna: Spider multiband (USA) for mobile, maritime, residential with space restrictions. Vertical, four resonators (10 15 20 40) with patented tuning sleeves. about.2 lbs, height 6ft, anodized aluminium. Outstanding performance (balcony use 100W 177ctrs) request brochure! Rated 200W PEP with bracket, ball mount. 100ft 213U/50ohm coax. $300 ono. Hans L40370 (ex-HS1ALK) Phone 07 5479 4561.

• Deceased Estate. Yaesu FT707 $400 Yaesu FP707 P/S $200. Yaesu FC707 Tuner. $150. All good condx with manuals. Also 2 metre Yaesu FT230 with ext L/S for car. As new. $200. Ring 07 5578 2293 or email smokey2@fan.net.au. VK4KD QTHR

WANTED - QLD

• HF transceiver. Prefer Yaesu FT1012D, FT902DM or similar. Kenwood TS530S or TS830S working or not. Yaesu FT 757Gxll or FT890, FT900 considered as well. Sell me your old or second rig, help me get back on air. John VK4SKY. QTHR, PO Box 1166 Coolongatta QLD 4225. Phone (M) 0417 410 503 or email: benoel@fan.net.au

• Commodore 64 programs SSTV and other late modes with written instructions. VK4AXM, Phone 07 3287 5655

FOR SALE - SA

• Heathkit Collectors. Anyone interested in a Model FM-4V broadcast FM tuner of the early 60s vintage. Valve operated, no audio amp or speaker. In good condition and working. Best offer to take it off my hands. Keith VK5OQ QTHR, Phone 08 8280 7430

• 8el log periodic 10-30 MHz, 2m J Pole. Diamond SX-200 SWR power meter, 2 X CRO (oscilloscope) probes. VK5MAP Paul Phone 08 8651 2398

WANTED - SA

• Manual for Tetronix spectrum analyzer IL20. VK5ZST, Box 26, Two Wells, S.A. 5501. Phone 08 8520 2988

WANTED - WA

• Variable air capacitors for home brew projects. Ring Mon-Fri after 10.00 UTC, Phone 08 9771 1664.

WANTED - OFFSHORE

• VK9CC Andy needs HF transceiver for Cocos Island operation. Sell me your broken or cheap radio, anything considered. Prefer WARC band models - but I'm not that fussy! Only permament operator on Cocos Island now! Andrew VK9CC, c/- PO Box 251, Seven Hills, NSW 1730. email: interfs@netscape.net

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

FOR SALE ELECTRONIC VALVES

If you are looking for valves you can contact, Gamini Liyadipitiya at email: gamini@ee.unsw.edu.au Small negotiated fee — first come first served.

• **AMIDON FERROMAGNETIC CORES:**

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please. 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports. Tower Communications, Perth.

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra

AR Over to You

Morse

I have been amused to read the views for and against the retention of CW as an examination requirement for a HF amateur licence. Amused because it appears from the published letters, which are emotional at times, to be assumed that we, already licensed amateurs, should determine the priorities that prospective amateurs should be examined on before entry into our ranks.

The truth of the matter is that it is the spectrum licensing authorities both local and world wide that set the required standard for gaining an amateur HF licence. The ability to send and receive Morse code manually has been an examination requirement by the ACA for granting a HF amateur licence. This is because the WARC meetings have determined, it would be useful for radio amateurs to have this skill in case they intercept a distress signal, possibly from a ship at sea.

Most modern ships navigate and communicate via satellite now, and don't even carry HF radio anymore even as a back up. I found this out to my surprise when I visited the radio room on a Holland America Line cruise I was on up in Alaska recently. The radio operators said that it was years since they had used CW on board.

The world's coastal radio stations don't monitor the maritime frequencies for CW anymore. So I do predict that the next WARC meeting will delete the requirement for CW to be an examinable subject for HF radio amateurs, because they don't need it anymore!

I say deleted, not banned as spark transmitters were. It will still be a legal mode of transmission and CW will no doubt be used in our ranks while ever we exist as licensed amateurs.

Neville Chivers VK2YO

Reform

I have been a member of the WIA VK5 Division since 1997. I am Membership Secretary for the Division. I am very aware of the decline in WIA membership over this time. I feel the WIA structure requires reform from top to bottom.

There are a number of areas, which could be improved to lift the image of the WIA. I have been critical of the structure of Divisional Broadcasts. I consider the VK7 to be the best currently available. My efforts to change the VK5 Broadcast format fell on deaf ears.

I also feel there are a number of "Old Boy Clubs" in the WIA, whose members have grown old in the WIA and do not want to change or let new blood in. I have personal experience of trying to effect change and being rebuffed.

I felt the article by John Bennett VK3ZA/VK2SIG in April 1999 AR on the WIA fading away was close to the mark. We need to get in contact with more young people so there is some one to hand Amateur radio on to.

I am very keen to see Amateur radio progress into the 21st Century; it is a magnificent hobby. I deplore the apparent lack of promotion of the hobby to the general community. I wonder if the 2001 group of Federal and Divisional Presidents will be able to do something about this.

I feel to revitalise the WIA the State Divisions have to go. I think their sometime very parochial views do us more harm than good.

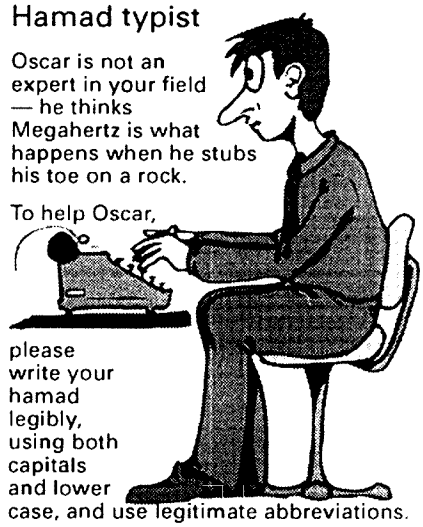
Yours

Michael Gell VK5ZLC.

more Over To You letters on page 56

PLEASE BE KIND TO OSCAR

Meet Mr Oscar Goldenboy, our Hamad typist



Oscar is not an expert in your field — he thinks Megahertz is what happens when he stubs his toe on a rock.

To help Oscar, please write your hamad legibly, using both capitals and lower case, and use legitimate abbreviations.

This will reduce the chance of errors being published, which incoveniences everyone.

ADVERTISERS INDEX

Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

National QSL and WIA

Hello All,

My purpose of this correspondence is to offer a few comments and observations on recent changes to the Outward QSL service being provided by the WIAQ, and the indirect side effects that these changes are likely to have on all Divisions of the WIA.

Members of all WIA Divisions will be interested in a debate taking place in VK4 on the provision of the outward QSL service. It is good to see the very thoughtful discussion taking place and the real effort to find a practical solution to issues concerning the WIAQ outward QSL service, and the desire to improve services for members of all WIA Divisions.

A major problem has surfaced in VK4 with the perception of excessive fees being set by VK4 for Outward QSL services. High volume users of the service are able to send their own package of cards to Japan and other destinations for less than five cents per card. The same users are prepared to either hold cards for other destinations or pool with other amateur licensees. It would be of little concern where that pool is formed - be it in VK4, VK2, or any other Division of the WIA. There are no surprises why VK4 members reacted when the WIAQ set a price of ten cents per card - regardless of destination.

The survival of the WIA largely rests on the ability to deliver a range of new and improved services. Any deterioration of an existing service, used by any segment of the membership, will have an adverse impact on all other segments of the membership in all Divisions. Re-phrased in a positive way, an improvement in any service for any membership segment will help retain and grow membership, and in this way benefit all segments of the membership. The immediate objective is to gain a win-win solution for all members.

WIAQ members are conscious of the fact that the WIAQ subsidises the provision of a range of valued services that are used by different segments of the membership. Members who use the Outward QSL service have, for a long time, accepted the concept that the user should pay a 'reasonable' fee to meet the cost of services provided. However, that segment is not prepared to accept reasons why more than full cost recovery is being applied to the QSL service. The higher fees generate further difficult questions about the extent to which some services are cross subsidising other services, and about how cost effectively the WIAQ is now providing an Outward QSL service.

The resolution of the problem rests on two issues: the extent to which any service should be subsidised by membership subscriptions - particularly the QSL service; and how the service can be delivered in a more cost effective manner.

There are no easy answers to the first question. There is a strong case to argue that the QSL service should benefit from some subsidisation - particularly when other services are subsidised to some extent. After all, this should be a major benefit of being a WIA member. There is also a good argument to say that the service should not place a disproportionate drain on membership funds. The WIAQ Divisional council needs to quickly determine a reasonable balance between the two arguments.

The second question is relatively easier to address. The main thrust of a generous offer from VK2 and a proposed motion from VK4 is to provide a more cost-effective method of service delivery.

Effective service delivery is achieved by providing different grades of service for different destinations. For example: High Grade Service for high volume destinations can be provided for delivery within a specified time frame for no more than five cents per card. Medium Grade Service for low volume destinations can be effectively provided by a national WIA pool for delivery within a longer specified time frame at a higher price.

Non WIA members could have access to the medium grade service for a premium price that makes a positive financial contribution to the WIA service provider and at the same time provides are more cost effective method of delivery for all amateur licensees.

The question of effective parcel sizes is best determined by the QSL service provider. The distribution of workload for the high-grade service would be best handled by each Division, and would provide convenient access for Divisional members. Each Division could forward cards for the medium grade service to the national pool. Any delay caused by forwarding and double handling of low volume cards would be relatively small in comparison to the time required to accumulate a viable parcel.

Returning to the subsidisation issue. From a practical implementation perspective, the basic accounting process would be conveniently managed if Divisions take responsibility for the High Grade Service, and the national WIA takes responsibility for subsidising the Medium Grade Service - regardless of where the national pool resides.

With regard to any proposed survey, we already have a clear understanding of a substantial segment of membership dissatisfaction with recent changes to the pricing of the WIAQ outward QSL service. A further membership survey on these issues is likely to generate further heat and less likely to contribute to a win-win outcome. It would be difficult to see why the QSL service should be singled out for a survey on the underlying question of cross subsidisation for any membership service.

As a Director of the Federal WIA, I would be pleased to support a presentation for adoption of the approach outlined in this correspondence at the next federal convention to be held in April this year.

Kind regards, John Loftus, Director WIA

Address Letters to:
The Editor, Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

YAESU'S DONE IT AGAIN

YAESU

FT-817 HF/6m/2m/70cm Transportable

The world's first self-contained complete battery powered multimode transceiver covering all the Amateur bands from 160m to 70cm. Provides up to 5W PEP output, with SSB, CW, FM, and AM modes, plus reception of the 100kHz-56MHz, 76-108MHz (wideband FM only), 108-154MHz, and 420-470MHz ranges. Operates from 8 x "AA" size batteries (not supplied) and Alkaline or NiCad batteries may be used. An external 13.8V DC power source can be easily connected to the transceiver, and a Menu function will allow charging of the optional FNB-72 NiCad pack from the 13.8V DC source. Includes "big rig" features such as IF Shift for reduced adjacent channel interference, IPO to allow by-passing of the RF preamp on HF/6m for improved strong signal performance, an IF Noise Blanker for reduction of impulse noise, and a front-end Attenuator for more pleasant reception of extremely strong signals. Includes 2 antenna sockets - a top panel BNC socket plus a rear panel SO-239 socket and the menu system allows you to define which socket will be used on the HF, 6m, 2m, and 70cm bands. Includes: 200 memory channels with Alpha tagging, VFO and Memory scanning, Dual Watch and Priority Channel operation, as well as Smart Search. CTCSS and DCS encode/decode circuitry is built-in as standard. Supports 1200 and 9600 baud VHF/UHF Packet operation, and the Menu system allows custom setups for RTTY and PSK31 (USB & LSB), as well as two User defined models (eg. for SSTV use). Supplied with the following accessories: MH-31 handheld microphone, FBA-28 internal battery holder, YHA-63 Whip antenna for 6m/2m/70cm operation, E-DC-6 DC cable, and a shoulder strap.

D 3680

$1495

2 year warranty

DICK SMITH ELECTRONICS

That's where you go!

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information. Offers expire 30/6/2001

MORE GREAT GEAR FROM ICOM

IC-T81A

A remarkably compact quad bander.

· VHF/UHF Multiband FM transceiver · 2M, 6M, 70cm, 23cm
· 124 alphanumeric memory channels · Ni-MH battery
· tone squelch, "joy stick" operation

IC-910H NEW!

The new dimension in the VHF/UHF World!

Tri band multimode transceiver • 2M - 100W, 70CM - 75W, (optional 23CM, 10W) • 9600 bps packet operation • Satellite communication • Reverse/normal tracking doppler shift compensation • CIV capability for PC control

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional DSP capabilities, including noise reduction and auto notch function. It's versatile, compact and loaded with features.

IC-756PRO The HF & 6M multimode professional performer.

100 watts of power, newly designed 32 bit floating DSP for noise reduction and auto notch function, and AGC loop operation for wider dynamic range. Plus digital IF filter, built-in RTTY Demodulator/Dual Peak APF, and a whole lot more.

IC-706MKIIG

The amazing evolution of the legendary 706.

Now includes the 70cm - 20W and output power has been increased to 50W on 2m. You get base station performance and features in a mobile rig-sized package.

ICOM
Clearly Ahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

2 YR WARRANTY

July 2001
Volume 69 No 7

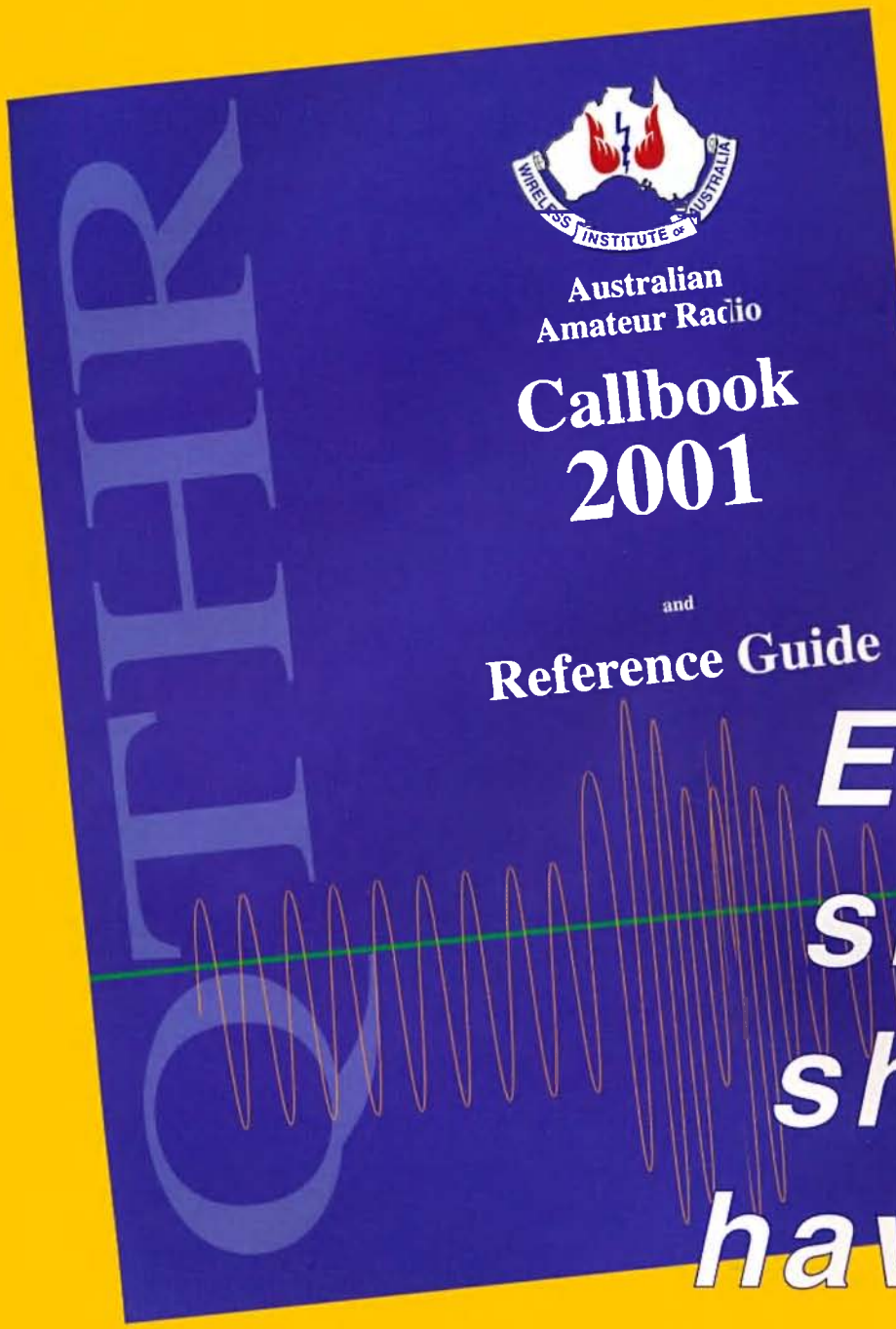
Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

Women: a global presence in Amateur Radio

- An Electronic Keyer Paddle from "Scrap-Box" Parts
- A PSK31 Tuning Aid
- Multi-Octave Bidirectional Wire Antennas
- UA3IAR Switchable Quad for 20 metres

Technical Abstracts: • The Fox Finder • Remote ATU • SWR Bridge Sensor



Every shack should have one

Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies
and more!

The "WIA Call Book 2001" is available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 7
July 2001

General

Technical

Columns

Our cover this month

Brenda Edmonds VK3KT, the first YL to be a Director of WIA. See 'Women: a global presence in Amateur Radio' for her other achievements and those of two other well-known women, Elizabeth VE7YL and Ruth IT9ESZ

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back Issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031
e-mail: *newsletters@ozemail.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191
Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Editorial Comment

Colwyn Low VK5UE

The Great Computer Crash

Well I am in the throws of trying to source all the material I lost when my HDD died before I had it backed up. This was very much a case of "Why did I not do as I say?" Luckily material for this issue had gone to the printers or not yet arrived. Anything I had before 8th June has gone. I will contact you for copies, if there are none in the Publication Committee files, and I do not have hard copy.

I now have a new computer with CD burner and lot more RAM and HDD. It has a 700MHz clock and I'm still surprised how fast it runs. I'm told this lasts about a week, then it seems slow again.

Overseas Material

We have two articles from overseas journal in this issue and Technical Abstracts is sourced from overseas material. Federal Council asked that we publish significant material from these sources and I am now seeing several magazines for the first time but I do not always recognise what is really of general or specific interest to the majority of members. So I need you to let me know when and where you come across an overseas article which might warrant publishing in AR for Australian Amateurs.

Production of AR

Bill Roper VK3BR has volunteered his assistance in the production of AR and has joined the Publications Committee. His experience in the WIA and the production of AR should help us lift the presentation of the magazine.

The publication date has been slowly brought forward. The main thing that makes this possible is having enough articles to be able to plan the current magazine and one or two to follow. Thank you to all those who submitted articles this year. I hope the flow will continue.

Federal WIA Communication

If you have access to QNews and/or listen to Divisional Broadcasts you should have noticed a better flow of information/news from the Federal WIA. This is where Amateur concerns are raised with our Government and the International Coordinators of RF Spectrum use. This interaction is on behalf of all Amateurs and is the reason why the WIA needs to have more of the Australian Amateur population as members. So in your conversations with non-members let them know what your WIA is doing for them. We are all part of the WIA no matter what its structure!

The Editor's Activity

I have not been very active for the last few months but I have obtained an all mode 2m transceiver for my 1296MHz transverter so I should be able to do a few more interesting things with it. I also have decided to get out with WICEN in the Forest Rally in Adelaide on July 7th/8th. Following that I had better get the home station in peak condition for the RD Contest in August. I am always surprise how many leads develop faults on Field Days and Contests, when you know they worked the last time.

ar

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of MAY 2001

L10178 MR R W PUGH
VK1CEE MR J D HENDRICKSON
VK2GKA MR K H AHAMER
VK2ISO MR S VOGELER
VK2KEP MR S MAGRATH
VK3BLG MR G CHENCO
VK3BVP MR S DEERING
VK3CJS MR C SHAW
VK3JOM MR K HARRISON
VK3NYR MR M MAGEE
VK3TYR MR E TREUER
VK3UAA MR N DODGSON
VK3XQ MR R HARRIS
VK3ZQB MR R LEMKE
VK4EJ MR B T MCIVOR
VK8CAW MR K P WARCHOT
ZL1PWD MR P W DENT

WIA Comment

Ernest Hocking VK1LK

It's two months in the position and there has been a lot happening. I continue to hear from amateurs throughout Australia with great ideas on how to improve the way we run the hobby. Please keep the dialogue going. WIA Federal can only know your thoughts and concerns if you tell us, either directly or through the Divisional councillors.

Following the information release on the ACA proposals for the outsourcing of the amateur and marine operator examination services, Brenda Edmonds VK3KT has worked with divisional nominees to develop a first response to the ACA paper. This draft has been circulated to the Divisions; and the first of the Divisional responses are currently filtering through to WIA Federal. Interest in the subject appears to have reached the national press with Mr Glen Mulcaster of the Melbourne Age making contact with the Federal Office to discover what we are doing. I talked to him about the paper and provided some background on amateur activities. The ACA deadline is fast approaching so if anyone has further comment please direct via your Divisional councillor or directly to me for forwarding to Brenda and her team.

Following the invitation by the New Zealand Association of Radio Transmitters (NZART) to its 75th anniversary I flew to Auckland to represent the WIA. This was a very informative trip that I propose to document separately. As part of the celebrations I presented a small plaque to NZART from the WIA acknowledging their 75 years of operation. I am sure we all wish them well in the future and look forward to being able to celebrate their 100th anniversary. The Kiwi hospitality was excellent and it was clear that the amateur spirit is alive and well across the Tasman. I was also pleased to learn that many amateurs follow activities here in Australia with keen interest. Both WIA's AR and QNEWS are read with interest.

During the last month we have also seen further debate on the future of the WIA and of amateur radio with the publication of Martin Luther's latest paper on the subject. I am keen to see this debate continue. Many amateurs have excellent suggestions on how we can improve the nature of the hobby. I ask anyone with ideas to make them known. Neither the Federal councillors nor the Federal executive has a monopoly on ideas. I welcome your thoughts on how we can improve membership.

I have already received some feedback on my response to Martin Luther's paper. Over the next few weeks I will be writing to those who have taken the time and effort to respond. Not everyone agreed with what I had written. One of the observations made was that my response did not set out a strategy for the future of amateur radio. I must admit that I did not see that as the aim of that document. Rather I want to generate some debate on what the future of amateur radio might be. We have only once debated whether we effectively formulate policy and then determine a strategy for implementing it. Everyone has a role to play in this process by means of the Divisional structure. So please, contribute to the debate.

The potential of the Internet

The first issue to address is how to attract new amateurs to the hobby. We should take a fresh look at the way we target potential recruits. For example we currently see the Internet as an impediment, but there are already many ways we can use the Internet to attract new members. Apart from the obvious mechanism of promoting amateur activities I am sure there are ways in which we can provide interesting entry to the hobby. Two examples might be:

- Voice recognition linked to digital signal modes. PCs can today effectively convert text to speech and vice-versa. As yet I have not seen anyone make the next step of converting speech directly to a digital signal mode.
- Internet access to the operation of attended amateur transceivers. We have seen the use of remote control via the Internet to enable students to undertake astronomy. There may be some merit in permitting students and others to access attended amateur equipment via the Internet. While there may be some technical issues to overcome the simplified access might encourage more people to try out and subsequently participate in the hobby.

Recruiting the unencumbered

We must recognise that in today's busy society only those unencumbered by work or family commitments will have the time to participate in the hobby. Yes we have an ageing membership. Perhaps that is the reality of the future. If it is, perhaps we should aim to target our recruitment efforts at that group of society that has the time and resources to allocate to amateur radio. This is what many other leisure hobby groups are doing.

In the last few days I have received a letter from Tony Shaw, the Chairman of the ACA, asking that the WIA be represented in the reconstituted International Radiocommunciations Advisory Committee (IRAC). He recognises the contribution that Amateur Radio has made to the radiocommunications planning arena and has therefore invited me as President of the WIA to attend to represent amateur radio operators. The committee will meet on one or two occasions throughout the year. I have accepted the invitation on behalf of all Australian amateurs and will keep you informed of issues as they occur.

Work on AR continues. Colwyn Low, the Editor will be including some material from overseas magazine if it is applicable to Australian amateurs. If you come across an article in an overseas Amateur Radio Society magazine you think could usefully be published in AR please make a copy and send it to Colwyn or me. Bill Roper VK3BR has volunteered to do some redrafting of diagrams to help authors without drafting programs and has joined the Publications Committee. There are still issues to resolve and we will continue to work towards providing the best value for money we can. So 73 s for now and I look forward to hearing from you.

ar

An Electronic Keyer Paddle from "Scrap-Box" Parts

Drew Diamond, VK3XU,
45 Gatters Rd.,
Wonga Park, 3115.

Of all the Morse sending devices available, be it keyboard, hand/straight key, bug, jigger or electronic, the most popular nowadays is probably some kind of electronic keyer, and increasingly of a type which has "iambic" or "squeeze" capability. An electronic keyer with this feature must use a paddle with two separate contacts, one for dots and the other for dashes. "Iambic" comes from poetry, where the verse has a di-dah-di-dah.... rhythm, which is what we get when the paddles are squeezed together.

It's difficult to determine the exact time at which amateurs were introduced to the technique, although James Garrett's article (Ref. 1), where he described his popular "Accu-Keyer" was notable in promoting the iambic method. In addition to generating dots and dashes in the usual way, the proficient operator has only to squeeze the paddles to get characters such as C, R, K, F, full-stop, message begins, message ends and brackets, which significantly reduces the number of movements required. The skilled user is thus able to cruise along at a comfortable speed for long periods without fatigue- CW becomes even more fun. Please do not believe the myth that an electronic keyer will ruin your 'fist'. Existing hand/straight key and/or bug proficiency will not suffer (by going to electronic) if we always try to reply to other stations with the key type that is appropriate, or as band conditions allow.

There are some fine-looking, and no doubt pleasant to use, keyer paddles available at present. But for the person who likes have a go at making things at minimum cost, it would seem that a device which is essentially just a pair of electrical contacts should be a doddle. There have been details published for numerous devices made from bits and pieces like paper clips, ignition points, computer mouse(s), clothes pegs, mouse traps, rubber bands and nails, hack-saw blades, micro-switches etc. They make interesting novelty items, but generally they do not provide the level of performance required by the more serious operator.

Therefore, the following "scrap-box" model is offered. No finicky springs or pivots or bearings are used. Rather, the moving parts are a pair of ordinary single-sided 1.6 mm epoxy glass-fibre printed circuit board strips, about 10 x 85 mm, which interestingly, has just about the right amount of "springiness" for the job. The copper side of the strips provide the electrical path to the dot and dash contacts.

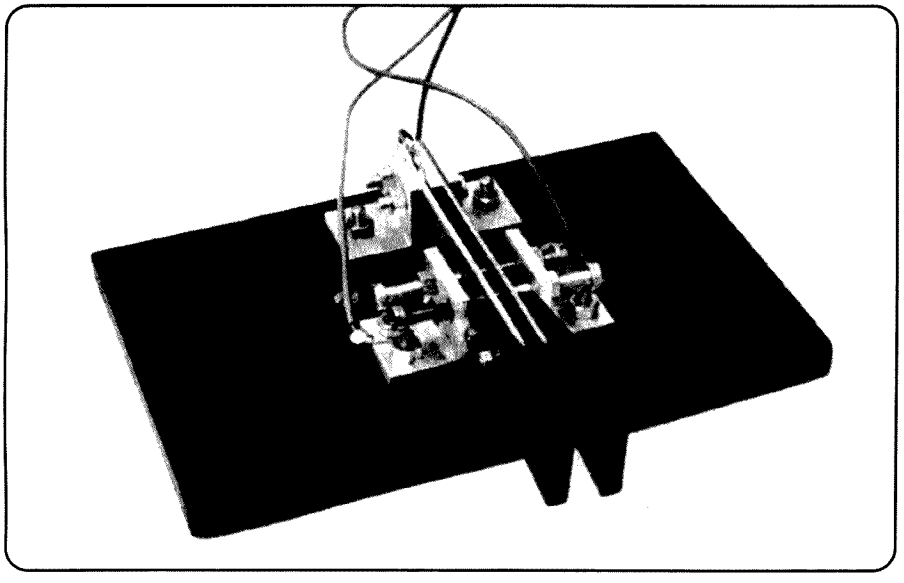


Photo 1

The screw adjustable back-stops have two functions; when finger pressure is released, the fibre side of the strip falls back against the stop which effectively damps vibrations, and, the stop imparts a slight tension, thus permitting a degree of control over the pressure required to close the contacts- more tension- more finger pressure required.

Dot and dash contacts are nickel plated (N.P.) or plain brass screws which pass through clearance holes in the strips. A small pad of shim brass (or similar) is soldered to the copper foil to provide a wear-resistant contact surface at the point of closure on each strip (rather than just the copper foil, which would wear through too soon).

Brackets are made from 20 mm lengths of 20 x 20 x 3 mm (or similar) L-section aluminium extrusion. The exploded drawing shows the components required and some salient dimensions. Exact duplication is not necessary- although the pair of P.C. strips should be similarly sized. Back-stop and contact screws should be positioned side-by-side upon the contact bracket, and spaced about 10 mm apart. If you do not have a tap to suit these, drill a plain hole and fit a lock nut each side. Note that each P.C. strip has an off-set clearance hole for its opposite contact screw. The hole must be just large enough to allow the screw to pass through without interference.

Base plate (not shown in the drawing) may be an 80 x 80 mm square of phenolic, ABS, bakelite or similar material, about 6 mm thick. The screws which hold the brackets must be countersunk- and the corresponding holes in the underside of the base countersunk to sufficient depth so that

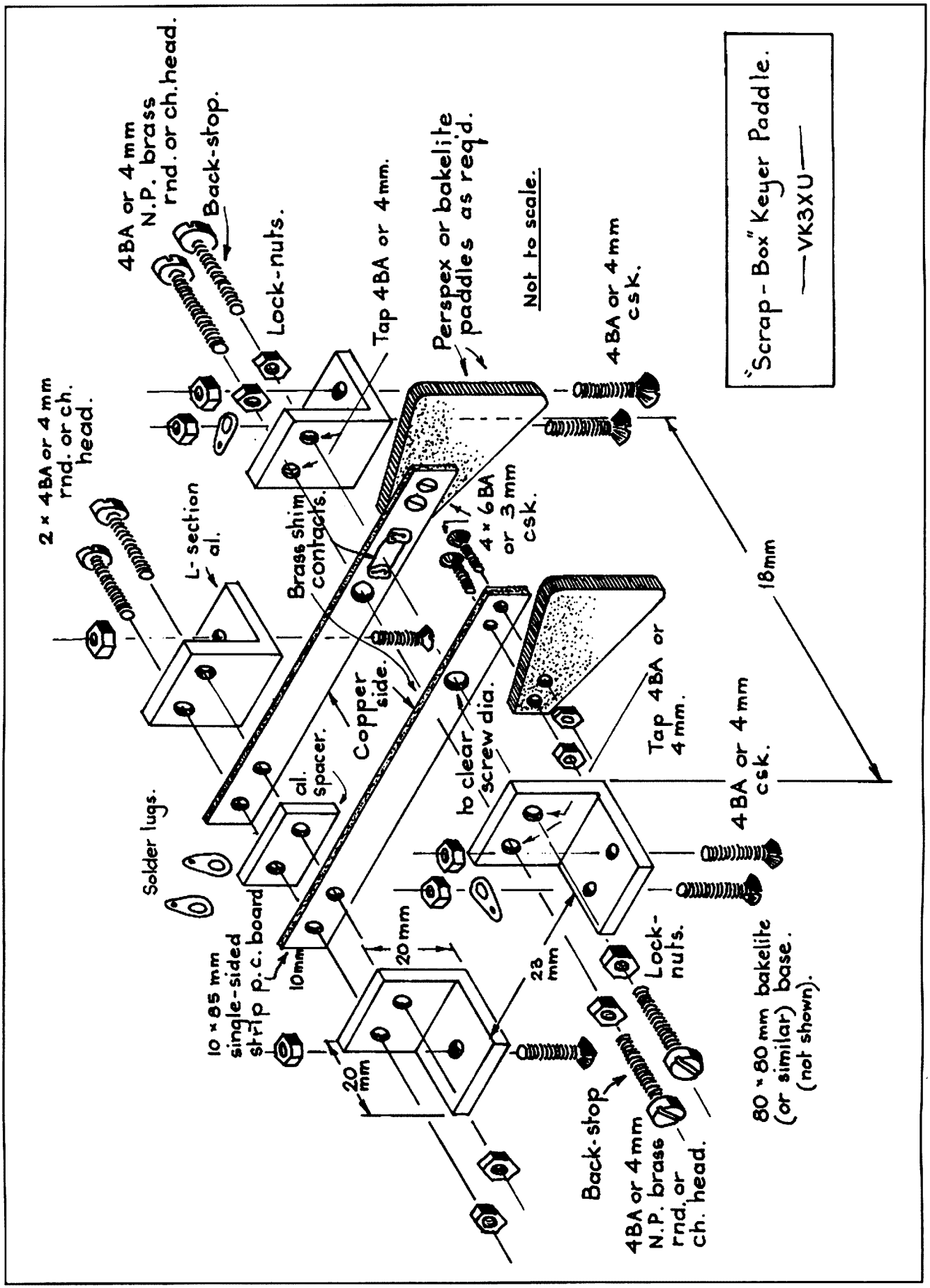

"Scrap-Box" Keyer Paddle.
—VK3XU—
Not to scale.
4BA or 4 mm N.P. brass rnd. or ch. head.
Back-stop.
Lock-nuts.
Tap 4BA or 4mm.
Perspex or bakelite paddles as req'd.
4BA or 4mm csk.
2 × 4BA or 4 mm rnd. or ch. head.
L-section al.
Brass shim contacts.
4 × 6BA or 3mm csk.
18mm
Copper side.
al. spacer.
Solder lugs.
to clear screw dia.
Tap 4BA or 4mm.
4BA or 4mm csk.
10 × 85 mm single-sided strip p.c. board
10mm
20 mm
23 mm
Lock-nuts.
20 mm
Back-stop
4BA or 4mm N.P. brass rnd. or ch. head.
80 × 80 mm bakelite (or similar) base. (not shown).

Figure 1

their heads are recessed. The base may be fixed upon an additional steel plate, or attached to some other object, as desired.

Solder tags under fixing nuts for the contact brackets provide the wire connection points for dot and dash. The convention (for right-hand) is that dots are made with thumb, and dashes with index and second fingers. The P.C. strips are separated with a spacer block made from a scrap of 3 mm al. For the common connection (usually chassis ground), two solder tags (the second to provide even spacing) are sandwiched as shown.

The paddle knobs may be made from perspex, ply-wood, bakelite.... and shaped as desired. Those shown are triangular, although oval or rectangular may be preferred.

When the assembly is complete, back the contact screw(s) well away initially, then bring the backstop(s) up to the fibre side of the strip until it touches, then advance the screw a little further-perhaps half a turn, then nip up the lock nut. Now advance the contact screw to within about 0.3 or 0.5 mm of the shim contact plate, and lock. Test and fine adjust as necessary after connecting the paddle to your electronic keyer.

If you are new to electronic keying, try not to go on-air until a reasonable proficiency has been attained, but practice off-air to get a feel for the technique. Don't worry too much at first about the iambic mode, as you should find that it will come naturally after a period of training. Always remember, the mark of a good Morse operator *is* sending which is not necessarily fast, but is regular, accurately spaced, rhythmic, and has the correct number of dots and dashes for each character. No-one is impressed with a "stick-along-a-picket-fence" clatter which is riddled with errors. Common sending faults are 5 for H, and 6 for B, with extra dots sprinkled about for good measure. Watch out also for G instead of ME (NAG for NAME heard often), N N for C, NST for TEST, and PD for AND.

References and Further Reading

1. "The WB4VVF Accu-Keyer"; James Garret, WB4VVF, QST, Aug. '73.
2. "Electronic Keyer Paddles"; Dr Gary Bold, ZL4AN, NZART Break-In, Aug. '88.
3. "Which Paddle, Which Keyer?"; Gerald Stancey, G3MCK, Morsum Magnificat #58.

ar

Silent Key

Roy Rayner VK2DO

It is with regret that we note that passing of Roy Rayner, VK2DO late of Yass NSW, on November 1st last year, just a month off his 90th birthday. While Roy had remained active on the air on both phone and cw until just a few years ago, his move from the family home to retirement village effectively ended his operation. Roy kept a mental note, in addition to his formal station log of how many qsos he had had. While the number nearly reached 100,000, each person he worked would remember his warm and encouraging on air style that made you look forward to the next contact.

Roy used to say he was born on washing day, characteristic of his humorous approach to life's matters. His introduction to radio seemed to be love at first sight, a travelling road show demonstrating the new medium and entrancing him henceforth. The demonstration didn't work, which probably equipped him for the role Murphy plays in amateur matters. Roy was a naturally adept cw operator and thought nothing of lengthy QSOs at upwards of 30 wpm with close friends such as Peter 2PA and Col 2ASF. Roy was trained on the bug but embraced the earliest electronic keyers, strapping two morse keys back to back with improvised levers, later progressing to an automatic keyboard to maintain his speed.

I first met Roy at the 1973 Easter convention in Canberra. At that time, I was a few months short of getting on air, despite having passed the exam, I was not yet fifteen. Roy undertook to be my first contact on that winter night, a QSL card arriving by post the next day. Eight years ago, I interviewed Roy regarding the highlights of his amateur radio life. The tape formed the content on a Sunday night divisional broadcast and drew the largest callback list for years, each person having found enormous interest in Roy's fascinating and humorous reminiscences, perhaps reflecting an era which many of us miss.

Roy worked in numerous fields including alternative morse codes during WW2 and continued in his working life in the field of communications with the electricity commission. Roy made it his passion to encourage others to join our hobby, motivating young and old hobbyists to persevere through the hoops until they were made welcome into the fold.

His reputation as a skilled pianist and organist found him in high demand for community functions and dances and up until leaving his family home; he maintained his keyboard technique regularly performing in the local region and on many occasions, professionally.

Roy's wife Wardie passed away in 1986. He is survived by two of his three sons, five grandchildren and nine great grandchildren. It was Roy's wish that his callsign be handed on to Christopher, VK1DO for its continued on air use in NSW. Farewell good friend SK

A PSK31 Tuning Aid

Don Urbytes, W8LGV

Do you find it difficult to tune in a PSK31 signal? Here's a helping hand!

When I read Steve (WB8IMY) Ford's PSK31 article in the May issue of QST (ref 1) I was hooked! I could not wait to give PSK31 a try! My initial enthusiasm was dampened a bit, though, when I discovered I had difficulty tuning in the narrow-bandwidth PSK signals. My HF rig is a computer-controlled Kachina transceiver (ref 2) that operates in a Windows-controlled environment. I really enjoy using this rig, but when it came to tuning in a PSK signal, I hit a snag: The Kachina allows opening only one window at a time. Because tuning the Kachina requires displaying its virtual control-panel screen, I'm not able to display and use the PSK software's tuning screen. To overcome this nuisance, I developed the PSK31 Tuning Aid. Although the Tuning Aid is designed primarily for use with the Kachina, it is simple enough to easily be adapted for use with any transceiver.

Circuit Description

Refer to the schematic in Figure 1. Signals and DC power from the Kachina are routed via a cable connected between the transceiver's ACC-1 jack and a DIN jack (J3) on the back panel of the Tuning Aid. If you're using the Tuning Aid with a transceiver other than a Kachina, feed the incoming audio signal into phono jack J1 (mounted next to J3). Power the circuit with a 9 to 12-V DC supply connected to J2; you can use an appropriately sized wall transformer. The 5-V DC supply developed by U1 powers the op amps and tone decoders which draw a total of about 100 mA.

As shown in Figure 1, the incoming signal is fed to U2A, an LM2904 voltage follower, through a low-pass filter consisting of a R3 and C3. The second half of the LM2904 (U2B) provides a gain of 10 and delivers the amplified signal to the inputs of three NE567 tone decoders, U3 through U5, Biasing networks on the noninverting inputs of U2A and U2B (R4/R5 and R7/R8, respectively) allow the signal to swing positively and negatively without becoming distorted.

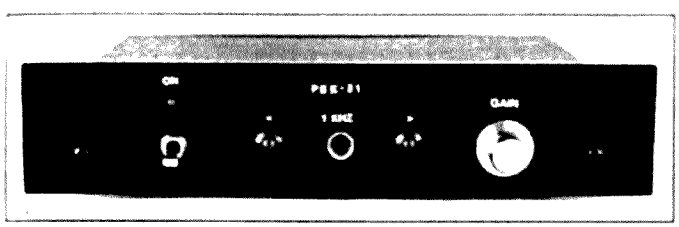
The Tuning Aid uses three fixed decoder frequencies. While tuning, you can determine if the incoming signal is below, above or exactly at 1 kHz. U3 is tuned to approximately 900 Hz and U4 to exactly 1 kHz. U5 responds to an input frequency of approximately 1100 Hz. R13 (at pin 6 of U4) is used for fine-tuning to set the 1-kHz signal response of U4. Whenever the audio-input frequency matches that of one of the decoders' design frequencies, pin 8 of the respective NE567 (U3-U5) goes low, causing the associated LED (DS2, DS3 or DS4) to illuminate. For example, if the LOW LED (DS 2) is illuminated when tuning in a PSK signal, tune your transceiver for a Tuning Aid input-signal frequency increase to light the yellow 1-kHz LED. If the HIGH LED (DS4) is lit, an input-signal frequency decrease is required. R14, a 2.5-kohm potentiometer (FILTER) connected to U4 pins 5 and 6, acts as a bandwidth control that allows changing the capture range of the Tuning Aid.

Assembly and Alignment

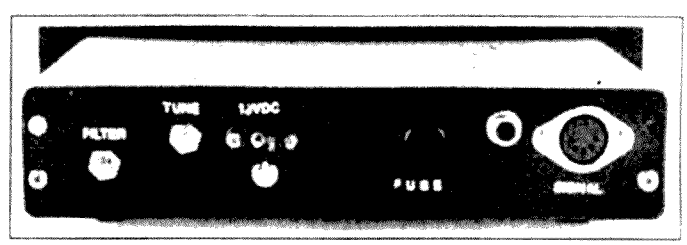
Construction and alignment of the PSK31 Tuning Aid are simple and straight-forward; component layout is not critical. I built my prototype using RadioShack general-purpose ICPC boards, but ready-made PC boards are available from FAR Circuits (ref 3). The enclosure shown in the photographs is one I picked up at a local swap meet; any enclosure large enough to hold the components should do. My enclosure measures 1 5/8 x 7 1/4 x 5 3/8 inches (HWD).

To align the three frequency-decoder sections, use a signal generator and frequency counter to ensure accurate frequency measurement. While aligning my prototype, I fed a 900-Hz signal into U3 and hand-selected the value of R10 to decode that signal. With a value of 12 kohm, I am able to decode a frequency of about 890 Hz. The response frequencies of U3 and U5 do not have to be exact. U5 is tuned similarly to U3, but this time an 1100-Hz signal is used. With a value of 9.1 kohm for R16, U3's decode frequency is about 1110 Hz.

Setting up U4 requires just a little more time. Feed a 1-kHz signal into U4. Keep the bandwidth wide (high



The Tuning Aid's front panel is clean and functional. From left to right are the ON/OFF switch, with DS1 above it, DS2 (LOW), DS3 (1 kHZ), DS4 (HIGH) and the GAIN control, R2.



On the PSK31 Tuning Aid's rear panel are (left to right) the FILTER control (RI4), TUNE pot (RI3), dc input jack J2, fuse holder, and JI and J3 (labeled SIGNAL)

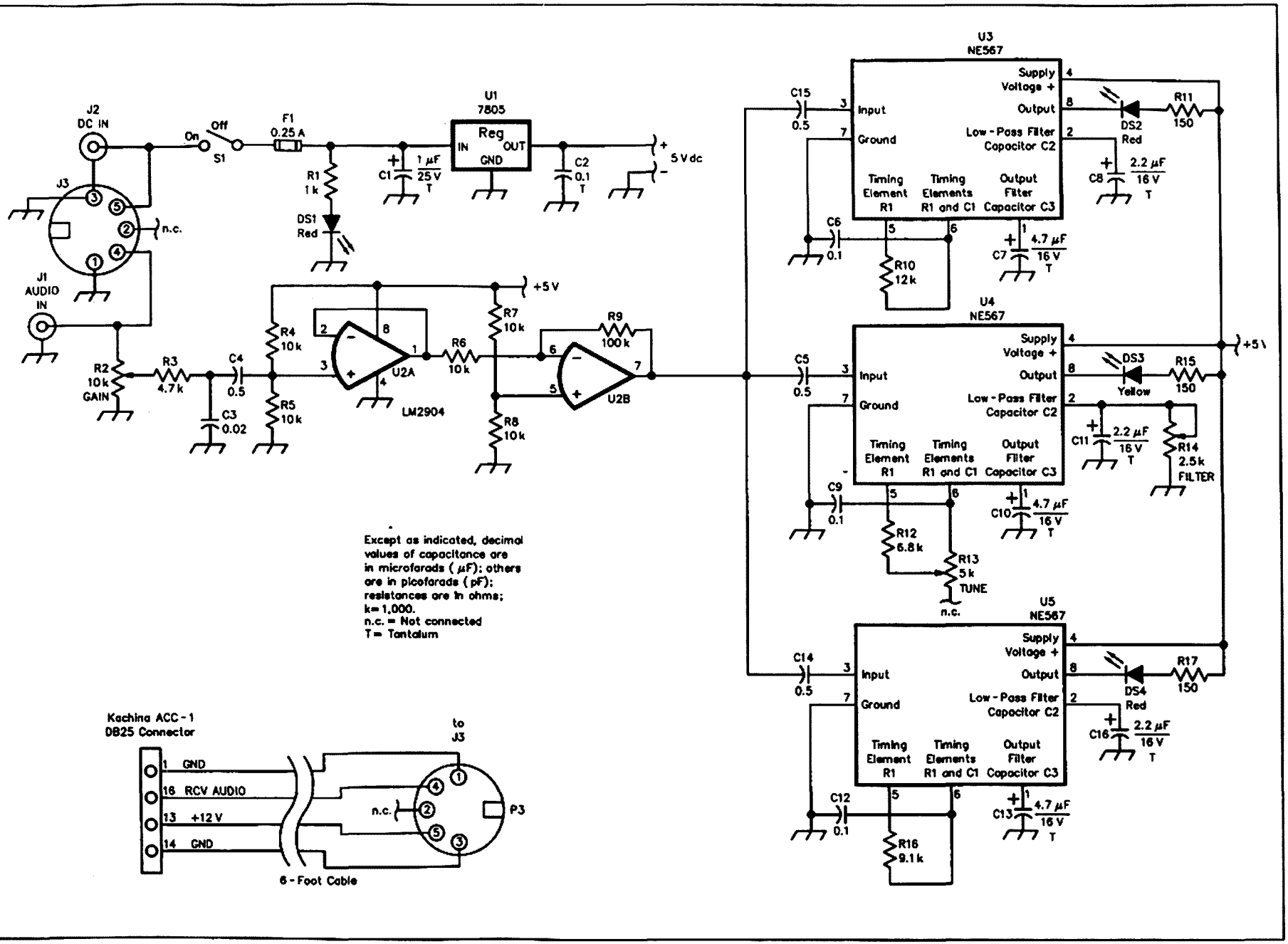


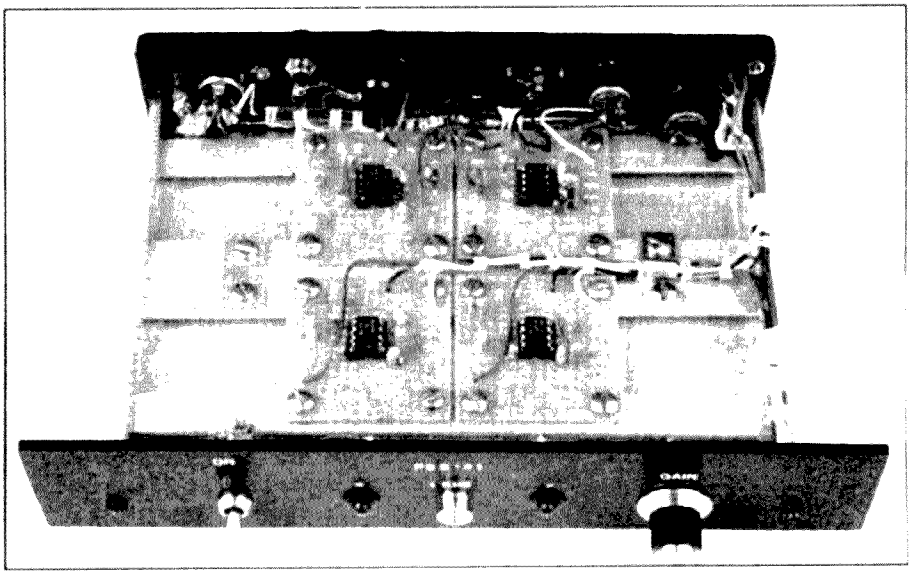
Figure 1—Schematic of the PSK31 Tuning Aid.

Components

Unless otherwise specified, resistors are 1/4 W, 5% tolerance carbon-composition or film units. For part numbers in parentheses, RS=RadioShack; ME=Mouser Electronics, 958 N Main St, Mansfield, TX 76063-4827; tel 800-346-6873, 817-483-4422, fax 817-483-0931; sales@mouser.com; http://WWW.Mouser.com.

Equivalent parts can be substituted; n.c. indicates no connection.

C1—1µF, 25 V tantalum (RS 272-1434)
C2—0.1 µF, 16 V tantalum (RS 1129-5821)
C3—0.02 µF, 16 V (ME 140-PF1H203)
C4, C5, C14, C15-0.5 µF, 16 V (ME 140-PFIH474K)
C6, C9, C12—0.1 µF, 100 V polypropylene (ME 1429-1104)
C7, C10, C13—4.7 µF, 16 V tantalum (ME 581-4.7KI6V)
C8, C11, C16—2.2 µF, 16 V tantalum (ME 581-2.2KI6V)
DS1, DS2, DS4—Red LED (RS 276 018
DS3—Yellow LED (RS 276-011)
F1—0.25-A fuse (RS 270-1002)
J1—Phono jack (ME 161-2052)
J2—DC input jack (RS 274-1565)
J3—5-pin female DIN jack (RS 274005)
J4—DB25 male connector (RS 2761547); mates with the Kachina ACC-1 connector.
P3—5-pin in-line male DIN plug (RS 274-003)
R2—10 kohm pot (ME 31CN401)
R13—5 kohm pot (ME 31CN305)
R 14—2.5 kohm pot (ME 31 CN302)
S1—SPST toggle,(RS 275-624)
U1—7805 positive 5 V, 1 A voltage regulator (RS 276-1770)
U2—LM2904 op amp (ME 513-LM2904N)
U3—NE567 tone decoder (ME 513-NJM567D)
Misc: PC board (see Note 3) or dual general-purpose ICPC boards (RS 276-159), enclosure, fuse holder (RS 270-364), IC sockets, hardware.



An inside view of the author's neatly built prototype using RadioShack general-purpose IC PC boards. (PC boards are available from FAR Circuits, see Note 3). A surplus enclosure (1 5/8 x 7 1/4 x 5 3/8 inches [HWDI) houses everything with room to spare.

resistance at the FILTER control) and adjust R13 for a 1-kHz decode. Once U4 is tuned to 1 kHz, you can adjust the FILTER control to whichever bandwidth you desire. When the FILTER control (bandwidth) is set narrow, you need to be more careful when tuning your transceiver. The Tuning Aid's GAIN control setting is not critical; normally I set it at midposition.

Summary

I have used this Tuning Aid for a few months now and find it quite useful and easy to operate. It works well with software such as PSK for Windows by Peter Martinez, G3PLX, and Logger by Robert C. Furzer, K4CY4. Give the Tuning Aid a try. I'm sure it will add to your PSK-31 operating fun!

Notes

1. Steve Ford, WB8IMY, "PSK31-Has RTTY's Replacement Arrived?", QST, May, 1999, pp 41-44.
2. Larry Wolfgang, WRl B, "Kachina 505DSP HF Transceiver," Product Review, QST, May 1998, pp 63-67.
3. PC boards for this project are available from FAR Circuits, 18N640 Field Ct, Dundee, IL 60118-9269; tel 847-836-9148 (voice and fax). Price: $5.50 each plus $1.50 shipping for up to four boards. Visa and MasterCard accepted with a $3 service charge.
4. You can find both programs on the Internet; try these sites: PSK for Windows http://aintel. bi.ehu.es/psk3l.html; Logger. http://www.chroniclenetworks.com/-dwm/Logger.htm

The Author

Don Urbytes, W8LGV, received his General Class Amateur Radio License in 1951 at the age of 15, and upgraded to Extra Class about 10 years ago. Don literally grew up in the broadcast-engineering field, having started work at the age of 16 and making the transition from radio to TV in the '50s. Don attended electronics school at Fort Monmouth, New Jersey, from which he graduated with honors in electronic countermeasures. Don was in the US Army Security Agency for three years and later worked for seven years in the Process-control field "making silicon." The last 26 years of Don's working career were at the General Motors Corp. Don retired in 1998 as Senior Experimental Engineer in Electronic Instrumentation and Controls. You can contact Don at 2297 W Catalina View Dr, Tucson, AZ 85742-4481; durbytes@email.msn.com.

ar

Reproduced from QST, December 1999, pages 35 — 37

History of Packet Radio Part 2

Packet Radio Information Sources

Steve Blanche VK2KFJ
Email: vk2kfj@qsl.net

This article covers the use of the Internet for finding information and software relating to Packet Radio.

Some people think the Internet as just a pest, which is destroying our hobby of amateur radio, well, I think of the Internet as a tool and I have used it as a tool for over 10 years now, to enhance my hobby. The Internet is just a large worldwide library of information; it is also a medium for transferring information and data from one place to another, across the globe. From the point of view of our hobby amateur radio, we can use the facilities of the Internet, to collect information from other amateurs worldwide or disseminate information to other amateurs, particularly, when dealing with new experimental modes.

Unfortunately, as the Internet is like a large worldwide library, it becomes quite difficult to find exactly what you want, amongst the myriad of Internet web sites across the world. In this article, I will endeavour to present some useful web site URLs (Universal Resource Locators), listed by categories, primarily for the mode of Packet Radio, however I will add some other sites for other digital communications modes, as they often overlap, or have some indirect involvement with the mode. Hopefully, this will help those new to this mode to find the information they need to get into the mode, or further enhance experimentation, for those already using this mode.

Australian Packet Radio/ Digital Communications groups:

http://www.aapra.org.au/ Australian Amateur Packet Radio Association (AAPRA)

http://www.mprg.ampr.org/ Melbourne Packet Radio Group (MPRG)

http://www.powerup.com.au/~qdg/ Queensland Digital Group (QDG)

http://www.sapug.ampr.org/ South Australia Packet Users Group (SAPUG Inc)

http://www.waadca.asn.au/ Western Australia Amateur Digital Communications Assoc. (WAADCA)

http://marconi.mpce.mq.edu.au/ VK2GMU Macquarie University - Packet Radio Project

International Packet Radio/Digital Communications groups:

http://www.tapr.org/tapr/ Tuscon Amateur Packet Radio Group (TAPR) early pioneers of packet radio. Creators of the TAPR TNC (Terminal Node Controller)

http://www.athnet.ampr.org/ ATHNET - Athens TCP/IP network (official site)

http://w4u.eexi.gr/~sv1rd/index.html Athens Packet Radio Internet Working Group (ATHNET)

http://www.prug.or.jp/ Packet Radio User Group (Japan) very TCP/IP oriented

http://wetnet.wa.com/index-ismap.html Washington TCP/IP Users group an experimenters group near Seattle, Washington, USA.

http://www.cam.org/~radio/index.html packet group of Montreal, Canada (catch up on your French)

http://lx0.restena.lu/~rl/m_digital.htm packet group of Luxemborg, very well organised TCP/IP network

Packet Radio software and information sites:

http://www.linux.org.au/LDP/HOWTO/AX25-HOWTO.html#toc25 Setup/Configuration page for packet radio operation under Linux operating system.

http://www.tiac.net/users/henley/eztpage.html EASYTERM for Windows, user software for AEA, HAL & Kantronics TNC's, under MS-Windows.

http://www.peaksys.co.uk/ WINPACK packet radio terminal, from G4IDE, user software for MS-Windows.

http://www.qsl.net/oe8djk/index.html PR4WIN Packet Radio for Windows, user software for MS-Windows, for KISS compatible TNCs.

Packet Radio PC Sound Card software:

http://www.geocities.com/CapeCanaveral/Hangar/1632/flexnet.html ve4klm flexnet page

http://www.muenster.de/~welp/sb.htm Oliver Welp: Amateur Radio Soundblaster Software Collection, using a sound card under Linux, as a modem for amateur packet radio

http://www.csrnet.org/N7MEA/packet.html FlexNet Info site

http://oit.csom.umn.edu/~cmartine/flexnet.htm Charlie KB0RoC's FlexNet site

http://web.infoave.net/~N4WYK/sound.htm APRS with a Sound Card, by KC2RLM

http://www.ife.ee.ethz.ch/~sailer/ham/soundmodem/ Multiplatform Soundcard Packet Radio Modem Driver Software by Thomas Sailer, HB9JNX/AE4WA. This software allows a standard PC soundcard to be used as a packet radio "modem".

http://www.raag.org/sv2agw/ SV2AGW TCP/IP sound card packet engine. TCP/IP software for MS-Windows

http://www.elcom.gr/agwpebbs/ A web based newsreader with discussion about Sound Cards.

http://www.qsl.net/soundpacket/winpack.htm Using WinPack with a sound card and the SV2AGW packet engine.

Packet Radio BBS & Networking software and information sites:

http://www.f6fbb.org/ F6FBB's FBB packet site, a very popular BBS software package

http://www.qsl.net/fpac/ FPAC International home page, a derivative of ROSE networking software

Packet Radio FTP sites:

FTP (File Transfer Protocol) is a protocol for transferring files, associated with TCP/IP, just as HTTP is a protocol for displaying web pages, with FTP you can peruse over directories and list files, then you can either upload files to a site (if permitted) or download files from the FTP site to your own computer. The sites listed here are good sources of software and documentation for packet radio, as well as most other forms of amateur radio related software. Web browsers such as Internet Explorer permit you to access and perform FTP transfers, just by entering the FTP URL below, otherwise there are FTP software you can download, usually for free, for non-commercial, private usage, see the miscellaneous category, for the WS FTP site.

ftp://ftp.ucsd.edu/hamradio/packet/ a US FTP site including plenty of packet radio software.

ftp://ftp.qsl.net/ another US based, amateur only FTP site.

ftp://ftp.tapr.org/ the TAPR FTP site, primarily packet radio.

ftp://pc.usl.edu/pub/ham/jnos J-NOS TCP/IP packet software

ftp://ftp.lantz.com/tnos/ T-NOS TCP/IP packet software

ftp://ftp.prug.or.jp/pub/ PRUG in Japan, a lot of experimental TCP/IP packages, including JNET-PAC

Individual Packet Radio operator's web sites:

http://frshare.static.mel.ihug.com.au/ VK3FRS packet BBS & Gateway home page

http://www.qsl.net/vk2kfj/pacradio.html VK2KFJ packet information and links page

http://www.wagate.com./ N7NEI's packet radio home page

http://www.packetradio.com/index.html K4ABT's Packet Radio information site, lots of good information & links.

http://www.qsl.net/vk3bvp/ VK3BVP's packet radio web page

Packet Radio Utility sites:

http://www.wia.org.au/links/Packet.html the Federal WIA Packet Radio links page, very good starting point.

http://www.ozemail.com.au/~vk2wi/Packet.html WIA NSW Division, packet radio listing

http://hamgate.rpi.net.au/netstat.html Network Status page

http://www.packetradio.com/index.html K4ABT's packet & digital modes site

Some people think the Internet as just a pest, which is destroying our hobby of amateur radio, well, I think of the Internet as a tool...

Packet Radio & Satellites sites:

http://w3eax.umd.edu/spre/spre.html SPRE Satellite-Packet GPS Reporting/Tracking

http://www.amsat.org/ AMSAT international Amateur Satellite group

Miscellaneous sites:

http://www.hamsearch.com ham radio Internet search engine

http://www.hamfind.com another ham radio Internet search engine

http://www.linux.org.au/ LINUX operating system, home page

http://www.tapr.org/tapr/html/pktf.html TAPR Special Interest Group, heavy duty experimentation here. A well stocked directory full of all aspects of packet radio

http://www.ipswitch.com WS FTP download site, FTP software package for MS-Windows 16bit and 32bit versions. Free for personal home use.

http://www.vk2ca.com/ an amateur radio web site, for VK amateur radio operators.

http://www.qsl.net/ a US based amateur radio web site, for amateur radio operators.

http://www.eham.net/ a US based amateur radio web site, for amateur radio operators.

Internet Email mailing lists:

There are discussion groups, which operate over email lists, or otherwise known as mail reflectors, these are available for a multitude of discussion groups, including packet radio, as well as most of forms of amateur radio activity. These mailing lists/mail reflectors work on the principle of people subscribing themselves to the mailing list, then any member of that list posts an email to the mailing list, that a copy of that email is forwarded by the Internet mail list server, to each of the members of that email list. This means people with access to the Internet from all over the world can carry out discussions over a common medium. One such list for amateur packet radio operators in VK is the vk-packet @yahoogroups.com mail list, postings are sent to this address, by subscribers to that list.

To subscribe just send an email to vk-packet-subscribe@yahoogroups.com There is a similar list on the www.qsl.net website for packet radio discussions in USA. There are also other packet radio discussions for individual groups and organisations worldwide, also on the www.yahoogroups.com site. (yahoogroups.com was previously egroups.com and before that, it was onelist.com). There is a mail list for the SV2AGW TCP/IP engine, at SV2AGW @yahoogroups.com

Following articles:

Coming up in progressive articles are:

Insight into packet radio operation on the Linux Operating System.

Overview of other packet radio terminal software packages including:

J-NOS, T-NOS, EASYTERM, WinPak, PR4WIN, SV2AGW & more.

Trademarks:

MS-Windows is a trademark of Microsoft Corporation.

Linux is a trademark of Linus Torvalds.

ar

Multi-Octave Bidirectional Wire Antennas

This simple straight-line antenna works across three harmonically related bands.

By Robert Zavrel Jr, W7SX
8122 Reynard Road
Chapel Hill, NC 27516
e-mail rzavrel@vnet.ibm.com

From QEX July August 1998 pages 50-52

With the sunspot cycle just leaving its theoretical minimum (1998), the low bands are still experiencing unprecedented popularity. For several years, I have been using tree-supported wire antennas on 80, 40 and 20 metres with gratifying results. The total cost of a three-wire antenna farm suspended from high pine trees can he kept under $500 (including tree climber fees!). Yet with no towers, rotors, aluminium tubes, traps, or coax I managed 219 countries confirmed on 40 metres with 800 W and a casual operating style over the past four years. This represents impressive "bang for the buck". Furthermore, I accomplished this from California, where only five DXCC countries lie within 2000 miles!

Since moving to North Carolina, I've wanted to explore improving the multiband performance of a center-fed wire antenna. In particular, I've wanted to achieve a bidirectional pattern on multiple bands, developing as much gain as possible by using the greatest possible wire length on each band. It is very convenient to know that a given antenna's performance will be optimum for Europe/ZL or South America/JA on several bands.

Dipoles using traps can provide multiband bidirectional operation with the added advantage of normalized fed-point impedances on multiple bands. However, trap dipoles are more expensive, heavier and provide no more gain than a dipole on any band of operation. Traps are associated with losses and can have problems dealing with high-power operation. Furthermore, coax-fed trap dipoles typically have narrow low-SWR bandwidths.

Although the feed-point impedance varies widely, a simple center-fed wire antenna exhibits a bidirectional pattern over 1.25 octave, if the wire is cut as a half-wave dipole on the lowest operating frequency. For example, an 80 metre dipole will function as a two-element collinear on 40 metres and an extended double Zepp on 34 metres, which is just a bit too low for the 30 metre band. So, you get only two bands from this antenna. The use of open- wire feeders and an antenna tuner [1] solves the matching problem and leaves the entire antenna length active on all bands, with associated gain increases. However, I wanted to operate over two octaves (80, 40, 30 and 20 m) and achieve some gain over a dipole on the three higher bands. I also wanted to keep the design simple, lightweight, inexpensive and QRO friendly. (As an aside, it is often desirable to shorten the length of the wire on the lowest operating frequency with little or no sacrifice in performance.)

As the length of a center-fed, half wave dipole increases, the broadside gain also increases. A one wavelength centre-fed dipole is also referred to as a 'two element collinear' or 'two half-waves in

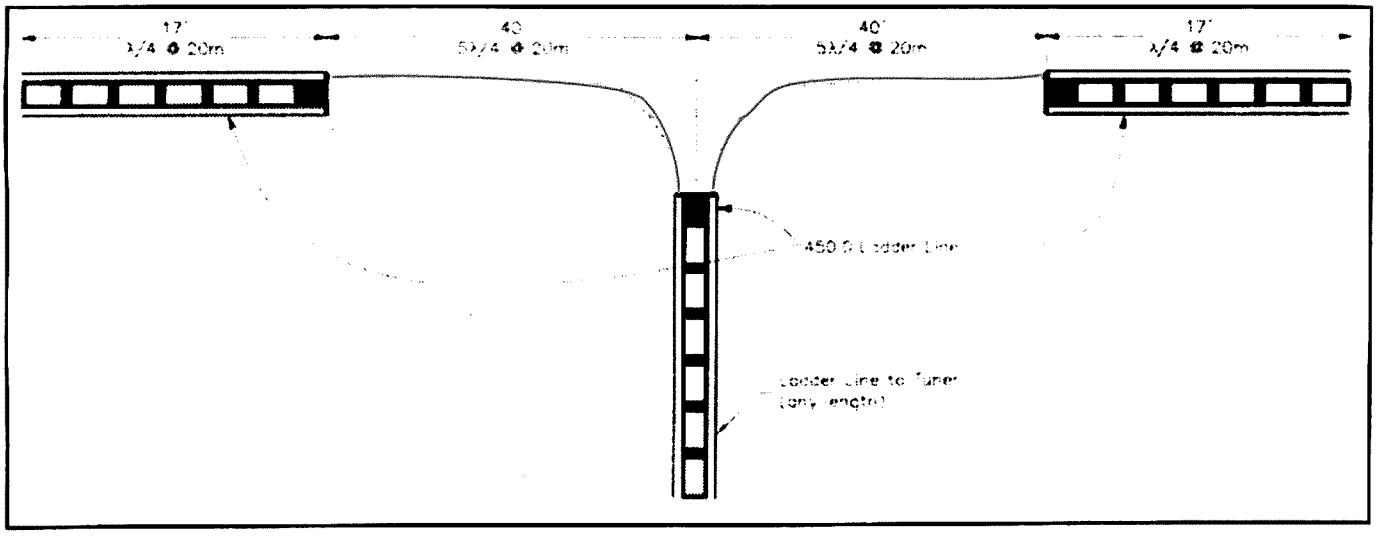


Fig 1 An illustration of W7SX's end - linear loaded dipole for 80, 40 and 20 metres.

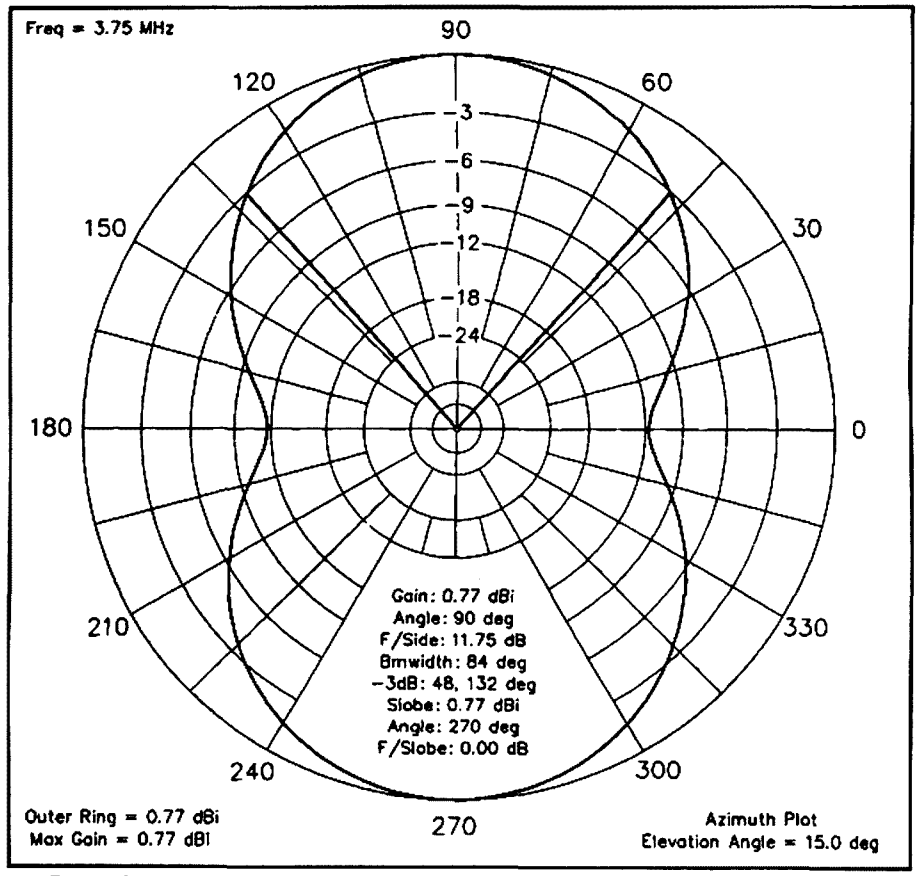
phase.' The two-element collinear has a free-space gain of about 2 dBd. Maximum broadside gain from simple centerfed wire occurs when the total length of the wire is 1.25 wavelength. This is the "extended double Zepp" with a free space gain a little over 3 dBd. By way of comparison, a two-element Yagi has a free- space gain of about 5 dBd. Making the wire longer still, the broadside gain begins to decrease and the pattern gradually splits into four major lobes, off the broadside axis instead of the two-lobe-on-axis pattern of the shorter antennas.

A Solution: End-Shorted Stubs

Start with a 20 metre extended double Zepp (an 80 foot center-fed wire) for maximum broadside gain from a single wire. Add 1/4 wavelength stubs for 20 metres (=17 feet long) to the ends and short the stub's outer ends as shown in Fig 1. The stub can be constructed from nearly any open-wire line, but keep the high voltages associated with QRO operation in mind. I have had no problem using 450 ohm ladder line while running up to 1.5 kW on all bands.

The stubs at the ends of this antenna perform two functions: First they are 20 metre traps that can handle high power, have very low losses, are lightweight and inexpensive. Second, they provide linear end loading on 80, 40 and 30 metres. The antenna gain ranges from 0 dBd on 80 metre to 3.1 dBd on 20 metres.

Figs 2, 3 and 4 show the radiation patterns for a 114 foot version of the antenna at a height of 80 feet, over average ground. [2] On 30 metres the pattern has several major lobes, resembling a clover leaf. If 114 feet is too long, the antenna can be shortened to about 100 feet (keep the stubs at 17 feet) with a loss of about 1 dBd on 20 metres, but little effect on 40 and 80 metres. A 40 through 10 metre version is also in use, with 8.5 foot stubs, and a total length of 57 feet. I use two 114 foot antennas with orientations for Europe/ZL and South America/JA. The 57 foot antenna is broadside to the east and west. This combination of antennas provides full-azimuth coverage on 80 metres, a slight north/south null on 40 metres and several nulls on 20 metres. My primary DX target areas are well covered, however.



Figs 2 Azimuth plot (15° elevation) for the multioctave antenna at 3.75 MHz. (See Note 2 for modelling details).

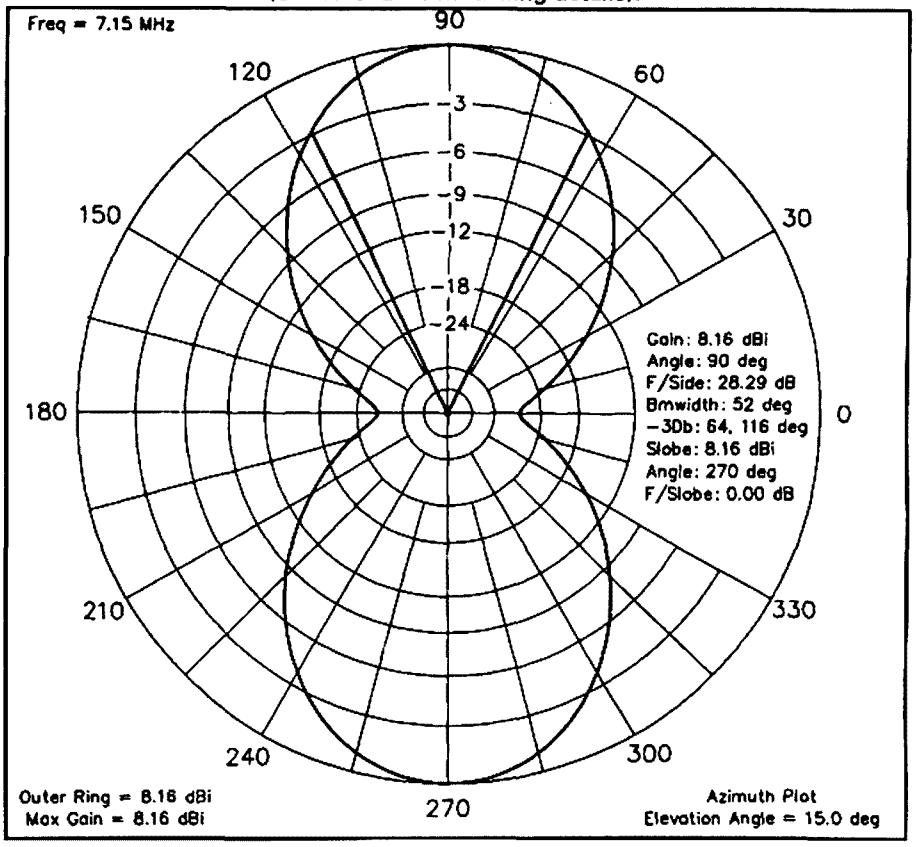


Fig 3 Azimuth plot (15° elevation) for the multioctave antenna at 7.1 5 MHz. (See Note 2 for modelling details).

Construction

There are many possible construction techniques for this antenna. I used 2x3x1/8 inch-thick Plexiglas plates for the five connection points along the antenna. I drilled holes in the plates that are just large enough to pass the antenna and stub wires; this provides some strain relief. The ladder line is fastened to the faces of the Plexiglas plates with 1/4 inch nylon nuts and bolts. Each bolt passes through the center of the ladder line's plastic web insulator and the Plexiglas. The non- conducting nuts and bolts help prevent arcing across the line. I don't climb trees! I prefer to have an eyebolt secured to the tree trunk as high as the climber feels safe. The eyebolt holds a pulley, which holds the rope.

[Editors note: By making the line twice as long-running from ground to the block and back to form a continuous halyard—the upper end of the line can be retrieved from ground level just in case the antenna wire or one of the insulators breaks]

The rope connects to the end of the antenna and 35 pound counterweights [3] keep the 114 foot antenna nearly horizontal.

Conclusion

This very simple, lightweight, inexpensive bidirectional antenna solution, permits operation on 80 through 20 metres or 40 through 10 metres. These antennas have proven themselves well.

References

1. "Up Front in QST," QST, April 1 995, p 11.
2. Figures 2, 3 and 4 were modelled on EZNEC 1.0 for presentation here on the standard ARRL antenna grid. The maximum gains and general shapes conform well to the author's plots, while the nulls are somewhat (about 6 dB, maximum) deeper than on the plots shown here. The models use high accuracy modelling over average (0.005 S/m, eta = 13) ground. You can download the EZNEC description files from the ARRL 'Hiram' BBS (Tele 860-594-0306), or the ARRL Internet ftp site: oak.oakland.edu (in the pub/hamradio/arrl/qex directory). In either case look for the file ZAVREL.ZIP.
3. "Technical Correspondence." QST, March 1992, p 84

ar

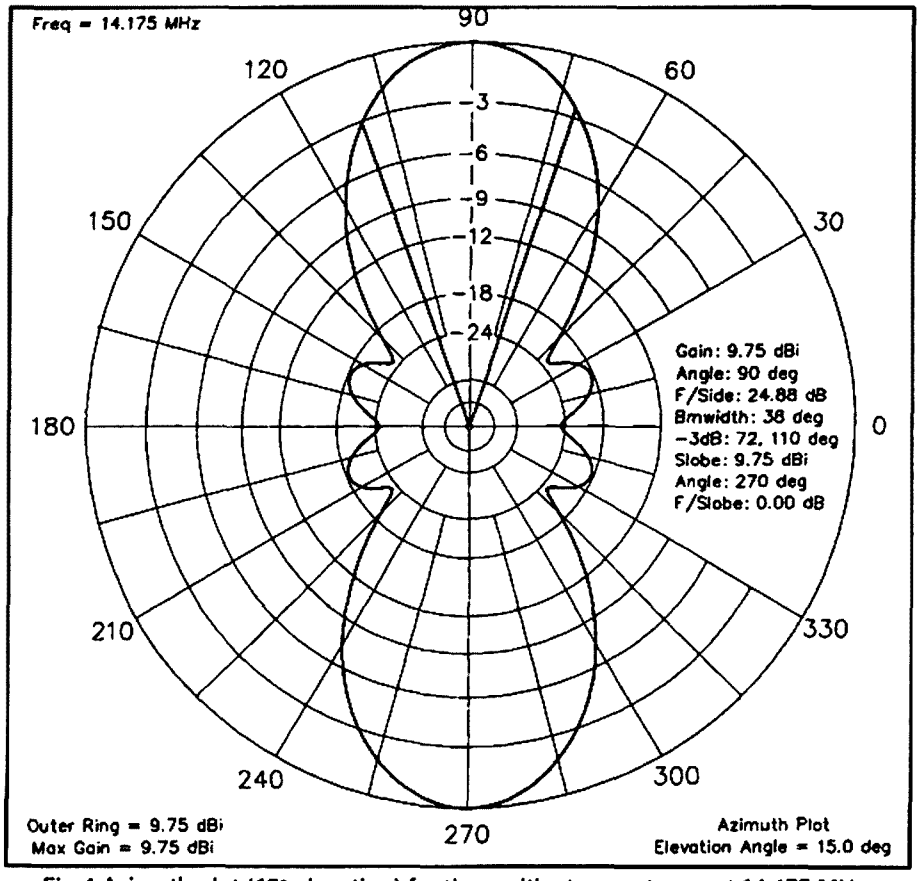


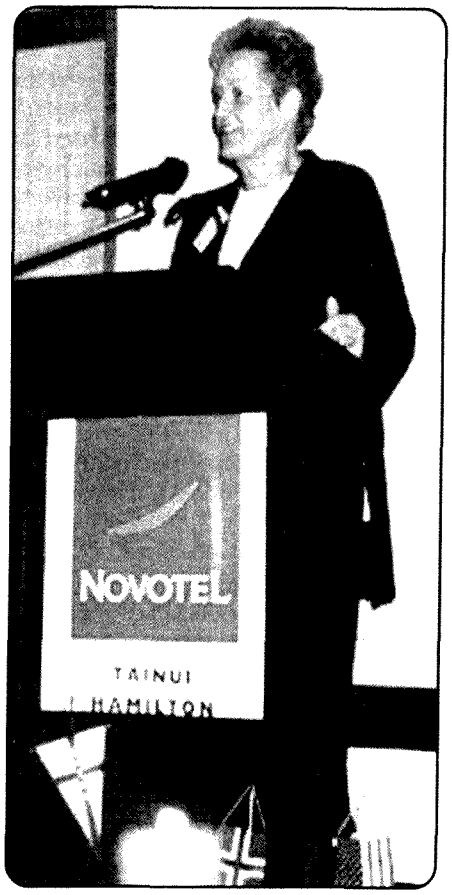
Fig 4 Azimuth plot (15° elevation) for the multioctave antenna at 14.175 MHz. (See Note 2 for modelling details)

See you in Palermo!

at the International YL Meet 2002

From the podium at YL2000 in Hamilton, Ruth IT9ESZ, President of the Italian YL body, Elettra Marconi, invites all YLs to the next International YL Meet in Palermo in June 2002.

For more information see Ruth's biog on page 15.



Women: a global presence in Amateur Radio

This year we have three profiles of women in radio from different parts of the world.

Elizabeth VE7YL

Elizabeth is well known to many amateurs from all round the world. She holds the DXCC with 237 YL countries and 330 on the ARRL listing!!

Her radio experience was on CW until, in Indonesia, where she held the callsign YB0ADT she was introduced to SSB. This, in turn, led to the "Natter Net" as Elizabeth found more and more YLs on the air. However, she still loves operating on CW and used this mode extensively last year on Norfolk Island as part of the AX9YL expedition that followed the YL2000 meet in Hamilton.

Elizabeth's radio experience began shortly after WW2, inspired by the eight or more YL radio operators who served on ships of the Norwegian Merchant Navy during WW2 and the several others taken on in the same capacity after the end of the war.

It is not so surprising that Elizabeth wanted to go to sea. She had passed through the Suez Canal seven times and lived in four countries by the time she graduated from radio school. Her parent's reluctance to see their daughter sail away on an oil tanker during wartime delayed Elizabeth's maritime adventures but eventually her opportunity came in 1947. The intervening years were spent as a coast station operator and the special station of the Canadian National Defence Department so she had lost none of the knowledge or skill she had gained in radio school.

Elizabeth had four years as a maritime operator and enjoyed every minute. The two ships she sailed on were part passenger carriers so she met people who subsequently became her good friends.

In 1951 she married Reg, an engineer with Shell so she continued to travel the world. Twenty years later Elizabeth and Reg were introduced to amateur radio and were hooked! From then on they both had licences in each of the counties in which they lived. It was Elizabeth who was the most active operator but this was only possible because Reg was a whiz at raising aerials in the most unlikely places.

By 1980, when Reg retired, Elizabeth had earned her DXCC YL with a lot of help from the members of the "Natter Net". They were able to meet some of the stations Elizabeth had worked when they visited Australia and New Zealand and attended two SEANet conventions in '78 and '80.

Elizabeth was given the callsign VE7YL which she has held ever since, in 1984. Since 1990 when Reg became an SK Elizabeth has participated in three DXpeditions, including the Norfolk Island one and activated 33 islands around Vancouver and in the Fraser River, thus she has given many other amateurs a chance to add a new "country" to their list.

Elizabeth's answer, when asked what ham radio meant to her was, says it all.

"What can I say about Ham radio you don't already know? It is a wonderful hobby no matter which part of it you pursue. Enjoy it YLs – make yourself heard!"

Brenda VK3KT

Congratulations are in order to Brenda who is now one of the Directors of the WIA. She is the first YL to hold such a position but is well suited to do so. Brenda is well known to readers of AR for which she has been the Education Coordinator for many years. She has probably been involved in almost all the development and changes that have taken place in the curriculum and operation of the examination system for over 20 years. She has held a license since the 1950's and with a husband and four children all holding radio licenses is part of a (world?) record we could all aim to emulate.

Brenda was a school teacher for many years where, as well as a full teaching program, she organised work experience programs and ran radio classes as an elective and established a school radio club.

Brenda has held executive positions in the WIA(Vic) for a number of years and attended the last 3 IARU conferences where she has served on several committees set up to study particular aspects of our hobby.

If she only achieves half of the ideas to advance our hobby that she has shown an interest in, she will help to improve conditions for us all. One high aim is to increase the number of amateurs, which means first increasing public awareness of us and the great range of ways in which we can be amateurs

Women in amateur Radio (cont.)

Ruth IT9ESZ

Ruth has held an amateur licence since the 80's. She is encouraged by her OM Vincent though she has not yet persuaded him to join our ranks.

Since gaining her licence Ruth has participated in several DXpeditions to islands of the Mediterranean and the YLs throughout Italy, including San Marino, Tunisia and a remote island off shore from Tunisia. She was the first YL to operate from the Vatican itself.

When visiting Ruth LA6ZH she operated in tandem with her namesake from Oslo and from Lofoten Island in North Norway, where Ruth and her husband have a holiday place. Then the two Ruths caused a pile up when they operated from Reykjavik in Iceland, one on SSB and the other on CW!

She is President and DX correspondent for the Italian YL body, Elettra Marconi, and is part of the group of YLs who are arranging the next International YL Meet in Palermo in June next year. .

Ruth has attended international YL meets in Stockholm (1991), Osaka (1993), Berlin (1995) as well as Svalbaard (1998) and Hamilton in 2000 so she is well qualified to arrange such a meet as well as being well known to many YLs both on air and in person. I am sure she will be delighted if some VKs include a side visit to Palermo in their overseas itinerary. As more information comes to hand it will appear in the ALARA column.

ar

You, too, can write a story or a column for AR

Do you have a story that would interest your fellow hams? Or a superb photograph? Or has your special interest made you an expert?

Contact Colwyn VK5UE on edarmag@chariot.net.au or submit articles to:
The Editor, Amateur Radio, 34 Hawker Cresent, Elizabeth East SA 5112

Guidelines for submitting contributions to AR

As with all things, there are some technical rules to follow.

Submitting text electronically

- Microsoft Word please, or other well-known word-processing program. No graphics embedded. Alternatively, submit a 'Text Only' file.

Submitting graphics electronically

- Preparing graphics for print is different from preparing them for screen or laser-printed use.
- Please submit all electronic photographs and tinted diagrams as 300 dpi jpegs*. (Screen default resolution is 72 dpi, which is unsuitable for print)
- Submit electronic line drawings as 300 dpi jpegs, but save as bitmap (not grayscale). Keep line width at least 0.5pt in the *published* size. (Otherwise the lines disappear in the printing process)
- Submit graphics separately to the text files.

Submitting hard copy

- Hard copy should be as clear and sharp as possible.
- Whenever possible, photograph subjects on a light background. This especially applies to equipment.

Things that cause reproduction headaches

- Graphics imported from the internet.
- Photographs of groups taken with a flash, so that the foreground is too brilliantly lit while the furthest faces are in darkness.
- *Low resolution* digital photographs
- Flash photographs of people taken against a wall. The cast shadow causes 'big-hair' syndrome!
- *The biggest headache:* scanned photographs from magazines and brochures. This is because they have already been 'screened' for printing, i.e. they are composed of a pattern of dots. When they are screened again during scanning, the result is a 'moire' pattern. This *can* be countered by 'blurring', but the quality is seriously impaired.

If these rules are not followed, you run the risk of having your hard work rejected for publication. If in doubt, send hard copy.

**There is an alternative if this makes a file too big to email: acceptable results have been obtained from 72dpi jpegs if the graphic's dimensions (breadth by depth) are at least three times the intended publication size. But it's risky!*

ar

UA3IAR Switchable Quad for 20 metres

Jim Macklson VK5MB
23 Shillabeer Road
Elizabeth Park SA 5113

The antenna was designed and built originally by UA3IAR in Kalinin, USSR. It was described in the Russian magazine, 'Radio' in June 1978, and also appeared in 'Technical Topics' in the RSGB magazine 'RadComm' in 1978.

Basically the UA3IAR antenna is a two element Quad array supported from a single pole. This is a Quad-type antenna that is fixed, requires no framework of self-supporting elements, and yet can be remotely switched so that the main lobe falls in any one of four quadrants. Since the unidirectional pattern is about 90 degrees wide (between the -3db points) this means that the array provides coverage through 360 degrees with no turning delay.

The array is, in effect, a two element Quad with a fed-reflector. The array is formed from four half-loops, which can be selected so that at any time two half-loops form the radiator and the other two the reflector. Four-position switching provides the four basic configurations for unidirectional beams. In each position, two half-loops form the driven element, while the other two form the driven reflector with its phasing section of transmission line.

Fig 1 shows the antenna for comparison with a conventional two element Quad. The upper vertices of the UA3IAR Quad are joined together, while the lower vertices form feed points. Guy wires pull out the middle portions of the loop. All wires, in fact, are held in place by guying rather than by a framework, and all wires are electrically connected together at the top of the array. The switching technique used by UA3IAR is shown in Fig 2. To form a unidirectional radiation pattern it is necessary to provide a suitable phase difference between the current flowing in the two loops. This phase difference is slightly more than 180 degrees. The exact value of phase shift depends upon the effective spacing between the loops, with an initial phase difference of 180 degrees being obtained by suitable connection to the appropriate windings of the ferrite core transformer T1. Extra phasing elements are connected into the loop forming the reflector elements, with all switching provided by relays RL A and RL B. The switching sequence depends upon the position of the selector switch.

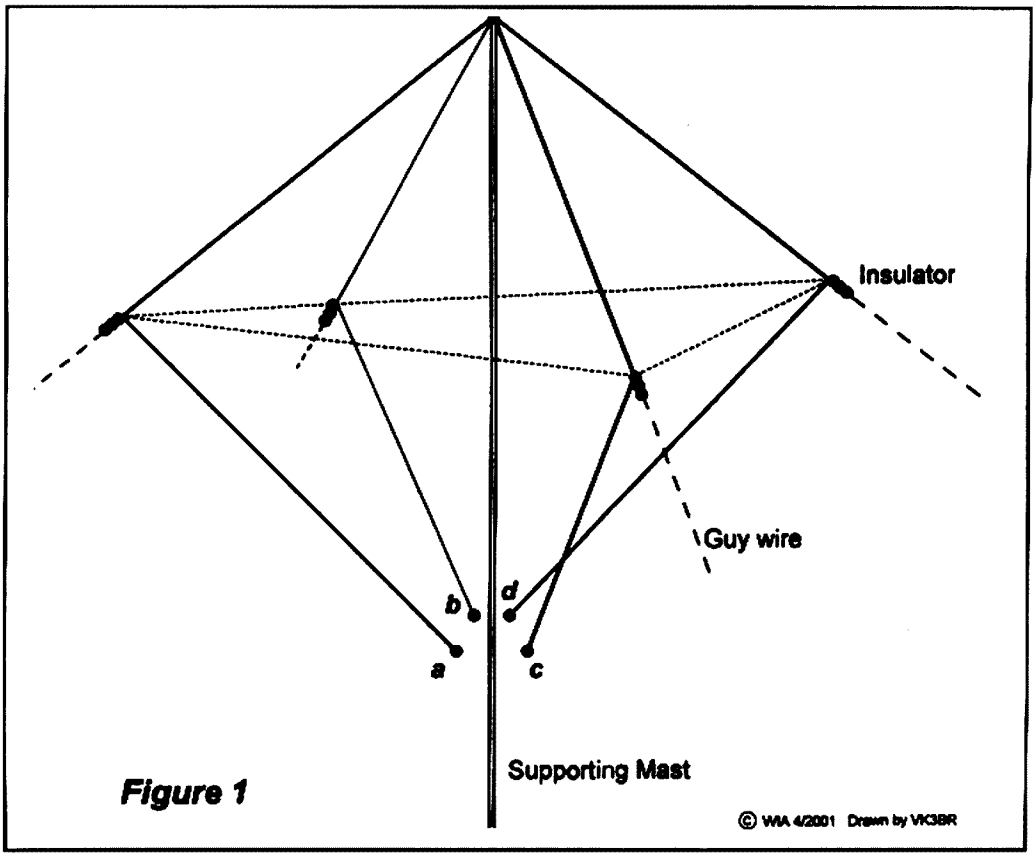


Fig 1 - The UA31AR switchable Quad antenna for 20 metres, which was developed from a conventional Quad. The four half loops a, b, c and d are electrically joined at the top. Pairs of half-loops are used to form the full wave loops which function either as a radiator or, with the additional phasing extensions, as driven reflectors.

As an example, in switch position 1, as drawn, both relays are unenergized and winding L2 of transformer T1 is connected to half-loops ***a*** and ***b*** through the coaxial line phasing elements. In this fashion two complete loops (***ab*** and ***cd***) are formed with ***ab*** acting as a reflector. In this example the beam direction is that indicated by arrow 1. Arrows 2, 3,and 4 correspond to beam directions of the three other switch positions. Four vacuum relays connected in pairs are used by UA31AR.

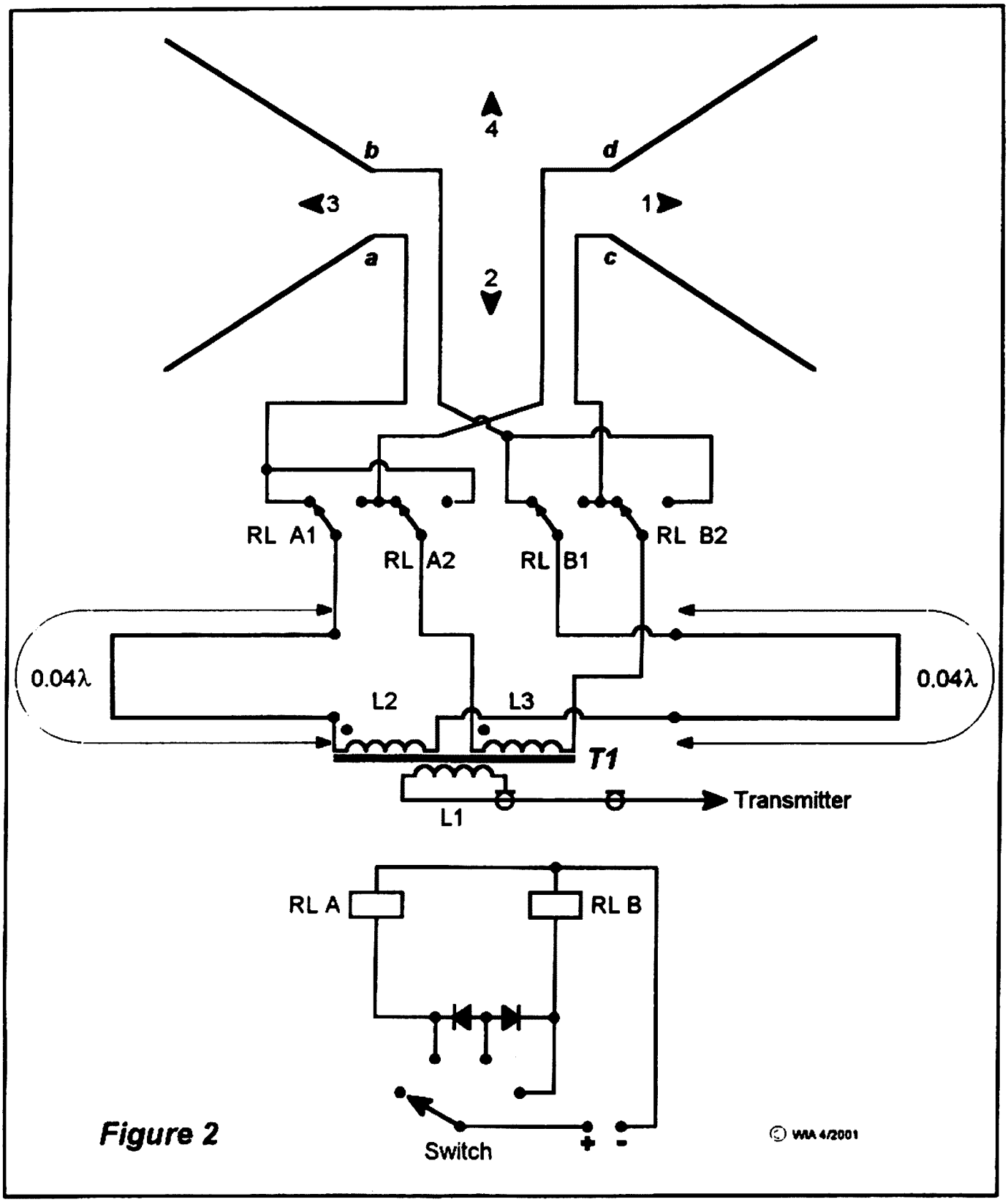


Figure 2

Fig 2 - The control and switching system. The two 0.04 wavelength extensions are used to provide a 0.08 wavelength phasing section to connect the appropriate loop into a reflector. T1 is a large ferrite core. Dots indicate the winding polarity. Wind L1 spaced around the complete core and wind each of L2 and L3 on half the core. In the absence of relay energising voltage the beam is set in direction 1.

Contact rating of the relays is not important as no antenna switching takes place with power applied to the antenna.

Transformer T1 is wound on a large toroid core (Dick Smith Electronics Balun Kit). L1 has 10 turns, L2 and L3 have eight turns each. The antenna is fed with 75 ohm coaxial line. A 30 ft. mast is used.

For 20 metres, the length of each half-loop of wire is 10.95 metres.

The relays RL A and RL B are 24 VDC, used for refrigeration control. Four core telephone cable was used from the antenna switching box to the shack. A small 24 V power supply and the relay control switch are installed in a metal box located in the shack.

I have used this antenna successfully for about 15 years.

ar

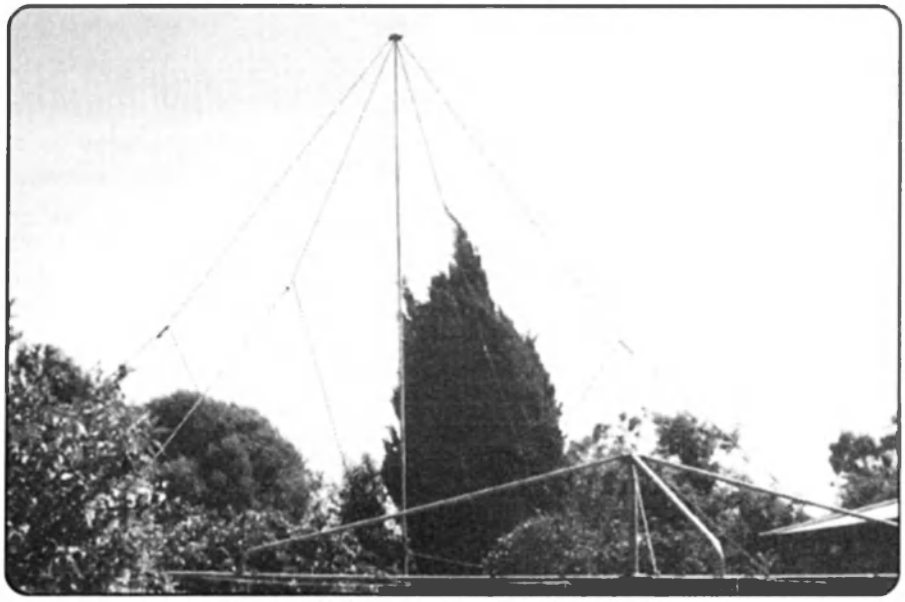
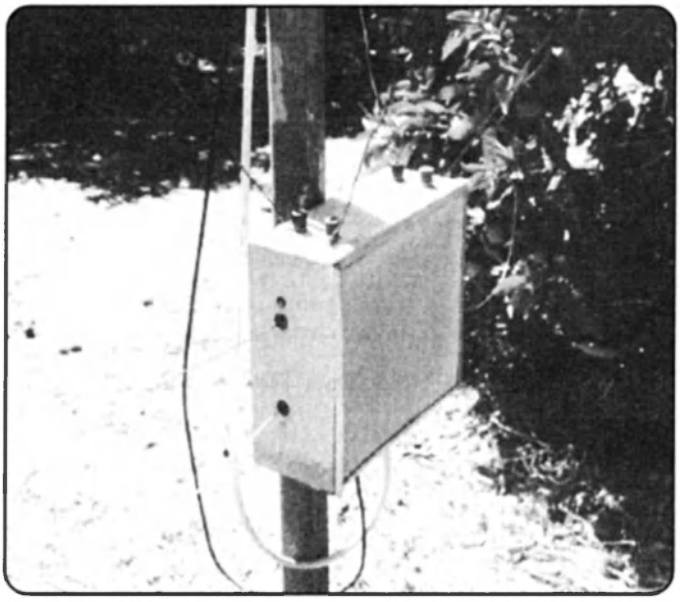
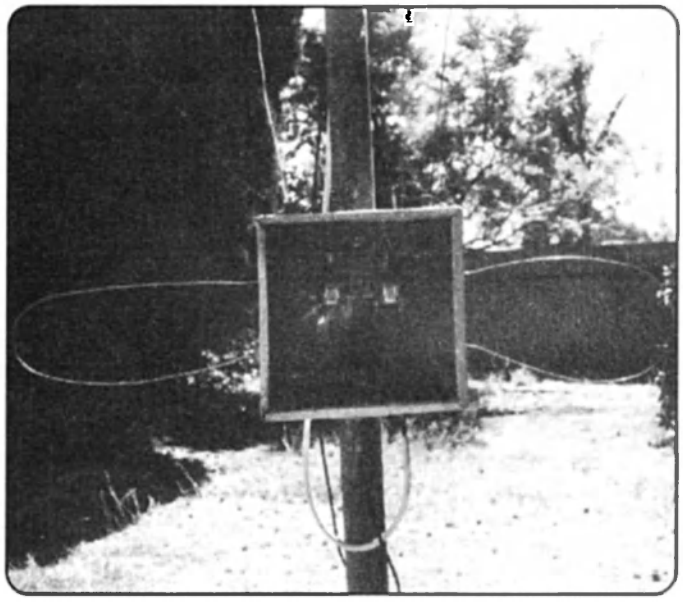


Photo 1: Switchable 20m Quad at VK5MB



UA3IAR Switchable Quad switch box



Switch box and phasing loops

****Memo for August****

Remember the ALARA Contest

The ALARA Contest will be in August instead of in November this year, and run for 30 hours instead of 24

Saturday 25th August (0600 UTC) to 1159 UTC on Sunday 26th August

A very friendly, chatty contest; no one is in a hurry to make as many contacts as possible.

Join in the fun! All YLs and all OMs are welcome

Rules were published on page 38 of the May 2001 *Amateur Radio*.

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

Remember - Contest Next Month

The ALARA Contest will be in August instead of in November this year. It will also run for 30 hours instead of for 24 hours.

It will start on the evening of Saturday 25th August (0600 UTC) when most of the activity will be on 80 metres, and continue through the next day to finish at 1159 UTC on Sunday 26th.

By starting and finishing in the evening we hope there will be more opportunities for everyone to participate. You will be allowed to have repeat contacts on the same band and using the same mode as long as there is at least 1 hour between contacts so there should be many more contacts to be made.

It is a chatty contest; no one is in a hurry to make as many contacts as possible. Please join in. All YLs and all OMs are welcome and we love having Clubs participate. All the rules are on page 38 of the May 2001 "Amateur Radio".

If you would like to add a colourful Award to your "brag board" here is the perfect chance to obtain the 10 YL contacts from at least 5 states. Our Awards Custodian, Jean Shaw, needs some extra work.

If you do participate in the Contest remember to send in your log. Marilyn VK3DMS has taken out a special email address for your logs if you prefer to send them that way. Please use gsyme@hotmail.com for logs or send to Marilyn QTHR the callbook.

Please join in and send in your logs

The 222 Net

The YL 222 DX Net is on air every Monday on 14.222MHz. It is under the very efficient control of June VK4SJ, now, and has seen a number of interesting DX stations recently.

Please call in from 0530 UTC. June will be delighted to hear you and you will be welcomed immediately.

Some of the regular VK callers are Gwen, VK3DYL, Maria VK5BMT, Bev VK6DE, Dot VK2DB and Robyn VK3WX. Overseas stations often include Elizabeth VE7YL, Ruth IT9ESZ, and Ella G0FID. One of the less common stations and countries on recently was Inger OZ7AGR.

With the high sunspot number propagation on our side this is possibly the best time ever to enjoy DX amateur radio. Whether you are a YL or an OM, why not listen in or call in sometime. I am sure you will not be sorry.

Lighthouse Operating

A number of ALARA members have had a great time operating from or to lighthouses all round the world. Dot VK2DB has worked some of the NSW stations in the last couple of years and the most recent devotee is Susan VK7LUV. With her family Susan makes it a picnic or camping opportunity to see some of the more remote places in Tasmania and have a fun time as well. You may have heard her last month or earlier in the year.

There is an award for working these interesting sites, which would be a new addition for you to show visitors to your shack.

Lighthouses are particularly appropriate for radio amateurs as Michael Faraday, one of the founders of electromagnetic theory, held the position of advisor to Trinity House (the controlling body, to this day, of all the lighthouses around the British Isles) for almost 30 years.

Among other thing he was involved in for Trinity House was solving the problem of the condensation that dimmed the light on cold nights. He found that the problem was caused by the large amounts of water produced when whale oil is burned. He designed a chimney that carried away the moisture so that the lanthorn windows remained clear in every weather condition. These chimneys were so successful they were installed in many buildings including Buckingham Palace.

He also identified the cause of the illhealth suffered by the men manning the Smalls lighthouse. The water, collected from the roof, was contaminated by copper compounds produced by the action of sea spray on the copper roofing of the lighthouse. The keepers were warned not to use the water collected from the roof "for culinary purposes".

A few years later, when the first electric lights were tested, Although the light produced was "most beautiful", Faraday vetoed their use because of the noxious fumes from the batteries and because of the need to have battery specialists on site as well as the normal lighthouse keepers.

When electric generators powered by steam were designed by Frederick Holmes, it was a different matter. After Faraday had tested this system and found it to be satisfactory he authorised it to be installed. So in 1858 the first pair of these generators were installed in the South Foreland lighthouse. The expense of electricity, though, caused the experiment to be suspended in 1880. It was not till 1922 that the first modern electric lamp was used in a lighthouse.

(This information was taken from an article in New Scientist of 26 May 2001)

Did You Hear A Familiar Voice?

In May there was a small earthquake in the Bendigo/Castlemaine area. Our Immediate Past President, Judy VK3AGC was shaken by the tremor. Uncertain what it was, Judy rang the local broadcast radio station. The young man she spoke to told her that it had been an earthquake and asked her for her 'on the spot' experiences. As we would all do, Judy told him all about it quite cheerfully, glad to know that she has not imagined it all.

A little later that afternoon Judy had the radio on in the car when she heard her own voice coming out of the speaker. She was so surprised she almost had to stop the car.

Her 'eyewitness interview' had been recorded and was replayed in all the subsequent news reports of the event.

Judy has discovered that she has a lot of friends who listen to the local radio station and who recognised her very well indeed. Did you hear her?

ar

Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

The following are taken from various overseas magazines such as QST, Rad.Com, as well as various Amateur Radio Internet news web sites. News now travels so fast it is hard to keep you up to date.

The Colvin story

The Yasme Foundation is writing a book which includes W6KG and W6QL.

Perhaps members may have stories they can pass on to Jim Cain. The following was on the ARRL News Letter.

A book now in the works will highlight the adventures of the late husband-and-wife DXpedition team of Lloyd and Iris Colvin, W6KG and W6QL.

Author Jim Cain, K1TN, is seeking the assistance of radio amateurs and others around the world to share reminiscences, anecdotes, photos and other relevant information for possible inclusion.

Commissioned by the Yasme Foundation, the soon-to-be-published book will include a history of the Foundation and a biography of the Colvins. Anyone with information to share may contact Jim Cain at yasmebook@mybizz.net.

Iris Colvin died in 1998, and Lloyd Colvin died in 1993. Between the 1960s and the early 1990s, the Colvins took ham radio to some 200 countries—including nearly every member-nation of the United Nations. They racked up more than a million contacts over the years and amassed one of the largest QSL collections in the world—more than a half million cards at last count.

Yasme Foundation President Wayne Mills, N7NG, said the Foundation was extremely pleased to have retained Cain, a former ARRL Headquarters staff member and a ham since 1961, to research and write the Colvins' and the Yasme Foundation's story.

The Yasme Foundation is a not-for-profit corporation organized to conduct scientific and educational projects related to Amateur Radio, including DXing and the introduction and promotion of Amateur Radio in underdeveloped countries. Visit the Yasme site at http://www.yasme.org.

U.S.A. Seeks a 5 Meg band

Meeting May 5 in Dallas, Texas, the ARRL Executive Committee reviewed a preliminary draft Petition for Rule Making seeking a new US ham band in the vicinity of 5 MHz. Experimental operation in that part of the spectrum under a license issued to the ARRL has been going on since 1999.

The Executive Committee agreed that the petition should seek a domestic secondary allocation around 5 MHz for the Amateur Service with a bandwidth of 150 kHz. Executive Committee members will review the completed draft petition before it's filed with the FCC, possibly before the next ARRL Board meeting in July.

Participants in the ARRL WA2XSY experimental operation on 5 MHz have established that an allocation at 5 MHz could improve emergency communication capabilities by filling the gap between 80 and 40 meters. An amateur allocation in the vicinity of 5 MHz long has been an objective of the International Amateur Radio Union.

Winning an allocation at 5 MHz—even on a domestic basis—could take several years. Securing an international allocation will be more difficult and take even longer. Consideration of an allocation at 5 MHz is not on the agenda for WRC-03 nor on the preliminary agenda for WRC-05/06.

Will CW ever die?

The ARRL News Letter referred to the former coast station KPH making a special event and endeavouring to contact the SS "Jeremial O'Brien", KXCH, on 500 kHz. KPH sent a commemorative message and a traffic list. And it's only in the past couple of years that these shore stations have hung up their keys. Now they want to resurrect the station, which goes to show history can relate to just two years ago!

Talking of marine radio. There was an interesting article on the Internet about Sea Captains having problems with GMDSS, which replaced the Radio Officer. Sea Captains are not electronic technicians and whereas everybody knew the ships 4 letter callsign, the ships GMDSS ident call in now 10 characters long. It's worse than trying to remember your credit card number! Safety at sea is just not the same with two human ears monitoring 500 kHz!

Talking CW. The lead feature in the RSGB June Rad. Com. was a talking Morse Code Reader. The PIC based project was developed by Jonathan Gudgeon, G4MDU. A couple of years ago Jonathan described a simple PIC Morse decoder that decoded the characters which were displayed on a two-line LCD module. There are some restrictions with speech and although you could read Morse up to 25 wpm there are a few character problems such as the letter 'E', it seems between 13 and 19 wpm seem to be best.

FMD

No it's not a new form of signal transmission but a tragic disease that has spread throughout much of Europe. Foot and Mouth Disease (FMD) has caused both a social and economic set back that has even reached our own Amateur Radio fraternity. The disease spreads easily among cloven-hoofed animals through air or direct contact with other animals and humans and can be picked up people, vehicles, vermin. etc.. Over two million cows and sheep have been slaughtered in Great Britain alone. The RSGB has cancelled the portable sections of all its contests as well as RDF events, rallies and even maintenance visits to remote repeater, beacon and packet sites. The RSGB is thinking of

changing their Field Day to September in the hope FMD will be clear by then. Although many other European countries are encouraging the same, the IARU Region 1 Field Day in early June seemed to be quite active.

Special Event Stations

Just happened to glance at the 41 Special Event Stations in the June QST. The things people celebrate! Perhaps we should be doing the same instead of complaining that Amateur Radio is declining in Australia. Let's get out there and tell it. Here are a few of the special events you may have found on the air during June.

"Elvis Presley Day
County Dairy Festival
Bread & Honey Festival
"D" Day Commemoration Day
National Trails Day
College World Sports
Kids Day
Cancer Society Day
Trout Rodeo & Free Fishing Day
RC Cola & Moon Pie Festival
Invention of the Wheat Harvester & Thresher

So, what are you celebrating this year?

A sad antenna story

A few years back a fellow amateur friend of mine died when he fell from his tower. We sometimes read of towers toppling over into power lines, but this event was with just a 2 metre ground plane. From the ARRL Newsletter.

A Kentucky Amateur Radio Emergency Service member died May 20 while installing a 2 metre antenna he'd just bought at the Dayton Hamvention. Ronald L. Oller, KG4JVT, of Irvington, died when the ground plane antenna he was installing fell onto the overhead electrical service line to his house. He had been a ham for about eight months.

So please, use caution when installing your antenna.

FINLAND – Towers of Power!

With WRTC-2002 taking place in Finland, during the next six months there will be a lot in the press about this most northerly country.

Located at 62 degrees North, Finland is within the auroral zone at roughly the same latitude as Anchorage, Alaska. Finnish hams seem to believe that by hoisting their antennas higher and adding more elements they can close the "propagation gap" that exists between them and the rest of Europe.

In Finland, rotatable 140-foot towers are fairly common. Many Finnish hams are exposed to state-of-the-art technology in their employment as well—as they work for companies that are frontrunners in high-tech sectors. Nokia currently employs more than 10 percent of the ham population of Finland! But ultimately, the greatest factor that has contributed to the success of Amateur Radio in Finland is the unity of its ham population. While OH DXers and contesters compete head-to-head in many events, the following day they are back around the same table, sharing what they've learned and planning their next .endeavours. (OH1EH ari.korhonen@kolumbus.fi)

WRTC-2002 is under the leadership of Organizing Committee Chairman Jouko Häyrynen, OH1RX. The Contest Club of Finland and the Finnish Amateur Radio League have agreed to jointly host WRTC 2002 from July 9 through July 16, 2002. The on-the-air operating portion of the event will be held in conjunction with the 2002 IARU HF World Championship on July 14 and 15. If you are interested in following this event details can be found at www.wrtc2002.org

Long-range cordless telephone sales

The ARRL has asked the FCC to investigate and "take appropriate action" against several companies it alleges have been marketing so-called "long-range cordless telephones" via the Internet. The ARRL took the action in the wake of an interference complaint and numerous reports from the amateur community about sales of the devices, some operating on amateur VHF and UHF frequencies.

ARRL General Counsel Chris Imlay, W3KD, said the League was seeking the FCC probe because the apparently uncertificated devices operate on amateur bands and are capable of interfering with amateur communication. He also noted that the devices are not likely to meet maximum permissible exposure levels for RF.

"ARRL has not been able to locate any FCC certification for these devices and, based on the advertised frequency bands and ranges, it is believed that none of these devices could be certificated, or legally marketed or sold, under FCC rules," Imlay wrote. The League said some of the companies may be selling similar wireless products that may operate on amateur or restricted bands.

Imlay said the ARRL also is looking into the marketing of products such as 434-MHz video surveillance equipment and other "apparently non-certificated devices" that use amateur frequencies but are being marketed in the U.S. to non-amateurs.

The ARRL was able to obtain one of the long-distance cordless telephones for testing. The device, made in China and bearing no FCC identification number or label, operates near 147 MHz with an output power greater than 3 W. Other such phones are advertised as having ranges of up to 100 km operating at power levels of up to 35 W on VHF and UHF.

ARRL Lab Supervisor Ed Hare, W1RFI, said he's received at least one report of actual harmful interference from a long-range cordless telephone to amateur communication. The amateur reporting it tracked the telephone to the home of a neighbour, who said he'd bought the device on eBay.

Hare said some long-range devices are legally certificated to operate on the 900 MHz or 2450 MHz Part 15 bands. Hare invited reports of unlicensed devices causing actual harmful interference to Amateur Radio operation to rfi@arrl.org.

Has any reader had any experiences here in Australia with similar devices?

No problem with QRM

Source CQ-DL 5/01 (via VK4BDQ)

For over 30 years a competition has taken place in the southern part of Germany called "The Bavarian mountain day " or in German "Bayrischer Bergtag". The competition was created to get more activity and improve the design of portable equipment for higher frequencies. During the recent winter event (February 2001) one contact had been made using a frequency of 75 THz, or a wavelength of 630 nm. Homebrew equipment had been used, built by Hans H. Cuno, DL2CH. The signal was produced by a 5mw laser. Frequency modulation was used to modulate a 60 kHz AM sub carrier. The distance between both stations were 1.2 km and

after initial testing the power of the laser has been reduced to 1mw. However, one hurdle had to be overcome, how to line up the laser towards the RX. A telescopic sight solved the problem. This contact was not a world first, but proved that there is still some room for homebrew equipment in some areas before the appliance industry takes over. If you can read German and you are on the net, have a look at www.hhcuno.de

Your mobile rig, a problem for car manufacturer?

More and more cars, according to European car manufacturers are affected by the additional installation of electronic components and equipment. The German Amateur Radio Club DARC advised its members of possible problems caused by the installation and operation of amateur equipment in modern cars. Some electronic equipment, according to car manufacturers, can start engine immobiliser, and in more severe cases airbags, brake boosters, power steering, electronic gearboxes or motor management can be affected.

For this reason the German law requires a special written permission from the manufacturer, if you want to install additional electronic equipment in your car. This law is applicable for all vehicle registered after the 1/1/96. Without this permit you lose your insurance cover for the vehicle and the permission to drive on public roads.

Are we heading for similar problems? No problems here if you drive a good old Fairlaine, Falcon, HQ or HZ.

The above compiled from a press release from the DARC (via VK4BDQJ

However, OZ1XB points out that automobile magazines are predicting that, within two years, many of the leading car manufacturers are planning to change the electrical system of their vehicles to a new standard of 42-VDC. The battery will be 36-V and they plan to use a DC/DC converter to 42-V. BMW, Ford, Mercedes and Renault say the first 42-V systems are due in 2003. We wonder what the manufacturers of Amateur equipment are considering. 36-V transceivers?

It's only 50 years ago since we changed from 6-V to 12-V. (From RSGB June Radcom).

Passing of the 'BIT' Man

Back in January we lost Bill Orr, W6SAI, the prolific antenna engineer. In February yet another great name passed on. Claude Shannon passed on at the age of 84. He may not be known to all but he was quite an important part of our electronic history Claude was the eccentric mathematician and cryptographer who established the intellectual framework for the packaging and transmission of data. He originated the term 'bit' (binary digit). His classic 1948 paper "The Mathematical Theory of Communications" has become the *Magna Carta* of the communications age, both analogue and digital. At Bell Laboratories in WW II, as a young mathematician versed in Boolean algebra, he helped devise (along with Turing and Nyquist), the first unbreakable on-line speech coding system. Churchill and Roosevelt used it. In the UK the equipment consumed 30kW of power to produce a few milliwatts of audio.

ar

Club News

Moorabbin & District Radio Club

Radio on Rails stations work ZL

Radio on Rails took place in April, albeit with fewer train and tram mobile stations than previous years. However many memorable contacts were had, thanks to good propagation on 10 metres. This enabled stations as far afield as ZL and VK6 to work train mobile stations via the 10m/70cm VK3RHF repeater. Results for this contest are being compiled and will be available shortly.

AGM this month

The Annual General Meeting for the Moorabbin & District Radio Club will be held on Friday July 20, starting at 8:00pm. The venue will be the Combined Clubrooms, Turner Rd, and Highett. Further information appeared in APC magazine, which was sent to members last month. It won't be all business however; our guest speaker will be Tariq Hasnie from WinRadio.

Don't forget the net

With the end of daylight saving, the MDRC's Monday night net now includes 80 metres as well as two metres. Tune to 146.550 MHz from 7:30pm and 3.565 MHz LSB (+/- QRM) after 8:00pm for the 80 metre net. Net control is our station officer Tony VK3CAT.

Membership fees now due

Just a reminder that all membership fees were due on the 30th June, payable on, or as soon as possible, following our AGM this month. Fees this year are $30.00 full, $25.00 concession. MDRC membership is a low-cost way of supporting your fellow amateurs and making the hobby better for all. Further information showing how the MDRC derives its income and spends member funds appeared in pie charts published in April's APC Newsletter.

Should you have joined part way through the year your fees would probably have been pro-rated to June. Should you have any queries in this regard please contact Treasurer, Keith VK3JNB on 9551 7971

Peter Parker VK3YE
Publicity Officer
Moorabbin & District Radio Club
parkerp@alphalink.com.au
(03) 9569 6751

more Club News on page 51

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

The Fox Finder

The fox finder is a 2 metre sniffer which was a club project for the Nashoba Valley Amateur Radio Club in the USA. The design was published in QST April 2001 by Bob Reif W1XP, Ralph Swick KD1SM, and Stan Pozerski KD1LE. The design is fairly simple and uses an audio voltage controlled oscillator to drive the headphones with a tone whose pitch is proportional to signal strength.

The design is shown in Fig 1. The Op Amp U1 provides feedback gain which compensates for non linearity in the detector diodes. The diodes D2 and D3 should be matched at low currents. The matching can be done with a low current source and a digital voltmeter.

Op Amp U2 operates as a switched gain amplifier providing a range of suitable gain. The audio oscillator uses the common 555 chip which acts as a voltage controlled oscillator.

The components are relatively non critical. C1 is a small ceramic or film trimmer. L1 is 6 turns on 3/8 inch diameter spaced over 1 inch. The tap is at 1 turn. The wire size was given as No 20.

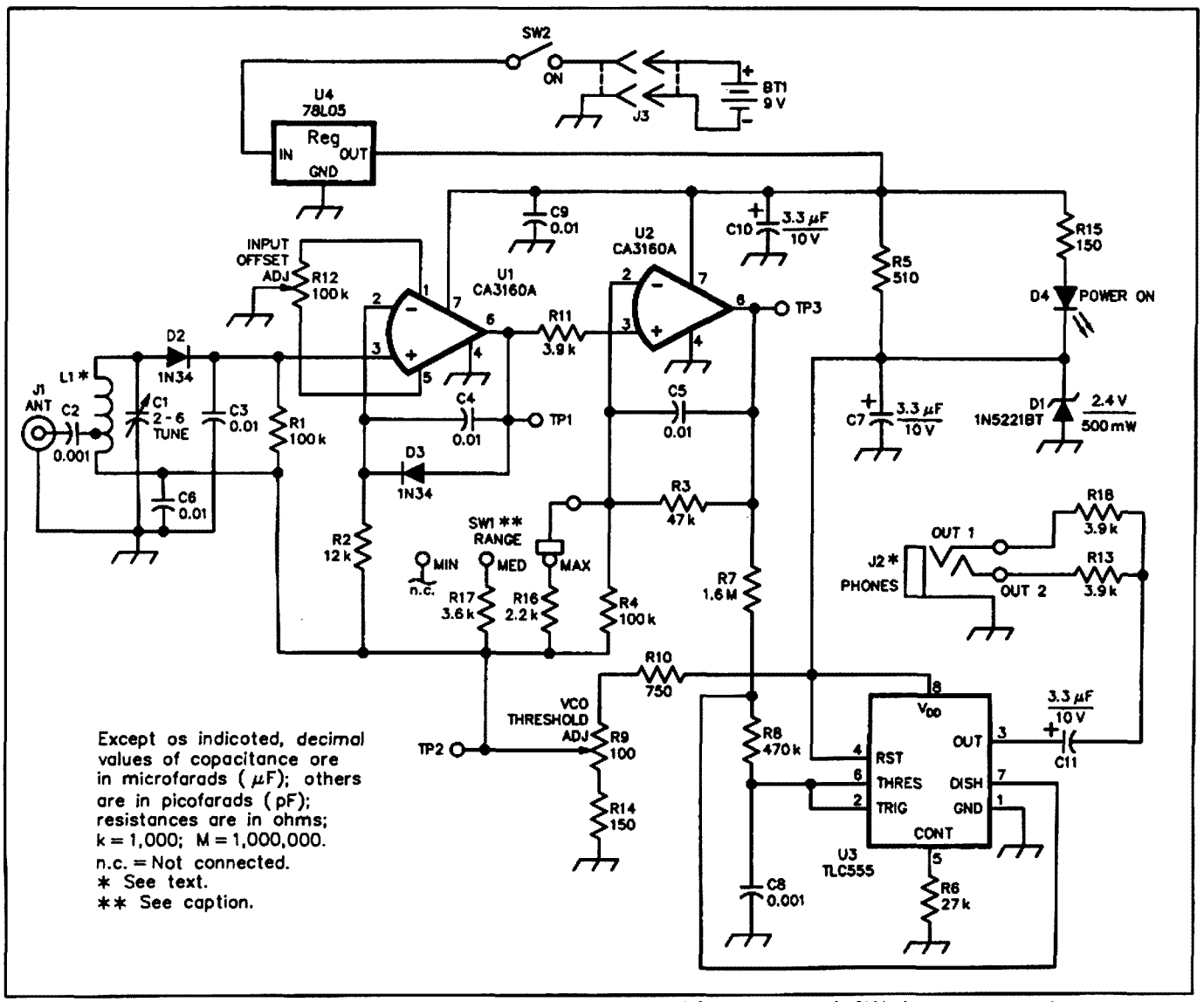


Fig 1. Fox Finder Sniffer Circuit. Note that one lug of the range switch SW1 is not connected.

Setting up the sniffer requires initial adjustment of R9 for 0.5 V at TP2. The range switch should be in the most sensitive position. Adjust R12 for TP1 to be 7 mV positive with respect to TP2.Then adjust R12 for TP3 50 mV positive with respect to TP2. This can be within 5 mV of the target 50 mV. C1 can now be peaked using a local signal and using the audio tone to peak for highest pitch. R9 may require adjustment during this peaking.

The 1N34 diodes can be matched for forward voltage drop using a 1M resistor in series with the diode accross a 9V battery. Use a sensitive high input impedance meter for this matching. Diodes within a few millivolts of each other should be selected. Watch out with the lighting as the light through the glass diode can have an effect.

The whole sniffer with a 9V battery can be housed in a small jiffy box.

Remote ATU

In difficult situations one may be forced to use a random length of wire which will lead to difficulties in achieving a match and in changing bands. A remote ATU is a way of achieving a match with reasonable efficiency. The feed line from the remote ATU can then be coax which can be routed as desired without excessive losses.

In his In Practice column in Rad Com December 2000 Ian White G3SEK presents some suitable ATU solutions for a base fed inverted L antenna which could even be at home in a town house yard. This antenna comes from the Backyard Antennas book of Peter Dodd G3LDO. The antenna is shown in Fig 2. The antenna is a 10m up vertical with a 10m horizontal top loading wire which is supported at the far end by the house. An extensive set of shallowly buried radials are used. The ATU is located at the base of the vertical section in the yard. This removes the need to bring the antenna wire hot with RF into the house.

The ATU used could be one of the automatic units available commercially but a simple remote switched preadjusted ATU would be suitable. One suitable design was presented by G3UCE in Radcom Feb 1989 and this is shown in Fig 3. This ATU is a modified parallel tuned circuit and only requires one relay per band. It may however be tricky to adjust.

Another design using an L network is shown in Fig 4. This design can be configured for a variety of matching requirements. A computer program is available to calculate the typical end feed impedance for a vertical or inverted L. The program ENDFEED.EXE is the work of G4FGQ and is available from the In Practice website. The In Practice website of G3SEK is at http://www.ifwtech.com/g3sek . Also available is the program SOLENOID EXE of G4FGQ which helps design the inductors.

Typical L network values are given in Table 1. These have been generated by the program of G4FGQ.

To comply with the new EMR rules you would need to restrict access to the

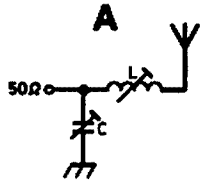
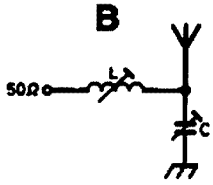
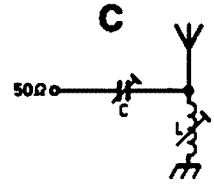
L-networks:	A 	B 	C 
Band, MHz	**Network Options**	**C,pF**	**L,µH**
3.5	A	700	1.1
7	B C	65 61	8.3 9.2
10	B C	73 120	2.1 1.8
14	B C	50 50	2.5 2.8
18	B C	60 90	0.9 1.0
21	B C	40 40	1.5 1.8
24	B C	35 55	0.8 0.7
28	B C	30 30	1.1 1.3

Table 1. Typical L Network Values. These are suitable values for starting setting up

Band metres	160	80	40	30-10
SSB with Compression	700mm	1m	1.3m	1.5m
CW	600mm	890mm	1.1m	1.3m
SSB without compression	430mm	630mm	800mm	920mm

Table 2. EMR Distances for Inverted L with Remote ATU.

vicinity of the ATU and base of the vertical section. The end attached to the top of the house would be less of a problem but you would need to check clearances to people in the house and on any balcony.

The distances for a standard 100 W transceiver are shown in Table 2. These are for a standard 100 watt transceiver and 20 metres of RG58 coaxial cable feedline. For SSB with a 400 watt linear the SSB distances are doubled. The distances have been calculated from the ACA information with an allowance for the feed line.

Even in the confines of a small yard a fenced area around the bottom of the vertical and the ATU would not be too hard to provide. A garden bed with some shrubs would restrict access and would not look out of place. Similarly the distance to people in the house or on a balcony would not be hard to achieve.

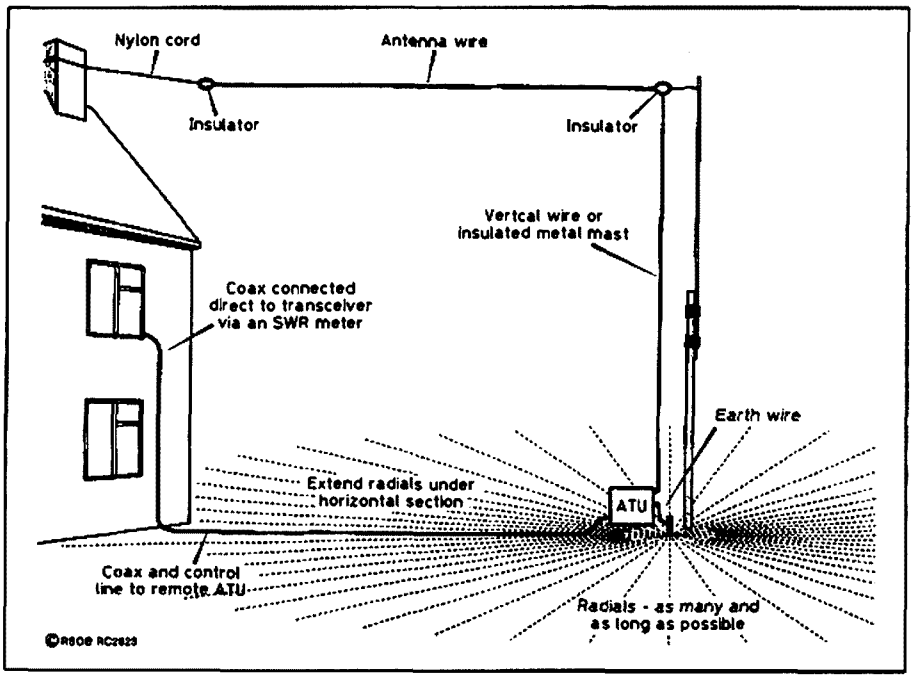


Fig 2. Base Fed Inverted L

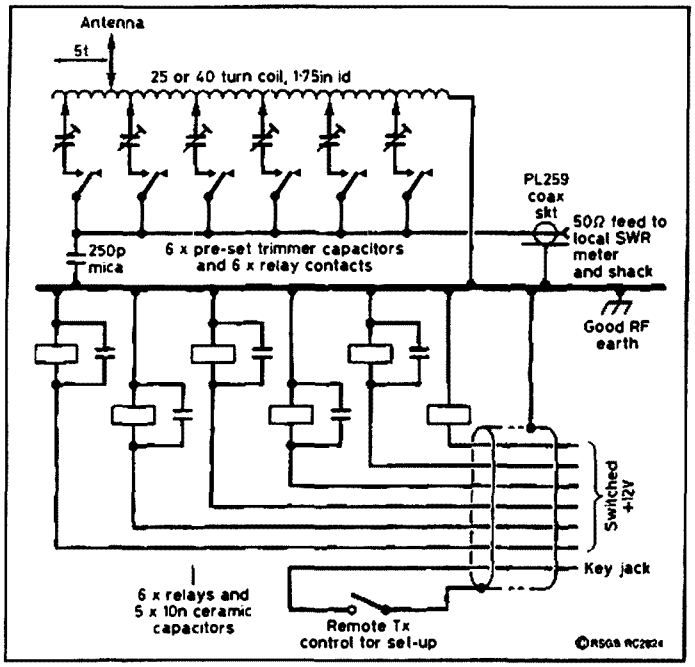


Fig 3. Remote Multi Band ATU by G3UCE

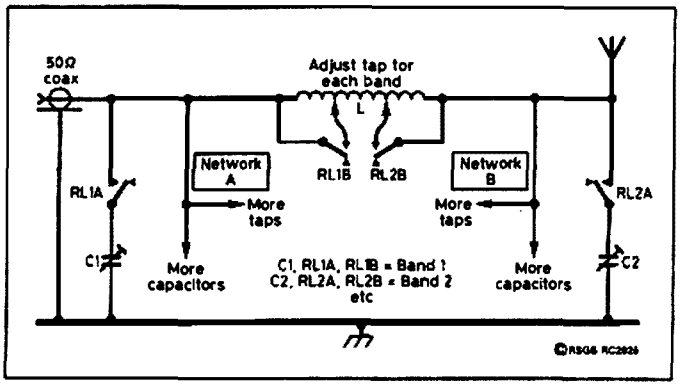


Fig 4. Manually Adjusted Remote Relay Switched L Network ATU

SWR Bridge Sensor

A different SWR bridge sensor was used in a power and VSWR meter described by Kees Heuvelman PA0CJH in Electron March 2001. The SWR bridge sensor was a four port design using two lines and two toroid transformers. The bridge should be easy to set up as there are no adjustments and it is a symmetrical arrangement. A fraction of the forward or reflected power appears at the two resistively terminated ports where it is measured. There is no finicky setup required as it is a bridge setup.

The circuit is shown in Fig 5. The layout is shown in Fig 6. The circuit is built into a small box which is divided into two compartments. One line is terminated in two caxial connectors and the other is terminated by 50 ohms at each end. The resistors used for the 50 ohm terminations may be either parallel 100 ohm resistors or a parallel

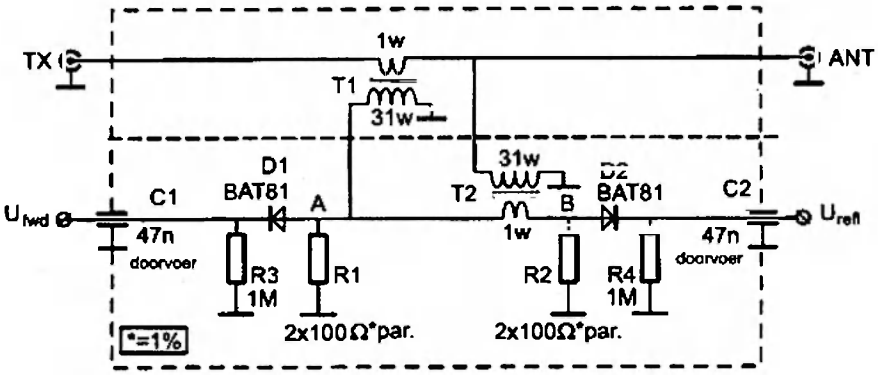


Fig 5. SWR Bridge Circuit.

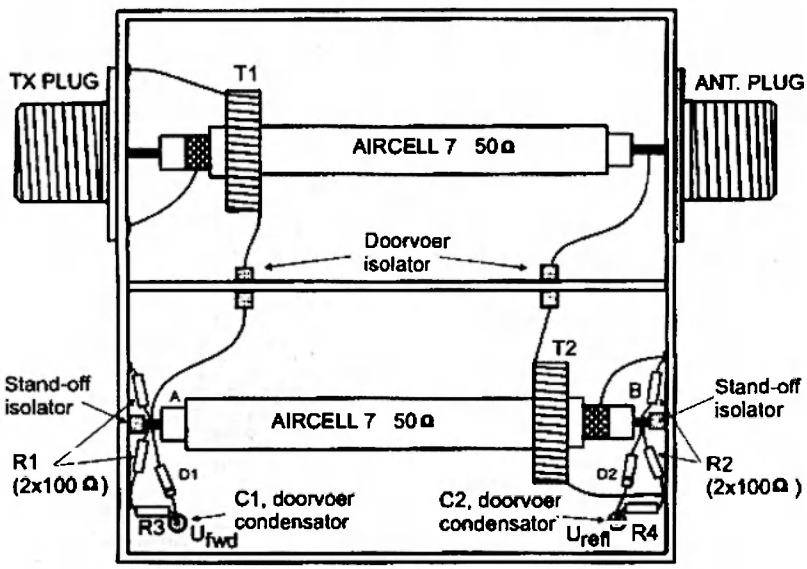
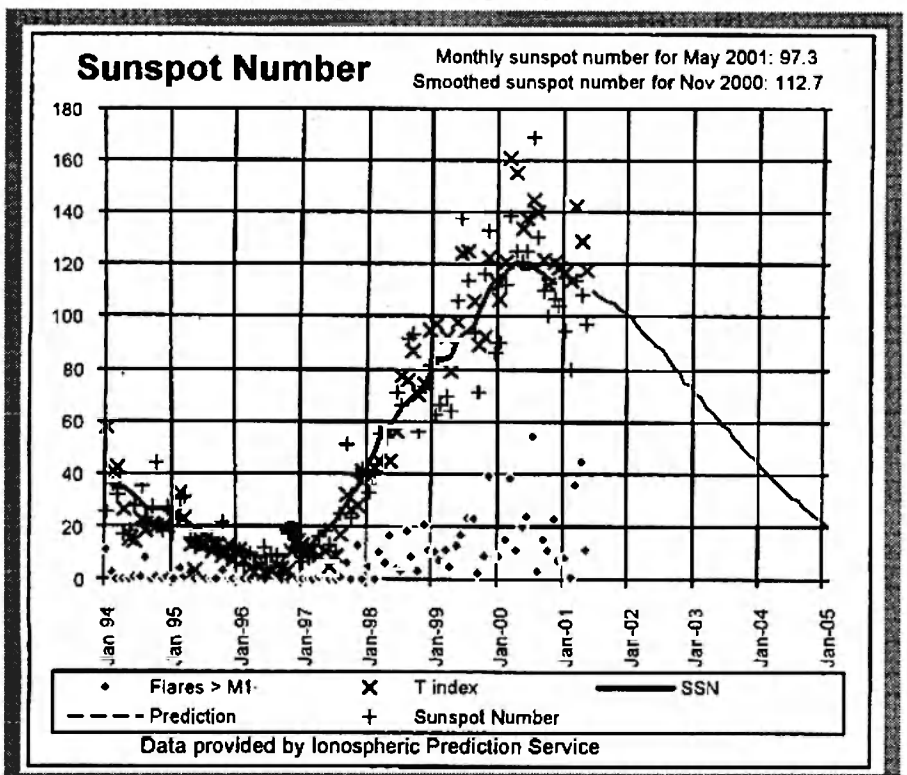


Fig 6. SWR Bridge Layout.



combination of three 150 ohm resistors. 1 watt resistors would be preferable to ensure that they are operated well within their ratings.

The toroids used were Amidon T68-2 wound with 31 turns of 0.2mm wire. The inside diameter of the toroids was 9.5 mm and the outside diameter was 17.5 mm. The toroids should be made of high permeability ferrite suitable for the frequency being used. The coax type given was AIRCELL 7 which would appear to be a thick 50 ohm coax which just fits through the wound toroids.

The box could be a diecast box divided with a partition or you could fabricate your own out of PCB laminate scraps, thin brass or tinplate. The metering circuit could be simply a meter and sensitivity pot or you could use a more complex circuit to give direct SWR readings and peak power.

ar

DON'T MISS THE ACTION!

High Performance VHF/UHF Base Station Antennas

Diamond base station antennas offer outstanding quality and exceptional value. These stacked collinear types provide high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester outer radome and gasket seals provide excellent all-weather operation, and compact ground-plane radials are supplied. Stainless-steel mounting hardware ensures a long, trouble-free life. Supplied with instruction sheets for easy set-up. Made in Japan.

2m/70cm X-50A

Frequency: 144-148MHz, 430-450MHz
Gain: 4.5dB on 2m, 7.2dB on 70cm
Max power: 200W
Length: 1.7m, max wind 60m/s
Type: 6/8λ(2m) 3 x 5/8λ(70cm)
Connector: SO-239 socket

D 4855

$129

SAVE $15

6m ½ Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

D 4825

$79.95

Digitor 2m 30W RF Power Amplifier

If you use your 2m band FM hand-held at home or in the car, but find that 2-3W RF output isn't enough for reliable communications, then this compact 30W RF amplifier may be the answer. It works with inputs from 0.5 to 5W and produces up to 30W output with just 3W input. A switchable 12-15dB gain low-noise GaAS FET receiver pre-amplifier can be selected for improved receiver performance on less sensitive hand-helds when being used in RF quiet areas. The amplifier offers a large heatsink for extended duty-cycle transmissions, fused DC power lead, and SO-239 input/output connectors.
Frequency range 144-148MHz, FM only.
Size: 100 x 36 x 175(WHD).

D 2510

$99.90

13.8V 2A, 4A Peak Power Supply

Ideal for the workshop, this DC power supply comes with banana posts, a cigarette lighter socket and an on/off switch. Provides regulated 13.8V DC output at 2A (4A, 50% duty cycle).

M 9540

$55.98 **SAVE $40**

12Volt 150Watt Power Inverter

Plug the inverter into the cigarette lighter socket in your car (or any 12 Volt power source) to provide 230 Volt AC power for most electrical equipment. Great for smaller TVs and VCRs, personal computers, and small kitchen appliances in remote locations.
DC Input Voltage: 10.7 - 14.5 Volts (12 Volt nominal)
Output Frequency: 50Hz
Output Power: 160W (surge); 150W (cont.@ 13.8 Volts)
Weight: 700 grams

M 5100

SAVE $41 **$114**

FT-8100R 2m/70cm Mobile

The Yaesu FT-8100R is a state-of-the-art 2m/70cm band mobile transceiver that combines high power and a highly versatile memory system with an excellent wideband receiver and solid construction. Its US MIL-STD-810 shock and vibration rating is your assurance of years of reliable operation. Includes hand mic, mounting bracket and fused DC power cord.

CLEARANCE

Features
- 198 memory channels
- 1200/9600 baud packet input socket
- Inbuilt antenna duplexer
- Inbuilt crossband repeater facility
- Dual receive capability (VHF/UHF, VHF/VHF UHF/UHF)
- Optional remoteable front panel

Frequency range: Tx 144-148MHz, 430-450MHz Rx 110-550MHz, 750-1330MHz (less cellular)
Output power: 2m: 50, 20, 5W
70cm: 35, 20, 5W

2 YEAR WARRANTY

$894

LIMITED STOCK

D 3314

DON'T MISS THE ACTION!

YAESU VX-150 5W 2m handheld

Compact yet incredibly rugged, the new Yaesu VX-150 2m handheld is designed to perform under the most demanding conditions. The VX-150's diecast aluminium case provides excellent transmitter heatsinking, allowing 5W RF output as standard, while assisting the radio to meet the tough US MIL-STD 810D/E shock and vibration ratings. A large high-output speaker, heavy-duty belt-clip plus illuminated keypad and LCD screen make the VX-150 a pleasure to use.

Features:

- Tx: 144-148MHz, Rx: 140-174MHz • RF Output: 5W with supplied 700mA/h NiCad pack
- Direct keypad frequency entry, CTCSS and DCS encode/decode, battery voltage metering
- Simple Menu system • Over 200 memories • 7 digit Alpha-numeric memory labelling
- Tx and Rx Battery Savers • Case measures just 58 x 108.5 x 26.5mm WHD
- Comes with FNB-64 7.2V 700mA/h NiCad, flexible antenna, and overnight AC charger

D 3648

2 year warranty

$345

NEW FOR 2001

YAESU FT-1500M Heavy Duty 2m FM Mobile

Another Yaesu transceiver breakthrough, the new FT-1500M blends an efficient transmitter with an almost bullet-proof receiver front end, and is packaged in rugged die-cast aluminium casing. You get powerful 50W RF output, direct keypad frequency entry, Alpha-numeric memory labelling, easy data interfacing, and much, much more.

- Transceiver coverage of the 2m Amateur band (144-148MHz), with extended receiver coverage of the 137-174MHz range.
- 50W RF output, with selectable 5, 10, or 25W lower power levels. The efficient PA stage only draws 8A at 13.8V DC for full RF power output.
- High-performance receiver front-end circuitry using Yaesu's renowned Advanced Track Tuning (ATT) tracking bandpass filter design.
- Includes MH-48B6J DTMF microphone for direct keypad frequency entry, plus convenient Menus with 35 "set and forget" functions.
- 149 memories are provided, with 130 regular memories, 9 pairs of sub-band memories, and an instant recall "Home" memory.
- Additional features: Supply Voltage Display, transmit Time-Out Timer, Auto Power Off, and S-meter RF Squelch.

D 3638

2 year warranty

$399

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

PHONE FAX AND MAIL ORDERS direct link

PHONE: Within Australia: 1300 366 644 (Local call charge)

FAX: (02) 9642 9155 within Australia and (+612) 9642 9155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 500, PO Box 500, Regents Park DC NSW 2143 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 31/7/2001. All prices shown are in Australian dollars and are inclusive of GST.

2733 DPS SPOT

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9289
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Old. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www wia.org.au/vk4*

President	Colin Gladstone	VK4ACG
Secretary	David Jones	VK4OF
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
web:http://www.sant.wia.org.au
email: *peter.reichelt@bigpond.com*

President	David Minchin	VK5KK
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@linet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.30pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $70.00. Without *Amateur Radio* $48.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday ot the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $83.00 Pensioner or student $71.00. Without *Amateur Radio* $52.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $67.00 Pensioner or student $61.00. Without *Amateur Radio* $36.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $52.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

Division News

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

It depends on which division you are a member of, but the fee for full membership of the ACT Division is $77.00 per year. Every year all the Divisions are asked to review their membership fees. In some states they remain the same for many years. For example: The fee was $70.00 in 1992. It became $72.00 in 1996. Not bad considering changes in membership, increases in AR production cost, postage, and inflation. A significant increase by five dollars to $77.00 occurred in 2000 to cover the cost of running the IARU conference in Darwin and other increases due to international obligations. All Divisions shared in these costs. This year the impact of the GST has increased our costs again and the Division is paying more for hiring classes and meeting rooms, among others. It was therefore considered necessary to increment the fee by two dollars. A motion to this effect was put at the May, General Meeting. This motion was passed unanimously. The increase will take effect in June this year.

The ACT Division has developed a 13 page response to the ACA discussion paper entitled 'Amateur and Marine Operator's Examination and Certification Arrangements'. This Division is in favour of the WIA taking over this certification process completely. The ACA has indicated that it wants to minimise its involvement in the process and facilitate other organisations a greater role in the overall certification process. The 13 page response has been sent to the WIA Secretariat, where it will be used to make up the final response to the ACA on June 22, 2001.

The General Meeting that was held in May went very well. One of the greatest advantages of the new venue is plenty of parking space right at the front door. Every member brought his or her own chair that evening. This will not be necessary for the July meeting, as by that time we will have bought sufficient stackable chairs to accommodate the members. Any member who wants to be kept up to date with progress achieved so far with renovating the hamshack facility should listen to the Sunday broadcast transmission at 8.30 pm. The next General Meeting will be held at the Scout Facility in Longenerong St. Farrer, on July 23, 2001 at 8.00 pm. Cheers.

VK2 Notes

by Pat Leeper VK2JPA

We finally managed to have a quorum for our AGM in May - having a lecture afterwards on IRLP helped! The lecture was given by Peter Illmayer, VK2YX and Andrew Lark VK2AFL of the Blue Mountains Amateur Radio Club and was very well received. Our thanks to Peter and Andrew for their presentation.

The list of VK2 office bearers for the year 2001-2002 is as follows: President: Terry Davies VK2KDK; Vice-President: Geoff McGrorey-Clark VK2EO; Secretary: Pat Leeper VK2JPA; Treasurer: Chris Minahan VK2EJ; Affiliated Clubs: Ken Westerman VK2AGW; QSL Bureau: Geoff McGrorey-Clark VK2EO; NTAC: Brian Kelly VK2WBK; Trash & Treasure: John Turner VK2WRT; Deceased Estates Chairman: John Turner VK2WRT; Dural Officer: Chris Minahan VK2EJ; Education Officer: Andrew Scott VK2TWO; VK2 Notes: Pat Leeper VK2JPA; Bookshop : Barry White VK2AAB; Federal Councillor : Barry VK2AAB; Alternate Councillors : Terry Davies VK2KDK and Geoff McGrorey-Clark VK2EO.

If you have any problems, these people can help you. Contact the office as advised on the Divisions page of AR and the matter will be referred to the appropriate officer, or dealt with at the monthly council meeting.

By the time you read this, the Conference of Clubs will have been held with much discussion, especially on the problem with some repeater sites. Further information next issue.

VK3 Notes

By Gary Furr VK3KKJ

WIA Victoria web site: www.wiavic.org.au e-mail: wiavic@wiavic.org.au

VK3 QSL Bureau

The QSL Bureau continues to be a popular membership service which is efficiently provided through a network of distribution points. However, a few individuals registered with the Bureau are not collecting their incoming cards, which are clogging the system. It causes storage problems for the volunteers who are part of the Bureau delivery system, and this is an unfair burden on them. QSL Bureau distribution points have been reminded that they are not required to hold cards for longer than six months. If cards remain uncollected after this period, they will be returned to the VK3 Bureau with a request that the delinquent bureau user be removed from the distribution point list

This action will be taken whether or not the user is a member of the club running the distribution point.

All bureau users are WIA Victoria members and are its responsibility if they fail to meet their obligations in relation to the QSL Bureau. Distribution points are not required to follow up bureau users who fail to pick up their cards: the VK3 Bureau will attend this to.

RD Contest Kit available

WIA Victoria has again placed the popular RD Contest kit onto the web site, and copies are available from the WIA Victoria office, for this years Remembrance Day Contest to be held on the weekend on August 18th and 19th.

The kit includes full instructions and dupe sheets for VHF and HF, tally and log sheets, as well as a sample cover sheet, compiled in Microsoft word format. It is available for download from the link located on the main page. WIA Victoria acknowledges Geoff Hudson VK3VR for his contribution to WIA Victoria's RD Contest effort, including provision of this RD Contest kit.

Science Show update

At a recent planning meeting for the amateur station display stand at next month's Great Australian Science Show, a mock-up of the stand was created. Club representatives have been meeting regularly since April on the project. At their latest meeting they discussed the operation of the stand and the finer points of the static display and handout material. The stand is well placed in the Melbourne Exhibition Centre and Convention Centre, 2 Clarendon Street, Melbourne, in terms of access and passing traffic of show-goers. There is an option of also having a half-stand elsewhere in the centre that could enable a point-to-point communication ability, depending on available volunteers.

Full acknowledgment of all sponsors of the WIA Victoria stand will be made closer to the event, but so far they include Dick Smith Electronics, Icom Australia, Harris Communications, and the Shepparton and District Amateur Radio Club. Directly participating clubs are: Eastern and Mountain District Radio Club : Gippsland Gate Radio and Electronics Club : Moorabbin District Radio Club : North East Radio Group : RAAF Williams ARC : Western and Northern Suburbs Amateur Radio Club.

The Great Australian Science Show on 23-26 August 2001 is to be visited by secondary school students from throughout Victoria, their teachers, parents, and the general public.

Entry to the GASS is free. It opens 9:30am to 5:30pm, (closing early on Sunday at 4:30 pm.).

WIA Victoria web site

Members who have not already registered for access to the Members Section of the web site, can do so on-line from the web site's main page. The site contains the latest member news, council information, monthly polls, archives of both member and news, on-line issues dating back two years. The popular e-classifieds, where members are able to advertise their unwanted goods is also accessible. Very soon WIA Victoria will be providing web space for members to upload their own personal home pages to their own personal directory within the WIA Victoria web site. The open or public section of the web site has averaged 900 hits a day over past months. There are many visitors from other countries who access the site regularly. Visitors from Mexico, Ireland, Singapore, Thailand, Ukraine and even the US Government have all accessed the site over the past few months. The most popular pages continue to be news and Morse code watch.

Bookmarks

www.wiavic.org.au/news - Updated News

www.wiavic.org.au/mcw - Morse code watch

www.wiavic.org.au/edu - Education

Education On-line

Studying for an amateur licence, know someone interested in joining our hobby, or just wanting to put your knowledge to the test? The education pages are a good source for interactive trial exam papers for the Regulations Exam, and the Novice and AOCP Theory Examinations. You can sit the exams by clicking your mouse on the answer boxes for each multi-choice question, and when finished find out exactly how much you know about the regulations that govern the operation of amateur stations in Australia.

Visit the education page at www.wiavic.org.au/edu

The scouting movement has sought permission to use this material for JOTA and other radio and electronics events organised throughout the year by the Scout Radio and Electronics Unit.

The Education On-line is also popularly used as a link on a number of club web sites throughout Australia.

VK4 Notes—Qnews

by Alistair Elrick VK4MV

Pacific Mobile Net

A story in the Murrumba Communications Group's newsletter highlights the activities of a 'local' Robbie VK4YV, in Maroochydore on the Sunshine Coast. Robbie, together with XYL Nancy started up the 14.313 MHz Pacific Mobile Net in the mid 70s in Pago Pago. Robbie was born a Dutchman in Indonesia and during WWII when in military service, was captured and spent years on railways in Thailand, then in a coalmine in Japan. After the war he returned to live on many Pacific Islands where, as we said the idea formed and he implemented the Pacific Mobile Net. You can check in to the net daily at 0200 UTC on 14.313 MHz.

APRS Is GO

APRS particularly in South East Queensland is growing in leaps and bounds with the existing WIDE AREA Digipeater, VK4DMI-3, high up at Ocean View and another VK4GO-3 to be established in the next few weeks on Mt Tamborine. To augment these and to cover some hidden areas a small number of Relay Only Digipeaters have or are being setup. It is hoped eventually to have a permanent Digipeater in the Ipswich area; the current one, VK4CPW-3 is only temporary, also it is hoped that others will eventuate in Toowoomba and in the Gympie and North Coast areas. The APRS network can and often is connected via an Igate to other similar networks mainly in VK although on occasions also around the globe. Satellite Gateways and HF APRS Digipeaters are not far away.

Queensland Digital Group

Repeater VK4RZB is back 'on air' on 438.475 MHz with 91.5 CTCSS access tone required. The QDG are trialing a Gasfet preamp and would appreciate any reports of successful use of the repeater. You can packet them at QDGCOM@VK4DGQ. As regular listeners will know the VK4RZC Voice Repeater is operating, 438.125 MHz also with 91.5 Hz CTCSS access tone.

Sunshine Coast Digital

The Sunshine Coast BBS VK4WIS is to be moved to the new clubrooms and 3 sysops have been appointed. They are Ian VK4KIJ, Geoff VK4KEL and Len VK4ALF. The new clubrooms 'see' VK4RBU on 144.900 MHz for direct forwarding!

Radio Scouting

Newly appointed Queensland JOTA/JOTI Coordinator, Ross Tutin wants to contact Amateur Radio Operators who are currently uniform members of the Scout Movement. To contact Ross, you can phone him on mobile 0404 083 422 or email to rosstutin@bigpond.com (Ross Tutin, Queensland JOTA/JOTI Coordinator - Scouts Aust., Qld Branch). Information on all scout matters can be found at http:// jota.scouting.net.au.

Don't forget the JOTA/JOTI on October 20 and 21, 2001!

A 6 metre BBS

Bruce VK4BOO announces that the BBS VK4BOO-1 on 53.100 MHz is now operational using 1200 baud as well as 2400 baud. Some 80 km north west of Brisbane the BBS is co-located with a 6 metre voice repeater, VK4RXD on 53.625/52.625 MHz. The AX25 frequency again, 53.100 MHz, 1200 and 2400 baud. It will be interesting to see some DX logins and where they will be from.

Science Kids on the Air

Amateur Radio recently played a part in a special event on Magnetic Island off the VK4 coast. As part of Education Week at Queensland schools, a special Science Activities week at Nelly Bay Primary School featured all arms of the sciences plus a live Ham demonstration by Ian VK4LMD, who carted his gear overseas by ferry and set up a station in one of the classrooms. Noel VK4BDV and Lyndall VK4MOP helped him out on the mainland.

Children were able to sample HF and VHF voice communications and were helped by many hams on the mainland to have their first contact on radio. A special contact happened on Tuesday May 22nd with David VK4KIX setting up a station with his music class at Heatley Primary School to talk to the children at Nelly Bay. As it turned out, the children on both sides of the ocean were about the same age and it wasn't long before the contacts sounded just like a JOTA weekend. The questions asked included favourite foods, favourite sports, favourite TV shows and whether they were going out with someone or not (they seem to start early these days). Now that's the way to get AR out to the public!

QRP — absolutely.

When John Elliott VK5EMI took part in the VK-Trans-Tasman contest on May 5th, he made contact with David VK4KIX who asked John to wait until after the contest to test his new home-brew rig. The rig is a one transistor CW QRP unit, and puts out around 1.44 watts. John heard his CW easily, 549 from a vertical antenna, into his own G5RV on 80 metres.

As VK5EMI says, 'Now, I reckon that that's pretty darn good, and much more impressive than the achievements of the kilowatt boys!! David lives in Townsville, and I in Adelaide, a distance of around 1900 km as the RF crow flies.'

73s from Alistair

VK6 Notes

By Steve Ireland, VK6VZ

G'day from the VK6 Division. For the next year, as a new State councillor, I shall be writing this column about what is going with regard to WIA activities in the 'Golden State'.

One of the goals of the VK6 Division this year is to work towards bringing a real 'sea change' in Amateur Radio in WA - and in Australia in general. This can only come about by drastically increasing the numbers of radio amateurs - doubling our numbers would be nice! To this end, we are working on developing a proposal for an 'almost exam free' licence, which is aimed at attracting those people into the hobby who are interested in radio, but cannot spare the time to go regularly to evening classes to pass the current licence grades. The concept originally comes from Will McGhie, VK6UU - great idea, Will - and has already received support from one member of the federal WIA executive. The 'almost exam free' licence would only require passing a simple one-day course on amateur radio, with emphasis on operating techniques, safety and upgrading the licence.

This licence would give us a pool of people who are interested in amateur radio, on the air in a simple fashion and who could be encouraged to further develop their interests by means of educational/informational broadcasts from the WIA. The present idea is that the licencees would be allowed to use a 1MHz portion of 70cm - after all, we are definitely in a 'use it or lose it' situation with regard to this band - using 'type approved' equipment and FM, with a carrier power of 5W. We hope this licence will appeal to those

(1) CBers who are fed up with the limitations of their hobby and would like to expand their horizons;

(2) campers and caravanners who are interested in radio (I know quite a few!); and

(3) some of today's 'techno-teenagers' (I was one 30 years ago...) who are bored with the Internet and want to do some real communication (mums and dads take note - think of how those mobile phone bills could drop!).

Surfing 70cm could just become all the rage. We have a number of challenges to overcome in getting the proposal up then to develop it fully and float the proposal as a postal motion to WIA Divisions/Federal council. We need to interest at least one manufacturer in producing the 'type approved' equipment needed and, last but not least, get the Australian Communications Authority to agree to the idea.

For those of you out there who are thinking this sounds pretty radical stuff, it is - but we need to be radical if we are to survive. Actually, there have been a pretty forward-thinking lot of councillors in the WA Division for some time - who actually floated a similar idea three years ago, but which unfortunately apparently received little support or discussion within the WIA. However, things seem to have changed since then in the WIA as regards openness to new ideas. As well as looking to new members, the VK6 Division is also moving to reward its pre-war licenced members and those who have held licences for 50 years and over. Members who fall into this category will receive nice looking Certificates of Recognition, to acknowledge their achievement, in the near future.

By the time you read this, the second 40m/2m VK6 Division on-air meeting will have been held (on Sunday 17 June, straight after NewsWest). For those who missed it and would like to find when the next one will occur, please visit the VK6 Division's web site at: http://www.vk6wia.org

73 until next time! Steve, VK6VZ

ar

DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Now that the Northern Hemisphere is heading into its warmer summer months there will be more and more DX activity taking place, and of course, this will mean new DXpeditions as well. Special event stations commemorating all sorts of anniversaries, events etc are also beginning to appear on the bands (see below).

Meanwhile, back in VK, the DX doesn't seem to have been too bad for some. Hans Kiesinger, L40370, has been doing some listening on the bands and managed to log VQ9AS on SSB and VQ9IO, 8J4XPO, 8J0ITU/0 on 20 metres CW, while on 15m he managed TA2DS, ZC4BS and 5X1Z all on CW. Not a bad haul given Hans' restricted options for erecting antennas at his QTH. Keep it up Hans! I managed to get some time in on air myself and managed to work V73 and CU3DJ on SSB, TF1DX, XV3T/ WP4F and HK1RRL on CW on 20m, Z34A on 15m CW and TA4EB on 10m CW, so I am quite happy.

There has been a fair amount of comment on air and in the amateur press, here and overseas, regarding the state of the current sunspot cycle. I must admit that propagation has not been as good as expected, at least at my QTH anyway. Europe and the USA have been having some good openings on 10, 12 and 15 metres but 20 has been a bit disappointing for some reason. The 6m band has also been open around Europe recently. On the 23rd of May my father logged 9A8A, ON4AN, ON5FU, I2SIB, IN9SPU, OZ9HB, YU1SSP, DL1QW, DH3RQ and F5LRL using an Icom R75 and a simple vertical antenna mounted on his verandah. The band opened suddenly during the day and closed around 19:30z that evening. His QTH is about 20km west of Glasgow and shadowed by hills to his east so his list is quite impressive for his location and equipment. We in VK are relatively isolated from other countries whose amateurs are active on 6m, but we should be able to manage more QSOs with JA, ZL, HL, YB, 9M etc than we are currently experiencing. Maybe we are all checking the bands for activity by having a quick listen across them; perhaps we should call CQ rather than simply listening. After all, if we all just listen without transmitting, no one will hear anyone.

The DX

9A, Croatia. 9A/S50IPA/p, 9A/S53IPA/ p and 9A/S57AX/p will be on the air using CW and SSB from Kolocep Island (EU-016, CI-038) for the 'Islands of Croatia Award'. Activity will be on 20, 15, 10 and 6 metres (40 and 80 metres may also be used). Dates are from 25th of June until the 7th of July. QSL to S57AX via the S5 Bureau. [TNX S57AX and 425 DX news]

CS5, Portugal. Hermann, HB9CRV/ CT3FN, Antonio, CT1EPV and Luis, CT1AGF will be participating in the IOTA Contest this year as CS5C from Culatra Island (EU-145). [TNX The Daily DX and 425 DX News]

HR, Colombia. Mark, W4CK, has plans to be on the air as HR1/W4CK. He will be operating CW only during his trip. Dates are from the 19th until the 26th of July. [TNX The Daily DX]

J28VS, Dijbouti. Stephane is currently active on all bands from Djbouti. He will be there until June 2002. He has placed his logs on the internet and they can be viewed at http://www.qsl.net/f4dbf/ and QSL cards should be sent via the following route, Sebastien Le Gall, F4DBF, 10 rue Roger Salengro, 29480 Le Relecq Kerhuon, France. [TNX F4DBF and 425 DX News]

J49, Crete. Bob, I2WIJ, has let us know that he will be active from Crete from the 23rd of July until the 6th of August. He also has plans to participate in the 2001 IOTA Contest using the callsign J49R. He will enter as a 24H CW 100w DXpedition entry. Bob will also be on the air outside of the IOTA contest using SSB including the WARC bands. He is also hoping to erect a dipole for 160m, though he realises that propagation conditions in July may not be at their best for this band. [TNX OPDX]

JW, Svalbard. Pierre, ON7PC, and Fred, ON6QR, have plans to be active from the JW5E station in Longyearbyen (EU-026), Svalbard on the 28th and 29th of July during the IOTA Contest. QSL via LA5NM. [TNX ON6QR and 425 DX News]

KG4, Guantanamo Bay. Tip, N4SIA, says that he will be active as KG4AS from the 3rd to the 10th of July but gives no details as to which bands and modes he will use. QSL to N4SIA. [TNX N4SIA and OPDX]

OJ0, Finland. Seppo, OH1VR, Timo, OH1NX, Jaakko, OH1TX, Lasse, OH0RJ, Massy, JH1ARJ, Yo, JP1NWZ, Jun, JH4RHF and Hiro, JR4PMX will operate from Market Reef (EU-053) on the 12th to the 16th of July. They will be running three separate stations on all bands 160 to 6 metres. Modes will be SSB, CW, RTTY and possibly SSTV. The group plans to be active as OJ0/home call (QSL the individual operators via their home call) and will participate in the IARU HF World Championship on the 14th and 15th of July as OJ0U (QSL for this call is via JP1NWZ). For further information on this operation you can contact Jun at jh4rhf@arrl.net [TNX JH4RHF and 425 DX News]

P2, Papua New Guinea. Ron, VK3IO, will be active as P29IO from Papua New Guinea between the 18th of May until the 22nd of August 2001. QSL via VK3IO direct or via the Buro. [TNX The Daily DX]

PJ2, Netherlands Antilles. G6YB, G3RFX, G3TKF, G3XSV, G4FKA, G4HFX, G0WKW, M0AXF and M0WLF of the Bristol Contest Group will be active as PJ2/homecall from Curacao (SA-006). Operation will be SSB and CW on all HF bands from the 19th until the 31st of July. The group will also participate in the IOTA contest as PJ2Y. QSL PJ2Y via G3SWH and the others via their home calls. [TNX G3XSV and 425 DX News]

SV9, Crete. Roberto, I2WIJ, will on the air as J49R from Crete (EU-015) between the 23rd of July and the 6th of August. Roberto will also operate in the IOTA Contest (24H CW section). He will also

be on the air outside of the contest on SSB and the WARC bands. QSL is via home call, either direct or through the ARI bureau. [TNX I2WIJ and 425 DX News]

XU, Cambodia. A small group of German operators will be active from Cambodia from the 15th of July until the 3rd of August. The first 4 days of operation will take place on the higher HF bands from Siem Reap (Angkor Wat). An all band (160 – 6 metres) period of activity will follow from Sihanoukville with an emphasis on the lower bands. Modes will be SSB and CW with some RTTY and PSK31 a possibility. At this time, only one operator's callsign has been confirmed and that is Frank/ DL4KQ's who will be using XU7ABR. QSL via DL4KQ. Those needing Cambodia on any bands or modes should pay a visit to their web page at http://www.DL4KQ.de/ [TNX OPDX]

IOTA Activity

There are quite a few stations/activities listed above who should be under the IOTA heading, however, as long as their details are published does it really matter. IOTA chasers should mark their calendar for this years IOTA contest which will be held on the 28th and 29th of July. This contest now attracts more than 1000 participants so it should be possible to work the 100 different IOTA stations required for the basic award during the 24 hour period of the contest. Full details on the event can be found at the following web site http://www.g4tsh.demon.co.uk/HFCC/IOTA.htm.

Special Events

Special Event. The special event station 3Z0GI to be active from the 10th of June until the 30th of July. The operation is to celebrate the 666th anniversary of the city of Warsaw. Activity will take place on most HF bands, SSB and CW. QSL via SP4CUF. [TNX OPDX]

Russian Mountain DXpedition. Oleg, UA9UAX, has provided some details of a very interesting and 'ground breaking' event! Oleg says that operators Vladimir, EY8HB, EY8AV, Nodir, EY8MM and a group of mountaineers are planning to operate from one of the anonymous mountains on the Pamirs (near Sarez Lake) on the 3rd of July. They will be active for ONE hour only (so be quick and concise with your exchange!) from the peak which is about 5800-5900m above sea level. Modes will be SSB only on 40 or 20 metres on an IC-706MK2G. Apparently the mountain is as yet unnamed but after the expedition is complete the peak will be christened "Radio Amateur's Peak"! [TNX UA9UAX and OPDX]

CF2/CG2/VC2, Canada (Special Prefixes). During the celebrations for the 50th anniversary of the founding of the "Radioamateurs du Quebec, Inc." (RAQI) Canadians have been granted permission from the authorities for all VA2/VE2s to use these special commemorative prefixes. As from the 15th of June until the 15th of July all holders of VE2 prefixes may use the special prefix CG2, and holders of VA2 prefixes may use the special prefix CF2. Daniel A. Lamoureux, VE2KA (the president of the RAQI) also reports that they have obtained permission from Industry Canada to use another special callsign for use during the same period, this callsign is VC2A. This callsign is available for use by individuals or groups. Lookout for this callsign especially during contests etc. [TNX OPDX]

Italian Islands Trophy. This trophy is sponsored by the 'Crazy DX Group' and is open to licenced amateurs as well as SWLs. It is awarded for working or activating IIA (Italian Islands Award) and ILIA (Italian Lake Islands Award) islands between the 1st of June and the 30th of September 2001. Further information and details of the award are available via e-mail to crazydxgroup@libero.it or crazy@crazydxgroup.com; there is also a web site for the Crazy DX Group at http://www.crazydxgroup.com [TNX 425 DX News]

Another special event station is OZ2OOI. This station is celebrating the organisations 70th anniversary. It will be in operation all through this year. All QSO's and SWL reports will be issued with a special numbered QSL card. QSL is via bureau or direct to OZ2OOI, Post Box 351, DK-8900 Randers, Denmark. [TNX The Daily DX]

Special event station IQ8MFC will be active on CW, SSB, RTTY, PSK and SSTV until the 31st of July to celebrate the centenary of Marconi's First transatlantic Contact between Great Britain and Newfoundland on the 12th of December 1901. A special QSL is available via IZ8AJQ either direct to Erminio Cioffi di Michele, Piazza Umberto I 16, 84036 Sala Consilina - SA, Italy or through the bureau. [TNX IZ8AJQ and 425 DX News]

DXpeditions

A group of Quebec Amateur Radio operators have announced they will be active from QRV from Zone 2 (CQ WAZ) during July. Zone 2 is one of the more difficult ones to work due to the fact that there are very few operators in this zone. The team will begin operations on the 21st of July and end on the 24th of July. The callsign will be VE2A. Their operating location will be approximately 350 kilometres north of Chicoutimi. Operators will include Sylvie, VE2SYK, Yves, VE2YVT, Tvon, VE2YAT, Jean-Yves, VE2PS, Camille, VE2SO, Yvan, VE2BA and Yvon, VE2TG. They plan to be active on 10, 15, 20, 40 and 80 metres on CW and SSB. Some suggested frequencies to try are; CW - 3505, 7005, 14005, 21005 and 28195, while for SSB try 3795 (outside the VK allocation), 7095, 14295, 21195 and 28495. The equipment list will include a total of 4 rigs and 2 amplifiers. Their web site can be found at HTTP://www.ve2dsb.com/ve2a/ [TNX The Daily DX]

TX - The Oceania DX Group is planning a DXpedition to the Chesterfield Islands for later this year, possibly in September. The group plan to have five stations on air from 160 to 6 metres using CW, SSB and RTTY. Bill Horner, VK4FW, is organising the DXpedition and is looking for operators; he can be contacted via Email at vk4fw@spiderweb.com.au [TNX QRZ-DX and 425 DX News]

Round up

Lighthouse Activity. The Nieuwpoort Lighthouse (BEL-004) will be activated for the very first time during the coming "Lighthouse-Lightship" weekend running over the weekend of the 18th and 19th of August. The operators will be ON4ADN, ON4CJK, ON5FP, ON6HH, ON1DPX and some perhaps some other operators if the bug bites. The group has been granted permission to use the special callsign OS4LHN. Activity will take place on all bands from 80 – 10 metres, mainly on SSB and CW. QSL cards go to ON4AND either direct or through the UBA bureau. The QSL card for the event will be a multi-colour

special issue. If you send a QSL direct it will be replied to from Niewpoort and will bear the special "Nieuwpoort Lighthouse" postmark. This postmark is considered as a real collector's item. QSL Manager is Geert, ON4AND and he states that he only needs reply postage, your address but no envelope.

3C, Equatorial Guinea. Martin, 3C5J, is very active from the oil platform off the coast of Equatorial Guinea. He is especially busy on 15 and 20 metres on CW and SSB. Comments are going around that although everyone is thankful that he is active and doing a great job, but he would make a lot of people happy if Martin could get to the mainland for a few days so a contact would count for DXCC. Some people are just never content! Martin seems to be mainly active around 1300 to 1630z and again between 0530 and 0830z. QSL via MW0BRO. [TNX OPDX]

SP, Poland. The special event callsign SN45KDU will be on the air until the 31st of May and again on the 1st till the 18th of November. The station is operated by SP9KDU and is to celebrate the 45th anniversary of the Radio Club in Tarnowskie Gory, Poland. QSL via bureau to SP9KDU. [TNX SQ9BEU]

QSLing D68C. Don, G3XTT is letting everyone know that the QSL cards for the recent D68C operation are being printed in Germany. They should arrive with Phil, G3SWH in late May. The cards will be a 'high quality 4 sided card, which will look good in everyone's QSL collection' and according to Don will look great in anyone's collection. Phil expects to get stuck into the QSL work after he arrives home from his trip to the Maldives, where he will be operating as 8Q7WH, over the period of the 4th till the 11th of June. Don also asks that it be remembered that QSL cards go to G3SWH and SWL cards should go to BRS 32525 (Bob Treacher, 93 Elibank Rd, Eltham, London SE9 1QJ, England). [TNX G3XTT and 425 DX News]

An interesting snippet for all you 'salty' types appeared in OPDX, contributed by the RSGB. A 'special activity on LF' operation took place on the 16th of May. I know, I know, it's a bit late now but you would not have heard them anyway, read on. The RSGB LF Group reported "Listeners may be aware that the UK Royal Navy are celebrating the Centenary of the Royal Navy Submarine service with a gathering of UK and overseas submarines at the Faslane submarine base in the Clyde. This year is also the 75th anniversary of operation of the GBR transmitter (Rugby) which operates on a frequency of 75kHz. As part of this celebration "it is hoped" that a special A1A (much easier to pronounce than 100HN0AAN, the new emission designation for CW, isn't it?) Morse code transmission from the GBR long wave transmitter will be made. For those with an interest in VLF reception please listen to 16kHz, yes 16kHz not 60kHz! on Tuesday, May 29th, 2001, at 1200 GMT and 1345 GMT." It would be interesting to know just how far the transmissions from GBR reached using this frequency while utilizing a 'professional' VLF antenna installation?

A free award from EM, Ukraine. The Ukranian Amateur Radio League (UARL) will have a station active in the IARU HF World Championship during the 14th and 15th of July from the UARL Headquarters. The station will be using the special callsign EM0HQ. The HQ station's site (UR4MZL) is in Lisichansk City and the team's leader is Vladimir, UX2MM. The QSL Manager is Shevchenko Alexander, UR5EAW. They are hoping to hit the World record (good luck to them) The free award is available for working this station with "NO APPLICATION" to fill out. The rules for qualifying for the UARL's "Ukraine 2000" award are simple (1) Work EM0HQ during the World Championship, (2) for DX stations - 2 QSOs any mode, (3) for European stations - 4 QSOs any mode. The award application is the log of EM0HQ. The award is free and is sent through the bureau. This information was supplied by Alexander, UR5EAW, QSL Manager for EM0HQ. For any questions, send Email to the following Email address em0hq@qsl.net [TNX UR5EAW and OPDX]

P5, North Korea. Just in case you think you got lucky last month, a station signing P5DX was having himself a real good time with many individuals chasing him/her on the 40, 20 and 15 metre bands on CW. Save your time and green stamps on this one, he is definitely a pirate! [TNX OPDX]

And another one. Tom, 3W7CW, has confirmed that his callsign has been recently used by a PIRATE, for example on May 19th, 2001 on 18073 kHz, starting around 2200z. Tom has been QRT for the past few weeks due to his relocation from Hanoi to Saigon. He says his antennas will be ready at his new QTH around September or October. After he moves to his new location Tom will change his prefix from 3W7 to 3W5. So, after this look out for him as 3W5CW. [TNX 3W7CW and OPDX]

Sources

Again we should thank the following people and organisations for the information in this months DX Notes. Thanks to; L40370, L30902, S57AX, HB9CRV/CT3FN, F4DBF, W4CK, ON6QR, N4SIA, JH4RHF, VK3IO, G3XSV, I2WIJ, DL4KQ, UA9UAX, VE2KA, OZ2OOI, IZ8AJQ, VE2DSB, VK4FW, ON4AND, MW0BRO, SQ9BEU, G3XTT, UR5EAW, QRZ-DX Mag, 425 DX News, OPDX, RSGB and The Daily DX

ar.

Amateur Radio Publicity

How many of you saw the February 6th 2001 issue of the *Bulletin*?

It is well worth a read. We got a two page spread in a high profile magazine and it showed Amateur Radio in a very good light.

It would be great if we could exploit a few more of these oportunities. How about seeing if you can exploit a local event to highlight our existance. Some local problem where we were able to help.

Some local event we, as Amateurs, helped make viable by offering our services. WICEN communications at canoeing, cycling and running marathons. Commuications for horse and car trials. These can all be exploited to show we can provide a community service in time of community troubles.

ar

AMSAT

Bill Magnusson VK3JT

An update of Amateur Radio Satellites

This information is included in the column twice yearly for archival purposes and to assist those who do not have Internet access. The amateur satellite field is very volatile and information rapidly ages. I encourage all amateurs with internet access to visit the AMSAT web site www.amsat.org and follow the various links for the latest information particularly regarding new launches or satellites currently undergoing commissioning. I am loath to include too many URLs in the column as they seem to change without notice and I simply don't have the time to check them all out regularly. So therefore with the above caveats, here goes. The information below has been gleaned from various AMSAT publishing sources and is current at the time of writing.

Phase 3D/AMSAT OSCAR 40/ AO-40

Launched: November 16, 2000 aboard an Ariane 5 launcher from Kourou, French Guiana.

Status: S-Band transmitter is active. The RUDAK system has also been activated on an experimental basis. Attitude changes are underway in preparation for the activation of the arc-jet thruster to raise the perigee of AO-40. The situation regarding the status of AO-40 is changing almost on a daily basis as the commissioning process continues. For Internet users, up to date information is available on the AMSAT web site and day-to-day happenings can be followed by subscribing to the AMSAT-BB bulletin board or the AMSAT-ANS news service. The web site has information on subscribing to these services.

International Space Station/ARISS

Worldwide packet uplink: 145.990 MHz

Region 1 voice uplink: 145.200 MHz

Region 2/3 voice uplink: 144.490 MHz

Worldwide downlink: 145.800 MHz

TNC callsign is temporarily set to NOCALL

ARISS (Amateur Radio aboard the International Space Station) initial station launched September 2000 aboard shuttle Atlantis. ARISS is made up of delegates from major national Amateur Radio organizations.

Status: Operational. Voice contacts with ISS have been made recently.

The ISS packet station is available for UI packets (APRS or UI QSL).

The mailbox and keyboard are currently disabled.

U.S. callsign: NA1SS

Russian callsigns: RS0ISS, RZ3DZR

Radio Sport RS-12

Uplink 145.910 to 145.950 MHz CW/ SSB

Downlink 29.410 to 29.450 MHz CW/ SSB

Beacon 29.408 MHz

Launched: February 5, 1991 aboard a Russian Cosmos C launcher

Status: RS-12 was re-activated in mode A on January 1, 2001

The latest information on RS-12 and RS-13 can be found on the AC5DK RS-12/13 Satellite Operators page at:http://www.qsl.net/ac5dk/rs1213/rs1213.html

Radio Sport RS-15

Uplink 145.858 to 145.898 MHz CW/ SSB

Downlink 29.354 to 29.394 MHz CW/ SSB

Beacon 29.352 MHz (intermittent)

Launched: December 26, 1994 from the Baikonur Cosmodrome

Status: Semi-operational, mode-A, using a 2 metre uplink and a 10 metre downlink. Dave, WB6LLO, has operating information for both RS-15 on his web site.

http://home.san.rr.com/doguimont/uploads

Oscar 10 AO-10

Uplink 435.030 to 435.180 MHz CW/ LSB

Downlink 145.975 to 145.825 MHz CW/USB

Beacon 145.810 MHz (unmodulated carrier)

Launched: June 16, 1983 by an Ariane launcher from Kourou, French Guiana.

Status: Semi-operational, mode-B. AO-10 has been locked into a 70-cm uplink and a 2 metre downlink for several years. DX continues to be heard and worked on AO-10. W4SM has more information about the satellite at the following URL: http://www.cstone.net/~w4sm/AO-10.html

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA. 5001.
Graham's email address is:
vk5agr@amsat.org

Amrad AO-27

Uplink 145.850 MHz FM

Downlink 436.795 MHz FM

Launched: September 26, 1993 by an Ariane launcher from Kourou, French Guiana

Status: Operational, mode J. AO-27 is currently not switched on when over VK/ZL.

UO-14

Uplink 145.975 MHz FM

Downlink 435.070 MHz FM

Launched: January 22, 1990 by an Ariane launcher from Kourou, French Guiana.

Status: Operational, mode J Tim, KG8OC, features UO-14 information on the Michigan AMSAT web site http://www.qsl.net/kg8oc

JAS-1b FO-20

Uplink 145.90 to 146.00 MHz CW/LSB

Downlink 435.80 to 435.90 MHz CW/USB

Launched: February 07, 1990 by an H1 launcher from the Tanegashima Space Center in Japan.

Status: Operational.

FO-20 is in mode JA continuously Tak, JA2PKI, reported FO-20 control station operators believe that the UVC (Under Voltage Controller) now is regulating the transponder. The UVC monitors battery voltage and tries to protect the batteries from over discharge.

JAS-2 FO-29

Launched: August 17, 1996, by an H-2 launcher from the Tanegashima Space Center in Japan. Status: Operational

Voice/CW Mode JA

Uplink 145.90 to 146.00 MHz CW/LSB

Downlink 435.80 to 435.90 MHz CW/USB

Digital Mode JD

Uplink 145.850 145.870 145.910 MHz FM

Downlink 435.910 MHz 1200-baud BPSK or 9600-baud FSK

Callsign 8J1JCS

Digitalker 435.910 MHz

Mineo, JE9PEL, has a FO-29 satellite telemetry analysis program that will automatically analyze all digital telemetry from the satellite (such as current, voltage and temperature). The JE9PEL FO-29/ shareware is available at the following URL: http://www.ne.jp/asahi/hamradio/je9pel/

Tiungsat-1

Uplink 145.850 or 145.925 MHz 9600-baud FSK

Downlink 437.325 MHz

Broadcast callsign MYSAT3-11

BBS MYSAT3-12

Launched: September 26, 2000 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Operational at 38k4-baud FSK with the restriction that the power budget is sometimes overloaded by the 8 watt transmitter and under these circumstances the satellite will not respond to switch-on commands.

For more information on TiungSat-1, visit the following URL: http://www.yellowpages.com.my/tiungsat/tiung_main.htm

Kitsat KO-25

Uplink 145.980 MHz FM (9600-baud FSK)

Downlink 436.500 MHz FM

Broadcast Callsign HL02-11

BBS HL02-12

Launched: September 26, 1993 by an Ariane launcher from Kourou, French Guiana.

Status: Operational.

UOSAT UO-22

Uplink 145.900 or 145.975 MHz FM 9600-baud FSK

Downlink 435.120 MHz FM

Broadcast Callsign UOSAT5-11

BBS UOSAT5-12

Launched: July 17, 1991 by an Ariane launcher from Kourou, French Guiana.

Status: Operational with very heavy individual and Satgate traffic.

More information on the satellite is available at the Surrey Satellite Technology website: http://www.sstl.co.uk/

This site is well worth a look for heaps of information on all satellites from the University of Surrey stable.

Oscar-11

Downlink 145.825 MHz FM (1200-baud AFSK)

Mode-S Beacon 2401.500 MHz

Launched: March 1, 1984 by a Delta-Thor rocket from Vandenberg Air Force Base in California. Status: Operational, telemetry downlink only.

More information on OSCAR-11 is available at the following URL: http://www.users.zetnet.co.uk/clivew/

Pacsat AO-16

Uplink 145.90 145.92 145.94 145.96 MHz FM (using 1200-baud Manchester FSK)

Downlink 437.025 MHz SSB (RC-BPSK 1200-baud PSK)

Mode-S Beacon 2401.1428 MHz

Broadcast Callsign: PACSAT-11

BBS PACSAT-12

Launched: January 22, 1990 by an Ariane launcher from Kourou, French Guiana.

Status: Semi-operational, the digipeater command is on. A new Whole-Orbit-Data collection of current graphics along with general information and telemetry samples can be found at: www.telecable.es/personales/ea1bcu

UoSAT-12 UO-36

Uplink 145.960 MHz (9600-baud FSK)

Downlink 437.025 MHz 437.400 MHz

Broadcast Callsign UO121-11

BBS Callsign UO121-12

Launched: April 21, 1999 by a Russian launcher from the Baikonur Cosmodrome.

Status: Operational. UO-36 carries a number of imaging payloads, digital store-and-forward communications and mode L/S transponders. NASA showed interest in this satellite when they demonstrated on UO-36 the ability to use standard Internet protocols to communicate with an orbiting spacecraft (just like any node on the Internet). To my knowledge full BBS operations have never been turned on, uplinking being restricted to commanding the transmitter on and requesting image file downloads. Neither has the L/S transponder been made available for amateur use. The VK5HI image viewer shareware for UO-36 is available on the AMSAT-NA web site at the following URL: ftp://ftp.amsat.org/amsat/software/

win32/display/ccddsp97-119.zip

Further information on UO-36 is available from: http://www.sstl.co.uk/

ITAMSAT IO-26

Uplink 145.875 145.900 145.925 145.950 MHz FM (1200-baud)

Downlink 435.822 MHz SSB

Broadcast Callsign ITMSAT-11

BBS ITMSAT-12

Launched: September 26, 1993 by an Ariane launcher from Kourou, French Guiana.

Status: Semi-operational, the digipeater function is on and open for APRS users.

TMSAT-1 TO-31

Uplink 145.925 MHz (9600-baud FSK)

Downlink 436.925 MHz (9600-baud FSK)

Broadcast Callsign: TMSAT1-11

BBS TMSAT1-12

Launched: July 10, 1998 by a Zenit rocket from the Baikonur Cosmodrome.

Status: Part operational. The TO-31 downlink will be off over most areas, with the exception of Europe and Thailand. This is required to allow control stations to recondition the battery with minimum power drain. ProcMail V2.00G has been released by G7UPN. This software permits the processing of image files from TO-31. It has been posted to the AMSAT-NA FTP site at the following URL: http://www.amsat.org/amsat/software/win32/wisp

Many of the high-resolution color images transmitted by TMSAT are compressed using a UoSAT compression format. This format is supported by the VK5HI CCD display program.

Lusat LO-19

Uplink 145.84 145.86 145.88 145.90 MHz FM (using 1200-baud Manchester FSK)

CW downlink 437.125 MHz

Digital downlink 437.150 MHz SSB (RC-BPSK 1200-baud PSK)

Broadcast Callsign LUSAT-11

BBS LUSAT-12

Launched: January 22, 1990 by an Ariane launcher from Kourou, French Guiana.

Status: Beacon only. The CW beacon is sending eight telemetry channels and one status channel on 437.126 MHz. No BBS service is available. The digipeater is not active. Mineo, JE9PEL, has recorded LO-19 CW and PSK telemetry and placed the information on his Internet homepage site at: http://www.ne.jp/asahi/hamradio/je9pel/

General information and telemetry samples can be found at: www.telecable.es/personales/ea1bcu

SO-41 Saudisat-1A

Uplink to be released

Downlink 437.075 MHz

Broadcast Callsign SASAT1-11

BBS SASAT1-12

Launched: September 26, 2000 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Unknown, this satellite has been in orbit for almost 8 months. ANS has received no additional information. When/if operational, SaudiSat-1A will operate as 9600-baud digital store-and-forward systems as well analog FM repeater mode capability. One of two new ham satellites from the Kingdom of Saudi Arabia built by the Space Research Institute at the King Abdulaziz City for Science and Technology.

SO-42 Saudisat-1B

Uplink to be released

Downlink 436.775 MHz

Broadcast Callsign SASAT2-11

BBS SASAT2-12

Launched: September 26, 2000 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Similar to SAUDISAT-1A above.

Radio Sport RS-13

Uplink 21.260 to 21.300 MHz CW/SSB

Downlink 145.860 to 145.900 MHz CW/SSB

Beacon 145.860 MHz

Launched: February 5, 1991 aboard a Russian Cosmos C launcher

Status: non-operational (last operational in mode-T)

The latest information on RS-12 and RS-13 can be found on the AC5DK RS-12/13 Satellite Operators page at: http://www.qsl.net/ac5dk/rs1213/rs1213.html

Kitsat KO-23

Uplink 145.900 MHz FM (9600-baud FSK)

Downlink 435.170 MHz FM

Broadcast Callsign HLO1-11

BBS HLO1-12

Launched: August 10, 1992 by an Ariane launcher from Kourou, French Guiana.

Status: Intermittent operation with the downlink transmitter operating at unpredictable intervals. No activity has been monitored here at VK3JT for several months. It looks like we have lost KO-23 which was the best of all the 9600 baud satellites for many years. Its wide footprint, sensitive receiver and strong downlink initiated many operators into the world of digital satellites. Its mailbox was the busiest of all with on-board memory being pushed to the limit and commonly upwards of 10-15 stations being observed in the PB queue. A great satellite in a great orbit. Congratulations to Surrey and the Korean control team.

Transponder Operations Begin on AO-40

AO-40 experimental transponder operation started on May 05, 2001 when the U-band and L1-band uplinks were connected to the S-2 transmitter passband downlink via the Matrix switch. At the time of writing, transponder operation has been suspended as preparations are being made for arcjet testing. See "Perigee-Raising" below for more details. As part of this whole exercise it is also planned to test the U-band and V-band transmitters again when squint angles allow good visibility. During the transponder tests many operators reported good contacts when squint angles were favourable. Remember that at present AO-40 is still spin-stabilised and therefore squint angles vary considerably during a pass. Later in the commissioning program the 3-axis stabilisation will be tested and if this works as expected AO-40's antenna arrays will remain earth-pointing at all

times. This translates into optimum squint angles for all stations and should result in the best possible signals both up and down. Perigee passes will bring about the worst case squints but even with this restriction, 3-axis stabilisation represents the best possible compromise for all stations at all times during the orbit.

Progress Towards Perigee Raising of AO-40

I was off the air for all but the first few days of May and only returned to the birds towards the end of the first week in June. It seems a lot has happened while I was away. I just missed out on the opening of the mode S transponder by a day or so and on returning I find the signals from AO-40 had been severely affected by very high squint angles. As I write this the transponder operations have been temporarily suspended. It seems that the program to fire the perigee-raising motor has begun. Now here is an excellent example of "input from the ranks". Early in May someone asked on the AMSAT-BB whether strange markings on some of the YACE camera shots could have been caused by sun-burning of the CCD chip during re-orientation operations. This caused a minor stir in the guru circles but James Miller, in his usual style, did some calculations and proved it was not possible for that to have happened during any of the attitude changes so far. It did bring the idea to mind though that such a thing could possibly happen during future attitude changes. Steps were then taken to work around such a situation. The perigee raising operation requires that a specific attitude be attained before it can be done and the required attitude change is being conducted in two separate phases, as I write this column. By doing the attitude change in this way it will ensure that the camera never faces anywhere near into the Sun. CCD cameras do not have shutters in the usual sense. The lens is open all the time and data is fed to memory as required as "exposures" are made. It's worthwhile noting that the SCOPE cameras are mounted close by the YACE camera and share the same pointing attitude so what works for one, works for all. Avoidance of this situation will be factored in to all future attitude changes. When the required attitude is reached all will be ready for the operation of the arc-jet thruster, which is hoped to raise the perigee of AO-40 to approximately 500 km. It has been decided that it will not be necessary to ignite the arc-jet thruster in order to make this perigee height change. Instead the ammonia propellant will simply be vented without ignition. It is hoped to raise the perigee to a satisfactory height with a far greater degree of safety than a fully ignited but shorter motor burn. The results of this operation should be available by next issue. In the meantime visit the AMSAT-NA web site or subscribe to the AMSAT-BB or the AMSAT-ANS news service for the very latest information regarding AO-40 commissioning operations.

ar

Repeater Link

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
will2@iinet.net.au VK6UU@VK6BBR

Wrong URL

In a previous article about Tesla Coils I wrongly gave the web address for pictures of my Tesla Coil. Thanks to those of you who let me know. The correct Web address is http://members.iinet.net.au/~will2/tesla.html. This page contains several colour pictures of some high voltage lightning.

IRLP

IRLP is an abbreviation you hear from time to time on various voice repeaters, and for the casual user of voice repeaters you may know little about IRLP. The abbreviation stands for Internet Radio Linking Project and is the result of many hours of development by David Cameron VE7LTD in Canada. David has an extensive web site with all the information you require to learn about IRLP and it can be found at : www.irlp.net. For those of you without web access a little about IRLP.

David looked at earlier systems to link voice repeaters via the Internet and found them wanting, so a completely new hardware and software system developed and was called IRLP. The operating software uses LINUX and audio streaming software Speak Freely. The hardware provides the interface between the computer and amateur radio, either directly to a voice repeater or via a radio link to a voice repeater.

The end result sure does sound good. Users can link their local repeater to another voice repeater similarly equipped with IRLP anywhere in the World using DTMF commands. Voice confirmation lets you know when the link is established and if there is no activity the link times out with voice identification after about one minute.

One of David's aims was to overcome the delays inherent in earlier systems and this has been achieved with good voice quality. You could well hear amateurs from all over the World popping up on your local repeater.

It is interesting to speculate that IRLP and systems like it could well be the preferred method of linking repeaters even over short distances rather than via a UHF link, simply because it is easier and cheaper. Even sites that are in remote locations could be linked via a mix of UHF links to an Internet connection. Cost may appear higher using IRLP due to the need of a permanent Internet connection, but there are many hidden costs in setting up dedicated UHF links to existing voice repeaters. And the more equipment that is installed at remote locations the more potential for breakdown resulting in expensive and at times frustrating site visits requiring further visits, when the very part you require to fix the problem was not thought of or left behind.

As mentioned earlier, have a look at David's web site for detail about IRLP, there sure are some cleaver amateurs out there combining amateur radio, computers and the Internet.

ar

Contests

Contest Calendar July – September 2001

July	1	RAC Canada Day Contest	(CW/SSB)	
July	7/8	Internet 6m Contest	(CW/SSB)	
July	14/15	IARU HF World Championship	(CW/SSB)	(July 01)
July	21	Pacific 160 Metres Contest	(CW/SSB)	(May 01)
July	21/22	SEANET Contest	(CW)	
July	28	Waitakere Sprint	(SSB)	(June 01)
July	28/29	Russian RTTY WW Contest		
July	28/29	IOTA Contest	(CW/SSB)	(July 01)
Aug	4	Waitakere Sprint	(CW)	(June 01)
Aug	4	European HF Championship	(CW/SSB)	
Aug	4/5	Ten-Ten Summer QSO Party	(SSB)	
Aug	5	YO DX Contest	(CW/SSB)	
Aug	11/12	Worked All Europe DX Contest	(CW)	(July 01)
Aug	18/19	Remembrance Day Contest	(All)	(June 01)
Aug	18/19	Keymen's Club of Japan Contest	(CW)	(July 01)
Aug	25/26	ALARA Contest	(CW/SSB)	(May 01)
Sep	1	CCCC PSK31 Contest		
Sep	1-2	All Asian DX Contest		

Worked All Europe DX Contest

***CW:** 11/12 August*
***SSB:** 8/9 September*
***RTTY:** 10/11 November*
0000z Sat - 2400z Sun

Object is to work European stations (except in the RTTY section where anyone works anyone). Bands are 80 - 10 m. In the contest, avoid 3550-3800 and 14060 - 14350 kz on CW and 3650 - 3700, 14100 - 14125 and 14300 - 14350 kHz on SSB. The minimum time of operation on a band is 15 minutes, although bands may be changed within this period if, and only if, the station worked is a new multiplier.

Categories are single operator all bands; multi-operator single transmitter; and SWL all bands. DX cluster support is allowed. A maximum of 36 hours is allowed for single operator stations, with up to three rest periods (mark them in the log).

Exchange RS(T) plus serial number. Additional points can be gained reporting QTCs as follows: after working a number of European stations, details of those QSOs (ie QTCs) can be reported during a current QSO with a European station. In the CW and phone sections, QTCs are sent from non-European stations to European stations. In the RTTY section, QTCs can be sent to any station, including non-Europeans, outside one's own WAC continent. A QTC contains the time, callsign and QSO number of the station being reported, eg: "1307/DA1AA/431" means you worked DA1AA at 1307z and received serial number 431. Commence QTC traffic by sending the QTC series and number of QSOs to be reported, eg "QTC 3/7" indicates that this is the third series and that seven QSOs will be reported. A QSO may be reported only once and not back to the originating station, who can be worked more than once to complete the quota. Only the original QSO, however, will have points value.

Multiplier on each band equals the number of European countries worked on that band (or on RTTY only, the number of DXCC/WAE countries), times a band factor. The band factors are four for 80 m, three for 40 m and two for 20/15/10 m. Add the band multipliers together and multiply by the sum of (QSOs + QTCs) to obtain the final score.

SWLs may log each station heard, European and non-European, once per band.

Logs may be by logging program, or on DOS disc, providing a paper summary is included.

Send logs by mail to: WAEDC Contest Committee, Box 1126, D-74370 Sersheim, Germany. Logs may be

sent by e-mail to: <*waedc@darc.de*> Deadlines are 13 Sept (CW), 14 Oct (SSB) and 13 Dec (RTTY).

European countries are: C3 CT1 CU DL EA EA6 EI EM/N/O ER ES EU/V/W/ F G GD GI GJ GM GM(Shetland) GU GW HA HB HB0 HV I IS IT JW(Bear) JW(Spitzbergen) JX LA LX LY LZ OE OH OH0 OJ0 OK/L OM ON OY OZ PA R1/ FJL R1/MVI R/U(RUSSIA) RA2 S5 SM SP SV SV5(Rhodes) SV9(Crete) SV(Mt Athos) T7 T9 TA1 TF TK UR-UZ(Ukraine) YL YO YU Z3 ZA ZB2 1A0 3A 4U(Geneva) 4U(Vienna) 9A 9H.

Keyman's Club of Japan

18/19 August, 1200z

Sat - 1200z Sun

This contest is designed for CW enthusiasts and will particularly suit those who are collecting Japanese prefectures for awards. The only **category** is single operator multi-band.

Suggested frequencies: 1908 - 1912 (split); 3510-3525; 7010 - 7030; 14959 - 14090; 21050 - 21090; 28050 - 28090 kHz.

Exchange: RST plus continent code (OC).Jas will send RST plus district code.

Score one point per QSO.

Multiplier on each band is the total number of JA districts (max 62 per band).

Final Score is total points X total multiplier. Show duplicate QSOs with zero points.

Attach **summary sheet** showing usual information and **send logs** to: Yasuo Taneda JA1DD, 279 - 233 Mori, Sambu Town, Sambu, Chiba 389-12, Japan, postmarked no later than 14 September, 2001. ASCII logs on DOS disc most welcome.

IARU HF Championship

14/15 July

1200z Sat. to 1200z Sun

Bands: 160-10m (no WARC).

Categories: Single Operator, CW only, phone only, mixed; Multi-operator single transmitter mixed mode only. Multi-operator stations must remain on a band for at least 10 minutes at a time (exception: IARU member society HQ stations may operate simultaneously on more than one band with one transmitter on each band/mode, providing only one HQ callsign per band is used).XX

Exchange: RS(T) and ITU zone (P2=51,VK4/8=55,VK6=58 and VK1/2/3/5/7=59). HQ stations will send RS(T) and official society abbreviation.

Score one point for QSOs within own zone or with an HQ station; three points for QSOs with a different zone in own continent; five points for QSOs with different continents.

Multiplier is total ITU zones plus IARU HQ stations worked on each band.

Final score is total QSO points from all bands X sum of multipliers from each band. Include a dupe sheet for 500+ QSOs.

Send logs postmarked by 6 August to: IARU HQ, Box 310905, Newington, CT 06131-0905, USA. Official forms and an ITU zone/prefix/ continent map can be obtained from the same address on receipt of a large SASE with two IRCs or equivalent.

Certificates to the top scorers in each category, in each state, ITU zone and DXCC country. Also, stations with 250+ QSOs or 50+ multipliers will receive achievement awards.

RSGB Islands On The Air Contest

28 - 29 July

1200z Sat-1200z Sun

This contest is intended to promote contacts between qualifying IOTA island groups and the rest of the world and to encourage expeditions to IOTA islands. Sections are: IOTA Island Stations (ie those with an IOTA reference); World and SWL. You can enter as CW only, SSB only, or mixed mode.

Single operator stations can enter as unlimited (no time limit), or limited (12 hours max, with off periods at least 60 minutes long and marked in the log).

Bands: 80 - 10 m, avoiding 3.56-3.60,3.65-3.70, 14.06-14.125 and 14.30-14.35 MHz.

Exchange: RS(T) plus serial number, plus IOTA reference number if applicable. Stations can be contacted on both Phone and CW on each band. Use the same serial numbering system for both modes.

Score: 15 points per QSO with an IOTA station (including UK); five points for stations in another DXCC country; and two points per QSO with one's own country or IOTA reference.

Multiplier equals the total IOTA references per mode per band, added together.

Final score is total QSO points X total multiplier.

For each band (but not each mode), submit a separate log, multiplier list and dupe sheet.

Send your log and summary sheet to: RSGB IOTA Contest, PO Box 9, Potters Bar, Herts EN6 3RH, postmarked no later than 25 August. A comprehensive range of awards is offered to the leading stations in each category, section & continent.

ar

RESULTS: *2001 Inaugural VK/ trans-Tasman Contest*

• 2001 VK/trans-Tasman Trophy (overall Winner)	**:VK3EW**	David McAulay
Division 1, (Single Operator – Phone):		
• 1st Certificate (score **2158**)	**: VK3EW**	David McAulay
• = 2nd " (score **2066** -Club St'n)	**: VK5SR**	South East Radio Group
• = 2nd " (score **2036**)	**: VK2AKJ**	Jim Patrick
• 3rd " (score **1879**)	**: ZL1BVK**	Alex Learmond
Division 2, (Single Operator – QRP Phone):		
• Certificate (score **534**)	**: VK3LK**	Adrian Hatherley
Division 3, (Stationary Mobile):		
• Certificate (score **909**)	**: VK4YN**	Eric Fittock (VK4NEF) & Bill Horner (VK4FW)
Division 4, (Single Operator – CW):		
• 1st Certificate (score **576**)	**: VK5NJ**	John Nieuwenhuizen
• 2nd " (score **528**)	**: VK3VP**	Ian Godsil
• 3rd " (score **455**)	**: ZL2RX**	Roger Wincer
Certificate (Highest **VK score 2158**)	**: VK3EW**	David McAulay
" (Highest **ZL score 1879**)	**: ZL1BVK**	Alex Learmond
" (**"Night-owl's"** Award – Top score, last hour, **317**)	**: VK2AKJ**	Jim Patrick
" (**"Wooden Spoon"** Award – Lowest score submitted, **3**)	**: VK2JCN**	Chris Newton

Robin L. Harwood VK7RH

BBC World Service dropping short wave broadcasts to Australasia and North America

The head of the BBC World Service, Mark Byford, stunned the short-wave community in early May when he announced that they were axing short-wave broadcasts directed to the Pacific and North American audiences. He arrogantly stated that if people wanted to continue listening to the BBC World Services they could find it on the Internet or via rebroadcasts via local AM or FM affiliates.

This unilateral decision clearly antagonized the millions who still rely on the short-wave signals and there was an immediate backlash, especially in North America. As many of the loyal listeners pointed out, the affiliate program of getting the BBC World Service available on local FM stations is not working to their satisfaction. Stations slot the "Beeb" in the wee small hours when the listening audience is at it's lowest, which is not convenient to the majority of the listeners. Reception also appears to be mainly in the major cities. Also local stations mainly concentrate on the news output and do not broadcast other WS programming. This arrangement is often at the whim of the local rebroadcaster, who often reschedules other programming.

It was also pointed out that the number of people, who can at the same time log on to the BBC via the Internet, could be measured in the thousands and not the millions who can hear transmissions simultaneously via radio. As one respondent on "Write On" the listener feedback program stated " I do not use a computer to listen to the BBC, but a radio. I cannot carry a computer around with me about the house or in the garden or in the car."

The BBC seems to be immune to the outcry that has arisen and protests have now been directed to the Foreign and Commonwealth Office in Whitehall, which is responsible for funding for the BBC external services. This also took them by surprise, judging by the reaction of consular staff and other diplomatic personnel, after receiving angry mail and protests.

Frequencies due to be axed on June 30th here in Australia are 11955 kHz from 0500 to 0900, 9580 from 0600 to 0800, 9740 from 2000 to 2200 UTC. Also relays from Brandon (QLD) from 2300 to 2400 UTC on 12080 and 9660 have been axed. It quickly became apparent that the Pacific Islands were going to miss out as the Internet is not an option nor are local rebroadcasts generally available, so some frequencies would be remaining. These may also be audible here.

Transmissions to SE Asia are heard here but as the antennas are not directed to this region, signal levels may be down. Signals to Europe around 0500 come in well as always especially 9410 and 12095 kHz. It is rather odd that the "Beeb" has not made use of the 13 MHz allocation except for Arabic

Broadcasts. Also the 21 MHz band does not seem to carry as much as they did in previous years. I am personally surprised that the powerhouse on 25650 kHz has not been reactivated as that gave a strong signal in our evening hours. True the latter channel was very good at the solar peak and also may have emanated from the discontinued Daventry site yet it covered quite a slice of the Globe.

Radio Canada International is another casualty

At the same time, Canada's external services also made a drastic cutback in their output, which has seen weekend programming being pre-recorded without any news broadcasts as well as foreign language programs being reduced to 30 minutes. Also weekend programs are to be repeated during the week as filler in hour-long broadcasts. The reason why RCI apparently took this step is because the BBC will no longer be requiring the Sackville relay facilities to broadcast to North America. RCI uses Merlin facilities in the UK to broadcast to Europe and Africa as part of this transmitter-sharing scheme.

This will not affect us, as Montreal has not targeted this region for some time.

This decision also upset listeners, but unlike the BBC, it mainly upset Canadians who listen to it. RCI does not have a large audience, compared to the BBC World Service and mostly Canuck expatriates. While protests over the Bush House cutbacks have come from overseas, protests over RCI's abrupt cutbacks have come from domestic Canadians.

Radio Australia resumes from Darwin

In mid-May, Radio Australia resumed broadcasting from the Cox Peninsula site, off Darwin. It has been 5 years since the Darwin relay was unavailable due to budgetary constraints. The loss of the Darwin facility made a huge dent to the penetration of RA into Asia. Darwin was leased out to a British evangelical radio ministry "Christian Voice" which already broadcasts from Zambia and Chile on short wave. Test transmissions have already commenced from the Darwin facility and a recent agreement was signed allowing a satellite feed from the CV headquarters in the English Midlands to Darwin via Cyprus.

RA via CV Darwin has been heard here at 0000 on 21680 in Indonesian.
The same site was heard 17775 in English from 0000. I do not have the whole schedule of RA transmissions from Darwin handy. 21680, I know has also been carrying CV in English but I think there has to be a break so listeners will not be confused.

Australia's other international broadcast licensee, HCJB, will be in the Kimberley region of WA and may be operational within six months with a

100 kW sender. Incidentally Quito is putting very good signals on 17660 at 2300 UTC in English targeting India, Burma and Thailand. I presume that once the Australian facilities are operational, the broadcasts will cease.

Prominent HF site closed

The Spanish site of US backed Radio Free Europe/ Radio Liberty, near Barcelona, was closed on the 27th.of May after almost 50 continuous years of operation. This site was primarily targeting Eastern Europe and the Soviet Union. With the end of the Cold War, the domestic media scene altered dramatically and RFE/RL programs began to be heard via local FM rebroadcasts. Other European sites have also been closed or downgraded. RFE/RL is continuing from Prague with new languages and regions being covered. Radio Free Asia, also a part of the International Broadcasting Bureau yet is based in Washington DC.

Yugoslavia back on Short Wave

Belgrade has resumed broadcasting on short wave after a nine-month hiatus. The difficulty has been that the transmitters are based in Bosnia – Herzegovina, which is no longer part of the Yugoslavian Federation. Now the hurdles have been overcome, Belgrade can now be easily heard here at 2200 UTC on 7230 kHz in English, Sunday through Fridays. Saturdays sees an extended Serbian transmission. Serbian programs follow the English release.

I am reliably informed that the deal will also see Sarajevo also use the facilities.

Well that is all for this month. Until next time, the very best of 73- Robin L. Harwood.

ar

Radio Amateurs Old Timers Club Australia

Can you help?

This item is about Kingsley AR7 radios and their use by the Australian Army. The famous Kingsley AR7 receiver was originally designed for and widely used by the RAAF. The model used by the Air Force with its strong stainless steel front panel is widely known. Less widely known is the version of the AR7 made especially for Australian Army Signals. There were two versions of this. One had the same bright steel face but it was housed in a horizontal steel box with two coil boxes on small shelves on either side. It was accompanied by a Kingsley SC/DC power pack also in a smaller horizontal steel box with three leads coming out from the bottom front right corner. A small engraved palate bolted to the front panel of the receiver reads, 'Communication Receiver No 1'.

The Army Signals Museum at the vast Simpson Barracks in Melbourne's north-eastern suburbs has one of these— without the power pack— courtesy of one of our members in Bunbury, Western Australia and is very grateful for this.

The alternative Army Signals version of the AR7 also known as Communications Receiver No 1 together with its power supply came in steel boxes as already described BUT the front panel of the receiver had a black enamel finish and the famous dial was also black with the 50 graduations around its perimeter raised above the surface and brass in colour. The calibration charts on the coil boxes were also brass in colour. It was used by various Army Signal Units, including the then top secret Special Wireless Section which was established earlier in World War 2 than the Air Force's famous Eavesdroppers.

Now we come to the meat in the sandwich.

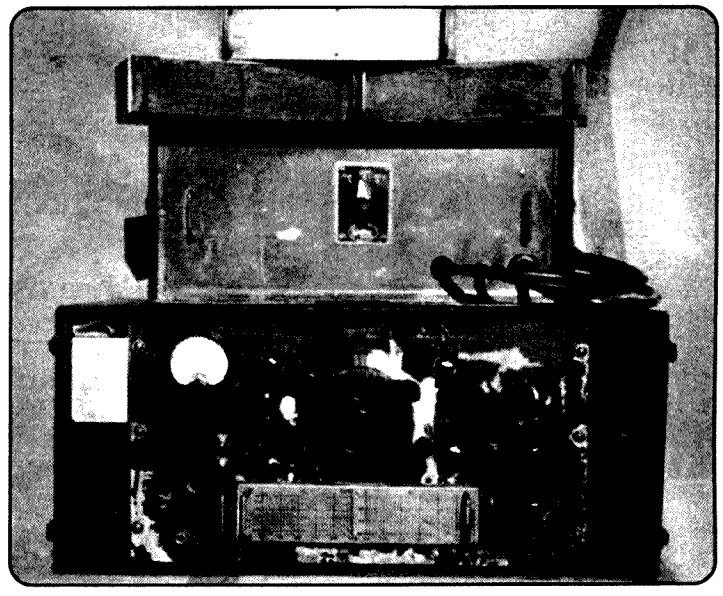
Can any of you find for the Signals Museum one of these black sets—in any condition, together with or separate from a matching Army AR7 power supply— and no, we are not getting confused with the famous HRO or the AMR100 made by AWA. There must be a couple of them about somewhere.

If you can help please call me on 03 9570 4610 or write to me at my call book address.

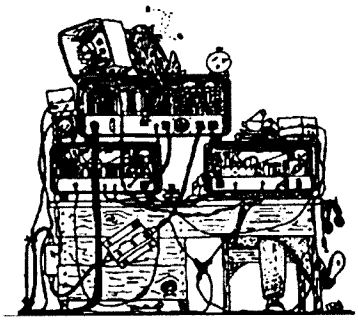
The black AR7/Communications Receiver No 1 would look very much at home in the mock up of an Army Signal Station in the Western Desert complete with dummy operators in desert uniform.

The museum has its own separate building at the Simpson Barracks and is usually open for visitors Tuesdays between 10am and 3pm. The entrance to Simpson Barracks is on Blamey Road on the eastern side of Greensborough Road, Melway Reference 20, D7. The museum is located left of the far end of Blamey Road. Its phone number is 03 9450 7874

Allan Doble VK3AMD
President,
Radio Amateurs Old Timers Club of Australia



Black AR7. Photo courtesy Michael Bush



Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 4

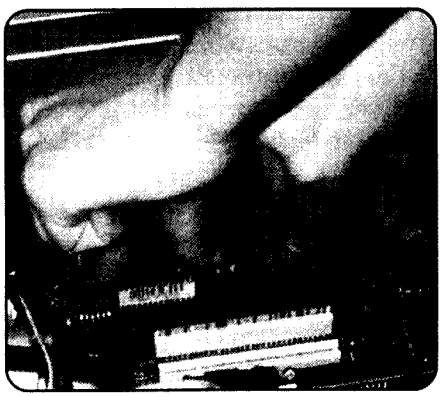
Networking

Making Connections

Some RA's use more than one computer in the ham shack or around the house. Just like a small business, it makes good sense to connect them together. By doing so, productivity increases and it avoids costly duplication of peripherals like printers and modems etc. One cost-effective way to do this is by purchasing a network kit with all the parts, cables, software and instructions. Networking kits (DSE XH7259) cost about $75 with two 10Mbit RJ45 cards and one Category 5 crossover cable (DSE XH3223).

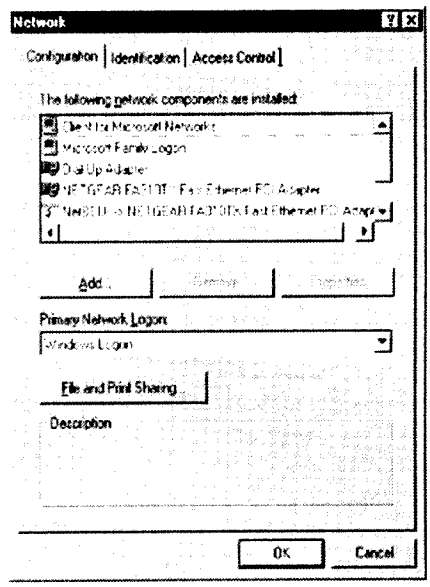
Networking is easy with modern MS Plug-and-Play technology under MS Windows 98 or higher. All that's needed is a Phillips screwdriver and about one-hour of spare time for two computers.

Clear a table making a working platform, remove the computer cover and locate a spare card slot on the motherboard.

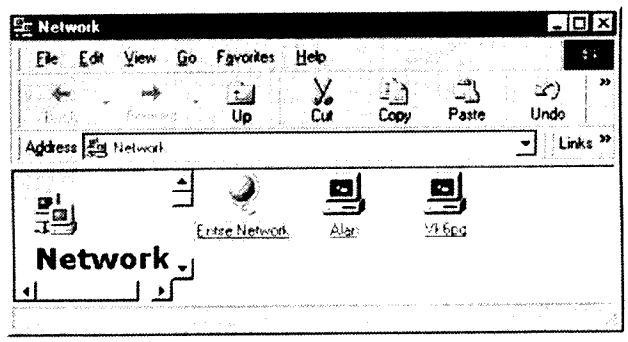


Remove the spare metal blanking plate adjacent to the slot and carefully plug in a network kit card. Screw on the metal faceplate and replace the computer cover. Repeat the process on your second computer and reconnect the computers and switch them on. Windows should recognise your "new hardware" and will configure your network card by allocating computer resources.

Connect the Category 5 crossover cable between both computer cards. On the first computer, go to Start, Control Panel, Network Properties and Open. Add NetBEUI for your network card. If Windows recognised the card, "click" the Identification tab and give your computer a "**Name**" say "**Callsign**". Next, allocate a name for your "**Workgroup**" – this might be called "**Home**" or "**Shack**".



Lastly, select Access Control and check the box for shared access between the computers on your new network. Repeat this process for your second computer, but allocate a different computer name like "**Office**". For the workgroup name, use the same name as for the first computer (EG: "**Home**" or "**Shack**").



But now comes the "exciting bit"!
Return to the MS Windows desktop and "click" the "Network Neighborhood" Icon. Two new icons should now be visible in the window. "Clicking" on alternate icons will reveal the disk and file structure for each computer in turn.

Networking

From either computer, your new network connection can now:

1. interchange files and software.
2. backup for data files etc.
3. run programs.
4. print, scan and much more.

For a more detailed background and/or in cases of difficulty – see 3 below.

Example

"**Office**" has just downloaded a Logging program from the Internet. The file is over 2Mb and won't fit on a floppy disk! To transfer the file, "click" on the file then "copy". Next - open the network icon and open the "**Callsign**" computer. Select the C:\drive, then Programs. Make a new folder for the software called "Logging", open the folder and paste the downloaded file into the folder. Easy!

Transfer is happening at 10,000,000 bits-per-second (10Mb/sec) - a far cry from the dribbling speed of floppies, CD-ROM's, removable disks or the Internet!

Three, four or more computers can be added to a network by using a common "hub" connected in a "star" network. The installation process is the same but cables must be standard Cat 5 without crossover connections.

Transceiver Control

Modern transceivers use electronic control in the production testing routine. A data connection is usually available on the rear panel to connect

specialised equipment and "testing" computers. These connections use TTL (Transistor, Transistor Logic) language and require conversion to RS232 computer serial port language for control and operation with a personal computer in the shack.

Icom-Ten Tec-Yaesu Control

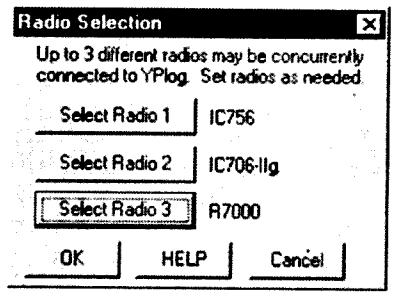
Icom and Ten Tec each manufacture a RS232/TTL Level Converter called the CI-V. This connects between the transceiver data port and a spare communications port on the back of the computer. The basic circuit (courtesy of the ARRL. 2) is shown below for Yaesu equipment like the FT1000MP etc.

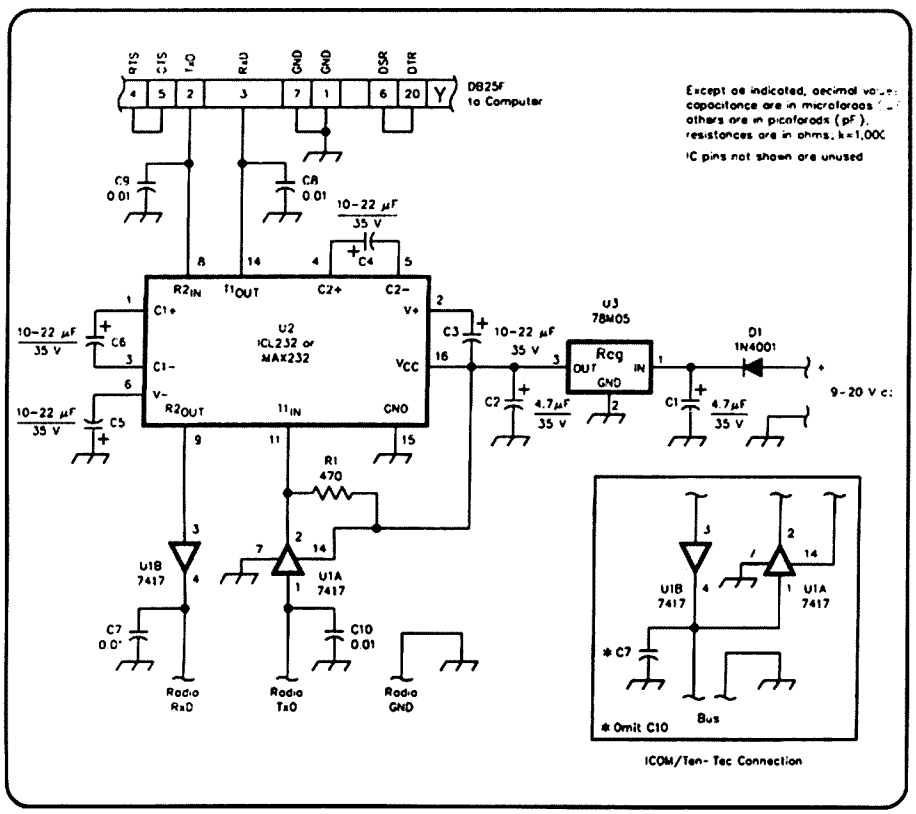
regulated supply from the shack transceiver +12V regulated DC power supply (DSE D3800).

D1 is the protection diode in case the external 12V is connected in reverse!

Example for Icom Users

YPlog (see part 3) allows control of up to three Icom radios. These might be:





The smaller inset circuit diagram shows the circuit modifications for Icom and Ten Tec transceivers or receivers.

Home Construction

A small aluminum diecast box (DSE H2221), one 25-way female connector (DSE S2691) and all the components including the RS232/TTL converter chip (1) shown on the above circuit are available from Dick Smith Electronics. Construction can easily be done on Versa board (DSE H5614) using DIL sockets for U1 and U2. U3 provides the single 5V regulated supply from the shack transceiver +12V regulated DC power supply (DSE D3800).

D1 is the protection diode in case the external 12V is connected in reverse!

1. Main rig - Icom IC 746
2. Portable rig – Icom IC 706MkIIG
3. Receiver – IC R7000

Each rig is then selected from the YPlog control panel. It's that easy!

For readers with different makes of equipment the problems get more complex. The exception being Icom and Ten Tec who use the same converter interface (as illustrated). However, Yaesu requires split RxD (Receive Data) and TxD (Transmit Data) bus lines as shown. For Kenwood users, the converter is different yet again with four separate control lines isolated from the transceiver by opto-couplers. (See ARRL Handbook. 1998, p22.47 for circuit details).

Once converter connections are made, almost full control of your rig(s) is possible on the one computer screen.

The On Air Computer

The computer inserts the date and time in the log and control signals from the transceiver are received via the communications port entering the mode, frequency and filter selection. All you have to do is enter the callsign of the station heard or worked and everything is displayed on the screen.

Most logging and control programs have a "Contest Mode" that automatically inserts the contest serial number, and increments the number on the next contact. Logs can be unique or merged with the main station log if desired. Clubs with several callsigns can have separate logs for each call. With YPlog, select File, Open Existing Log, then select the desired log from the menu and the display changes to the new log.

With a VHF packet modem connected to the computer as well as the logging program and a mouse, *three* communications ports are active at the same time. Arrange the key display windows so they can be seen on the screen, then "click" the wanted window and enter your data. Alternatively, use the ALT+TAB keys on the keyboard to see and display the new window. All this might seem as if you have become a "Trained Octopus" but once you have got accustomed to the process, then your productivity will soar to new heights, and no more scrap paper floating about!

Ham Tip No. 4

To prevent damage when handling processor chips, memory strips, hard and floppy drives, CD-ROMs, printed boards and cards etc, ALWAYS use an anti-static wrist strap (Altronics T4002) to an earthed computer chassis.

Ham Shack Computers, Part 5 – Upgrading looks at adding new hardware, upgrading and maintaining your computer on a shoestring budget.

(1). MAX232 RS232 TX/RX 16pin DIL chip (DSE Z5369 $10:54)

(2). CI-V TTL/RS232 Level Converter. *The ARRL Handbook*. 1998. p22.46

(3). *The Networking Handbook*. 1998. ACP Computer Publications Pty Ltd. Sydney. ISBN 1 876587 12 1 (inc. CD)

ar

VHF/UHF AN EXPANDING WORLD

David K Minchin VK5KK
Postal PO Box 789 Salisbury South Australia 5108
E-mail: tecknolt@arcom.com.au Web page: http://members.ozemail.com.au/~tecknolt
Fax +61 8 82924501 NEW FAX NUMBER Phone 0403368066 AH ONLY
All times are in UTC.

Mid Winter Slumber

Information on any activity is scarce this month! Hats off to those who keep the bands warm through winter. Rob VK3EK is one of those...."I haven't reported for some time in regard to the 144.150 net of a Wednesday night @ 09:30 UTC. As I have some free time now, what better to do than to report on last night (30/5/2001)? Even if it is winter and the nights are getting cold, it was a good turn up."

"Worked from VK3EK QF32te at Bairnsdale; IAN VK3AXH QF12 Ballarat, JIM VK3II QF21 Coronet Bay, John VK3KWA QF22 Mitcham, Daryl VK3XD QF22 Newstead, Barry VK3BJM QF22, Roscoe VK3TPJ QF22, Jim VK3AEF QF03 Nhill. I believe Alan VK2DXE QF56 was listening but nothing heard here, and, as well Brian VK3KQB QF24 a regular of a Wednesday night's also."

"If you have an interest in VHF/UHF and Microwave, such as you can see by the report above, when we have good propagation we often have good contacts on 70cm, 23cm and 13cm as well. *Anyone is most welcome to join us.* There is also a 3.6500 liaison freq as well. So, come and be part of the fun! Anyone wishing to see what I get up to myself can have a look at my Web site, it is www.qsl.net/vk3ek/ . Hope to speak to you all next week "... 73's Rob VK3EK

Joe Gelston, VK7JG, reports that 432 MHz Auroral propagation has occurred in VK in response to my column a few issues ago ..."I wish to inform you that 432 has been used in VK for this mode. Back in 1989 14/03/89 to be precise there was an extremely large Aurora where I worked into VK5, 3 and 2 and to put the icing on the cake I worked David VK3AUU on 432 we exchanged 3-3 reports, I believe this to be the first Auroral contact on this frequency. Just for the record, this is my log. At 2220 worked VK30T 52 MHz also VK3HY on 6 and 2, 2235 worked VK2ZRE on 2, 2326 worked VK5NY on 6, *2333 worked VK3AUU on 432 MHz*, also working VK5NY and VK3TAD on 2."

"Perhaps this info is a little dated but conditions on the night were excellent. I did work David once more on 432 via Aurora that year but nothing since. This year has been rather poor. I was running an 8874 to the legal limit into an 88el Jaybeam. At the present time have been experimenting with REX VK7MO using the Hell program we can communicate between Launceston and Hobart on 6m with as little as 500 milliwatts." ... 73's Joe Gelston VK7JG

50 MHz Activity From The Sub Continent

Emil Pocock, W3EP reports in his "World above 50 MHz column" in July 2001 QST magazine. "Indians received temporary permission to operate on 50.350 and 50.550 MHz this past fall using FM only, but SSB and CW were also allowed not long afterward. The initial special authorization lasted for six months, but in January, the permission was extended until August 1. Raj, VU2ZAP and other Indian operators have petitioned through their national organization for permanent access to a segment closer to 50.100 MHz. Other 6-metre operators active from Bangalore (MK82) this past season included VU2MKP, who runs an IC-746 to a 6-element Yagi; VU2RCR, with an FT-847 and a 4-element Yagi; and VU2BGS, who uses a transverter with 25 W and a long wire. VU2RM runs QRP to a small Yagi from Kakinada (NK16) on the east coast, and VU2GTE operates 6 metres from Bombay (MK69) on the west coast."

"Raj has had incredible success on the band with his FT-847 and a 4-element Yagi, as suggested by the 67 countries he worked in just six months. On many days during the early part of this year, Raj worked HZ (Saudi Arabia), EY (Tajikistan), D6 (Comoros), VR2 (Hong Kong), JA (Japan), and other stations with huge S9+ signals. Raj worked Europeans as far west as Spain, New Zealand via long path, and across the Pacific to KH6/K6MIO in Hawaii. He has worked PYØFF, as well as other Brazilians and Argentines, but Raj has not yet heard any signals from South Africa or from North America."

"VU2ZAP also made some most unusual 6-metre contacts with CEØY/W7XU on Easter Island between April 2 and 7. Bangalore is just north of the Equator, while Easter Island lies just south of the Equator, almost exactly half way around the globe. Thus, the two stations were nearly at their antipodes, approximately 18,300 km apart, and in ideal positions to take advantage of spring F/2\ propagation. No matter which direction VU2ZAP and CEØY/W7XU pointed their antennas, the great circle distance between the two varied by less than 3,500 km." ... Emil Pocock, W3EP

Serg Convention

The Queens birthday long weekend, 9-11th of June 2001, saw the annual pilgrimage to Mt Gambier, SA for the SERG convention. For over 30 years, now the SERG (South East radio Group) convention has been the traditional meeting point for VK3 & VK5 Amateurs of many and varied interests. Apart from the usual commercial equipment display and general "Buy& sell", the ARDF & Australian Fox Hunting Championships is perhaps the main event. Fox Hunting is conducted on 3.5, 28, 50, 144, 432 & 1296 MHz. Weather was good for most of the weekend and no one got bogged this year!

It is good to see the support for Fox

David VK5KK, David VK5CK and Mark VK5AVQ accepting the SERG trophy (2nd year running) in 1983!

Hunting as strong as it is. Its roots go back to earlier days in VHF & UHF activity. Once upon a time a good map, a compass, excellent local terrain local knowledge, good equipment, a suitable all terrain vehicle and good luck where all you needed (!) Nothing has changed! While GPS's and moving maps may make life a little easier for the navigator, it's still the same hard slog. Hats off to the SERG members, who under the callsign VK5SR successfully managed to hide themselves and keep a dozen or so participants on their toes for the weekend. This year it was a close battle between VK3 & VK5 with VK3 taking out line honours by a slim margin. Watch out next year!!

Microwave Primer Part Fourteen: Microwave Transverter Local Oscillators

Two fundamental variables can make or break a microwave contact over a significant path. The first is the correct dish horizontal/vertical "dish" heading. The second is frequency accuracy and stability. If both are under control then your good noise figure and measured power output will work as expected.

If you have your frequency accuracy/ stability under control but perhaps not sure on the dish orientation then you will have your chances reduced by a factor determined by your dishes beam width vs. the arc of probable headings. E.g., if you are sure of the heading to within 15 degrees in the horizontal plane and your beam width is 3 degrees then your chances are one in five! If you don't have your frequency stability under control but your beam heading is then your chances are probably going to be in the same region. If you don't have either under control then you are in trouble! Moreover, given that the station at the other end has the same variables then you will see why many microwave contacts do not to happen! "Dish" headings can be controlled with good maps, a graduated tripod and a good compass. Frequency accuracy and stability is a bit harder and in my opinion more important.

Knowing where you are in frequency relates to the stability, over time, of the local oscillator from the point it was first set. Frequency stability acceptable at 144 MHz of a few ppm's becomes unacceptable at frequencies a hundred times that. In much the same manner of beam headings, acceptable stability is a ratio of bandwidth vs. frequency. E.g., a 2.5kHz bandwidth at 144 MHz means that a variance of 17ppm will still mean that the signal is within the pass band of the receiver. At 10 GHz, that becomes 0.2ppm. When you consider that a good fifth overtone crystal is usually rated at 5ppm over its temperature operating range the potential for trouble is evident. Therefore, what has to be done and how much?

The most popular method of stabilizing an oscillator is to control the basic instability element, temperature. This can be done by controlling the temperature of the whole oscillator in a "Crystal oven" or by simply using a clip on "Crystal heater". What is needed will depend on the ultimate stability required. For our 10 GHz example, a 20 times improvement in stability is required, invariably the clip on crystal heater will achieve this along with a good oscillator design and a correctly specified crystal.

Murata manufacture a number of HC49/U clip on heaters. These are PTC (Positive temperature coefficient) devices that run at a temperature just above the highest expected in operation. 50 degrees C is common on a 5volt supply rail. A crystal can be stabilised at 50 degrees within 5 minutes meaning a quick warm up compared to a crystal oven taking up to 30 minutes or more. Stability is within 1 degree C and implementation is simple. Just clip it on and connect to a five volt 250mA source! Some thermal insulation (styro foam) around the oscillator and crystal is advisable as temperature variation on the oscillator components can also be a secondary issue. You must use a 50-degree spec crystal. If you are ordering crystals from HyQ-Q ask for a crystal Spec TS07S, 5ppm 50 deg C cut. The end result, with some work, can be 0.3ppm over typical operating temperatures. (If any one needs clips, drop me an email).

The next most popular method is using a PLL locked local oscillator. The advantage of a PLL is the ability to lock the oscillator to a standard (usually 10 MHz) reference. This could be as simple as a 10 MHz TCXO / Oven based oscillator or a 10 MHz reference derived from a GPS or TV sync standard. This option will give you far better stability than the clip on heater in a homebrew overtone oscillator with random picked components, only limited by the extent you which to go with the reference!

There are two ways to implement a PLL. The first way is to use an ex commercial K band synthesizer such as the Qualcomm types. All usually, have 2.5 GHz fundamental oscillators compatible with most transverter multiplication chains. Modifications to get them to work from 2.1 – 2.6 GHz are not complex. The only pitfall of this type of oscillator is the relatively high amount of phase noise that they produce. Most are passable at 10 GHz but useless at 24 GHz! After all these are free running, relatively low Q oscillators at 2 GHz being locked by normal divider chains! The more modern types have reasonably sophisticated phase noise canceling features.

The second and preferred PLL type is

the injection locked overtone crystal. Commercially these are the "Frequency West Brick" type of oscillators where the overtone crystal oscillator is locked against a reference oscillator. The PLL has a relatively long loop time, after all the crystal has good short term stability only needing to be referenced against a standard for medium to long term stability. While these oscillators are common in the USA, they aren't here. As an alternative I have successfully developed an "add on" PCB that will convert a normal DB6NT (or G4DDK, etc) local oscillator to a PLL locked one. You retain the good phase noise characteristics of an overtone crystal but gain the ability to lock its frequency to any standard you can manage to find. Details are on my web site; so far, about 100 have gone out as short form kits around the globe.

The third option is to compensate the actual temperature characteristics of the local oscillator itself. This can be done by using various temperature compensating capacitors or via external means. Quite a few years ago, I conducted a few experiments with active temperature compensation. This was in response to the usual drift problems we experienced on 10 GHz signals ... lets call it the "One hand on the VFO dial at all times" syndrome! For those who like to study what an oscillator does under expected temperature variations and fix it fundamentally then keep reading.

Active temperature compensation is quite simple. First, plot a crystal oscillator's frequency over an operating temperature range of say 5 – 40 degrees and chart this change. Then plot a straight line through the mean average of the curve. You will notice that the curve is almost a straight line over this range mostly due to changes within other parts of the oscillator. It is now just a matter of compensating for this change, i.e. repositioning the straight line flat! In its simplest form, it involves a small circuit using a varistor as the temperature source (clamped to the crystal) driving a low noise Op-Amp driving a Varicap diode loosely coupled to the crystal in a Butler (or similar) oscillator. A more complex solution is to use a look up chart/EPROM to compensate for temperature at set intervals.

While each oscillator will be different, it doesn't take long to plot various curves to chart the oscillators response to temperature, the varistors response to temperature and the oscillators response to Varicap volts. With some experimentation, you will find the correct voltage drive range for the Varicap to get almost linear results. You then can calculate the Op-Amps set point and gain for a first pass test! Usual improvement is 10:1 first time. You then simply repeat the exercise of plotting temperature vs. frequency. This time around, you will now be compensating the Varicap temperature vs. voltage characteristics as much as anything. The result is a 20 – 50 times improvement ultimately dependent on the flatness of the original curve plotted.

In summary, I use all three types. For shack use, I use PLL techniques only because it enables all local oscillators to be locked to one source. In the field, I use both Oven clips and Temperature compensation. Oven clips have a small warm up time whereas temperature compensation works within 2 seconds. No matter which way you go always check or calibrate your local oscillator before you go out! Make sure that this reference lines up with the other stations reference! There is no use having a stable oscillator if you don't know where you or the other station is!

In closing

50 MHz has dropped off somewhat since early May 2001 from all reports. The Europeans report only a fair Spring Equinox, perhaps to be expected right at the alleged peak. The late warm conditions in the Southern States have helped give some local propagation but not much past 500km's. It is time to start building for next summer!

I'll leave you with this thought ... "Politicians and crabs move in such a manner that it is hard to tell if they are coming or going ..."

73s David VK5KK AR

AR Over To You

RD contest spoiled by bad manners

I enjoyed reading Bernd's (DJ7YE) comments on contests in May AR and it captures my limited experience with contests. Soon after I obtained my callsign in 1977 I eagerly anticipated participation in the annual Remembrance Day contest. I became disillusioned very quickly. Bad manners were quite prevalent, particularly amongst those who were content on getting a good score rather than just participating.

I was inexperienced at contests so adopted normal operating practice of looking for a quiet spot, putting out several "CQ Contest" calls and then waiting for responses. The number of times I had "my spot" taken over by others was most annoying and it was primarily by an aggressive local few. If I searched around and heard somebody new I would call them, exchange pleasantries and move off leaving them to their spot. In the end I gave it all away because there was no real communications taking place, only quick exchanges of numbers and a lot of discourteous operating practice. When the contest results were eventually published it brought a wry smile to my face to see those up around the winners circle. I knew how they got there and how they discouraged many others. I participated in two RD Contests and gave it away after that.

Ian Barton VK5AIB

more letters on page 56

Pounding Brass

S.P. Smith VK2SPS
4/6 Taranto Rd Marsfield NSW 2122
E-mail vk2sps@one.net.au
(H) 02 9876 8264 (M) 0419 602 520

Interesting Internet sites

People interested in telegraphy whether it is past, present or future can gain a wealth of knowledge from the Internet. Depending upon your interests, be them technical or historical, the information 'super highway' is the way to go.

If you are a complete beginner and looking for some sites to explore type in 'Telegraph Equipment' after a given time depending upon the search engine used you will be given a number of interesting sites to look at. It's just a matter of clicking on that site and taking it from there.

I did just that, some of the sites that came back were as follows – (note there are about 20 sites to choose from)

1. KA2MGE Telegraph Museum
2. Larry's Web Page
3. Telegraph and Scientific Instrument Museum

One site I found extremely interesting was 'KA2MGE Telegraph Museum' this one I will go into with a bit more detail about what can be found.

This site is for telegraph collectors and others interested in the history of telegraphy. All you have to do is click on a category and view its contents. The categories listed are as follows: -

1. Telegraph Apparatus
2. Telegraph Company Advertising Signs
3. Miscellaneous
4. Links to other sites

Silent Keys

The WIA regrets to announce the recent passing of:-

K C (Ken) SEDDON VK3ACS
(John) KELLY VK3AFD
A (Al) BOWLEY VK3AP
W A TRENWITH VK3ATW
C W RICHARDSON VK3QY

Let's have a look at these in detail.

1. Telegraph Apparatus

Within this category we focus on landline equipment basically hand keys from the years of 1860 through to about 1940.

We also look at Semi-Automatics, Radio Keys, Portable/Compact sets and Practice Keys. Each key is identified with a photograph and detailed information on that particular key.

2. Telegraph Company Advertising Signs

Here we'll look at signs that were used by the major companies of the time to advertise their services both inside and out of the telegraph office.

3. Miscellaneous

Here we look at Frank Cards, this was similar to credit cards of today, and these were issued by the telegraph companies to allow people to send telegrams on credit. Also covered are telegraph wire insulators, call boxes, membership cards, employee badges and telegrams.

4. Links

Many more telegraph pages can be found from links to other websites

- The Telegraph Office
- Telegraph Lore
- Vibroplex Collectors Page
- Sparks Telegraph key review
- IK6BAK Collection

Have a look at IK6BAK Website, he has over 70 different keys from around the world with information on each, this is a good place to start if you are trying to identify an unknown key, you may be lucky here.

The Telegraph Office - Web Address nmcewen@metronet.com

The best general Web page on the history and technology of telegraphy with numerous resources and links for collectors and historians. Neal McEwen K5RW maintains this site.

Internet On line Telegraph & Scientific Instrument Cyber-Museum

Tom Perera W1TP maintains this site full of images of telegraph equipment and scientific instruments. Web Address' are:-

1) http://w1tp.com or

2) http://www.chss.montclair.edu/~pererat/telegrap.htm

Other Sites Of Interest Are:-

- Morsum Magnificat. Journal for Morse Enthusiasts
  Web Page: http://www.morsum.demon.co.uk
- The Keyletter. A compendium of fascinating information for and by collectors. Edited and published by Lynn Burlingame N7CFO
  Web Page: http://www.qsl.net/n7cfo/index.htm
- Old timers Bulletin of the Antique Wireless Association
  Web Page: http://www.antiquewireless.org
- Dots and Dashes. By the Morse Telegraph Site
  Web Page: http://www.webpak.net/~kl7ixx/index.html

This is just a brief overview of some of the web sites that can be accessed if you have a computer or can get to a library.

Next month we will continue our tour of telegraph web sites.

Until then, 73 Stephen Smith VK2SPS

Oxley Region Amateur Radio Club

The O.R.A.R.C. held its annual Field Day at Port Macquarie over the Queens Birthday holiday weekend, (June 9/10). Attendance was down slightly on previous years, but with the winter weather of beautiful clear skies, it was a great weekend. Not only did visitors travel by road, but VK2EZQ/MM sailed up from Laurieton and anchored near the venue point.

Other than the conventional trash and treasure sales, demonstrations of SSTV, PSK-31, Packet and WinRadio were on show together with excellent stalls provided by Andrews Electronics and MasterCom. A terrific display of antique equipment was also on show.

Five Foxhunts were conducted during the day on 2, 10 and 40 metres. The overall winner was Craig, VK2HBM, with Chris, VK2YMW, and a close second. The best presented vehicle was won by Arnold, VK2ADA. The home-brew competition, which had some very interesting equipment on view was won by Neil, VK2EI, with his own designed and constructed TV Frequency Reference Generator.

Besides Amateur equipment, the sausage sizzle was enjoyed beside the water. The club had arranged some excellent raffle prizes donated by various business's in the area which were presented to the winners by WIA Federal Director David Pilley, VK2AYD.

The O.R.A.R.C. which has approximately 50 members, meets at the S.E.S. Building in Gordon Street, Port Macquarie on the first Saturday of each month at 1 p.m. Visitors are always very welcome. For more information contact the Secretary, Alan Nutt, VK2GD, on (02) 6582 3557, or by email.

Trash or Treasure?

Gary Ryan of MasterCom with ICOM.

Adelaide Hills Amateur Radio Society

The May meeting of AHARS was devoted to the problem of interference. The speaker was Rob VK5RG who had to deal with this problem of interference though his work as well as from practical experience as a radio amateur – someone well qualified to explain the intricacies of unwanted noise.

The cause of power line interference and interference from computers were dealt with, in the most part. But the solution to the problems was often also presented.

With a number of OHPs and some material handed around, it was a very interesting and informative talk. An article based on this talk may appear in this magazine soon. It is a topic of vital interest to many.

Visitors to VK5 are always welcome to attend the AHARS meetings but please note that there will be no meeting in July. A mid-year dinner is always held in lieu of a formal meeting, in July. If you are visiting the state at any time please contact Alby VK5TAW or Geoff VK5TY, QTHR the callbook, for details.

Please note that the HF BBS developed by AHARS is now in a new location, at the Water Tower, where it is using the callsign VK5WI. Otherwise everything is available to be used as before. If you are travelling around Australia it is now possible to access packet radio from wherever you can access VK5WI. The information about frequencies etc has all been published in AR.

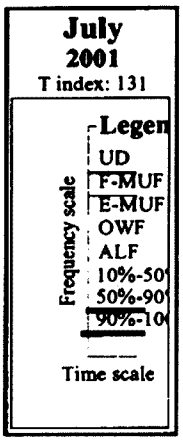
HF Predictions

by Evan Jarman VK3AN
34 Alandale Court Blackburn Vic 313

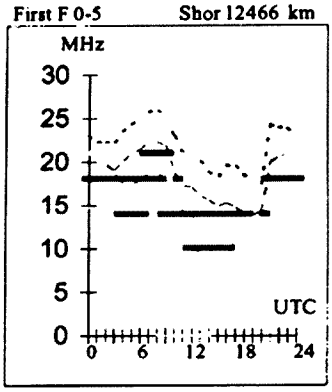
These graphs show the predicted diurnal variation of ke frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

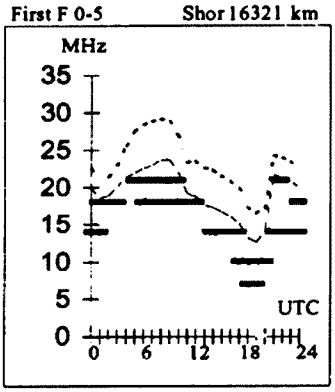
Shown hourly are the highest frequency amateur bands i ranges between these key frequencies, when usable. The path propagation mode and Australian terminal bearing are also give for each circuit.
These predictions were made with the Ionospheric Predictio Service program: ASAPS Version 4



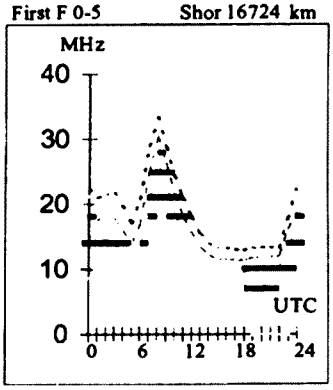
Adelaide-Anchorage 30
First F 0-5 Shor 12466 km



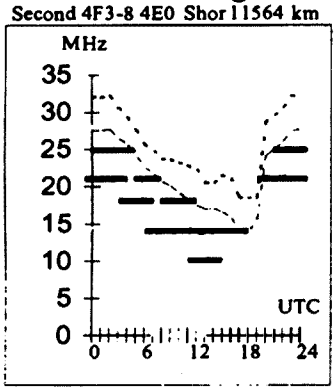
Brisbane-Berne ##
First F 0-5 Shor 16321 km



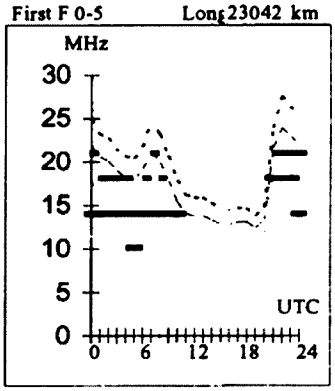
Adelaide-Dakar ##
First F 0-5 Shor 16724 km



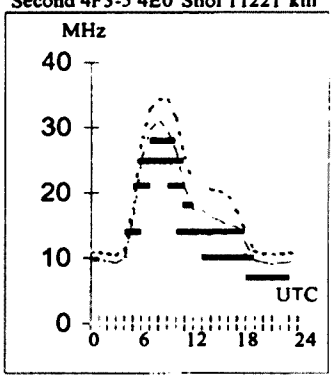
Brisbane-Los Angele 59
Second 4F3-8 4E0 Shor 11564 km



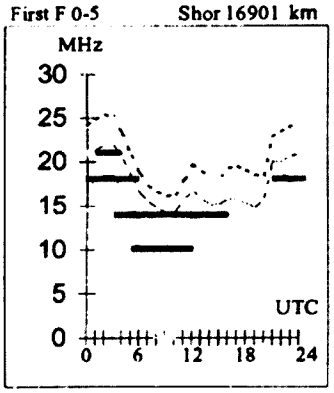
Canberra-London ##
First F 0-5 Long 23042 km



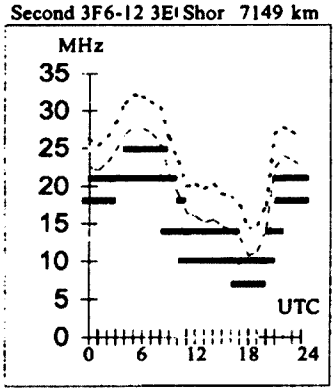
Darwin-Capetown ##
Second 4F3-5 4E0 Shor 11221 km



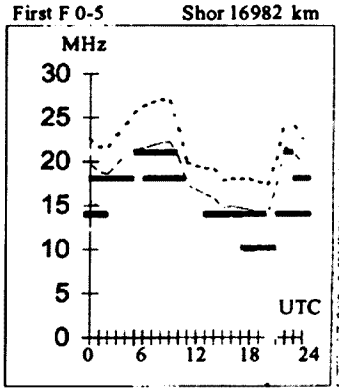
Adelaide-Ottawa 58
First F 0-5 Shor 16901 km



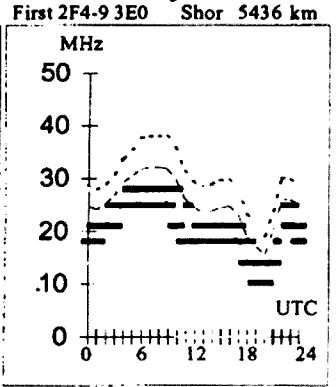
Brisbane-Osaka ##
Second 3F6-12 3E Shor 7149 km



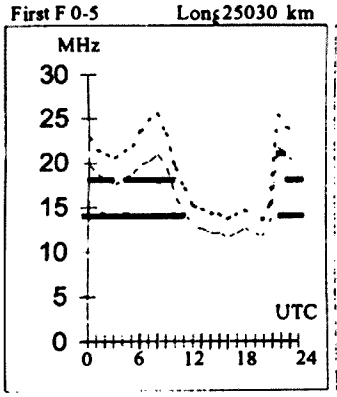
Canberra-London ##
First F 0-5 Shor 16982 km



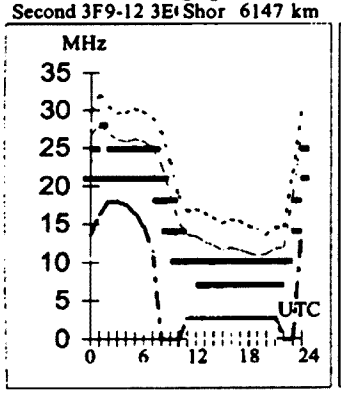
Darwin-Tokyo 10
First 2F4-9 3E0 Shor 5436 km



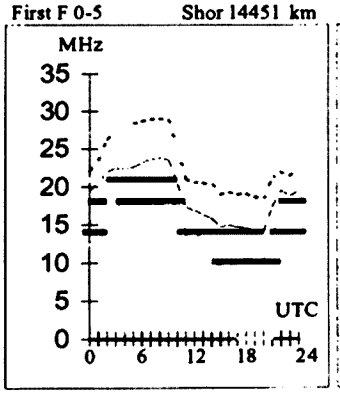
Adelaide-Stockholm ##
First F 0-5 Long 25030 km



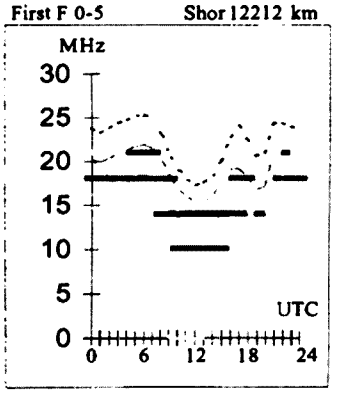
Brisbane-Singapore ##
Second 3F9-12 3E Shor 6147 km



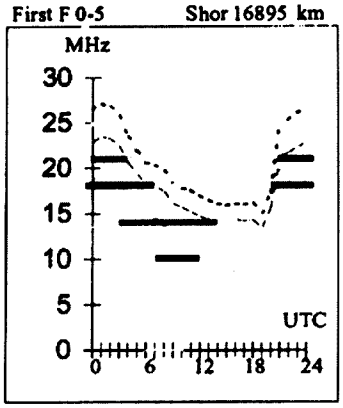
Canberra-Moscow ##
First F 0-5 Shor 14451 km



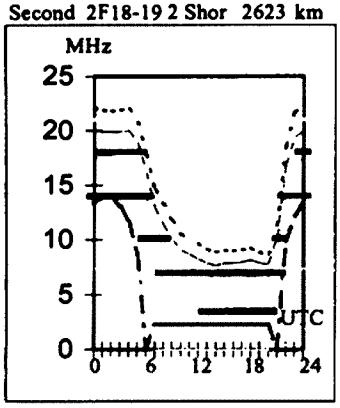
Darwin-Vancouver 42
First F 0-5 Shor 12212 km



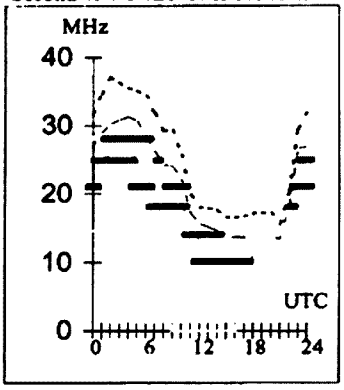
Hobart-Boston 78
First F 0-5 Shor 16895 km



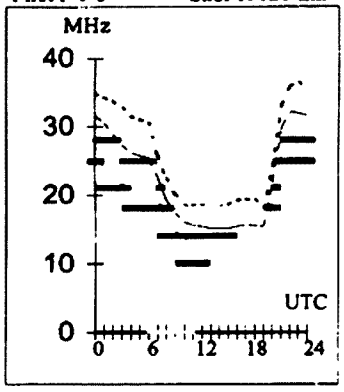
Melbourne-Auckland 97
Second 2F18-19 2 Shor 2623 km



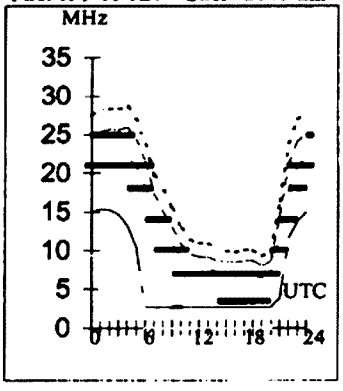
Perth-Honolulu 70
Second 4F4-8 4E0 Shor 10905 km



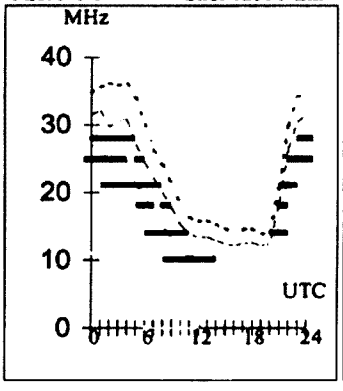
Sydney-Miami 86
First F 0-5 Shor 15026 km



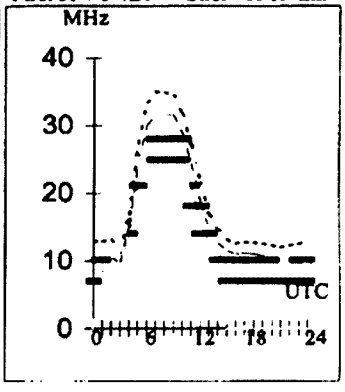
Hobart-Chrlstchurch ##
First 1F9-10 1E0 Shor 2040 km



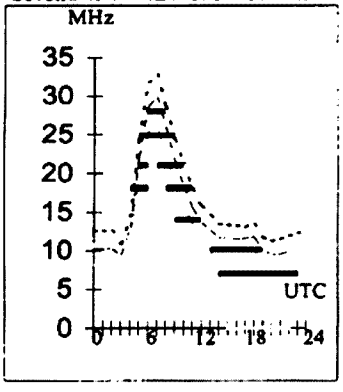
Melbourne-Lima ##
First F 0-5 Shor 12950 km



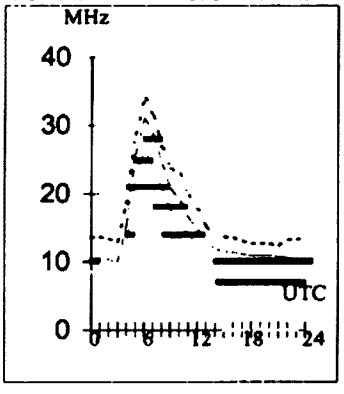
Perth-Johannesburg ##
First 3F4-5 4E0 Shor 8315 km



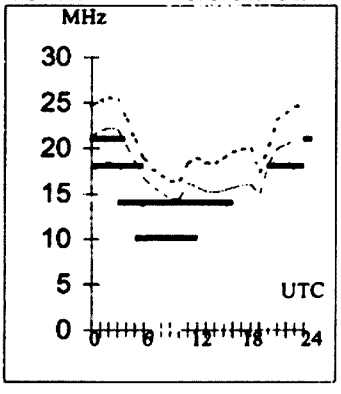
Sydney-Pretoria ##
Second 4F4-5 4E0 Shor 11063 km



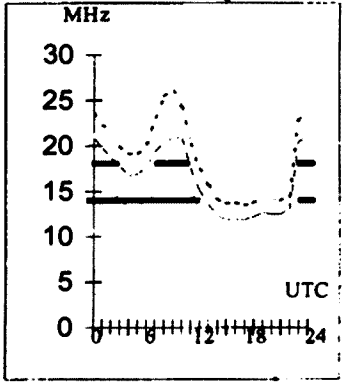
Hobart-Lusaka ##
First F 0-5 Shor 11045 km



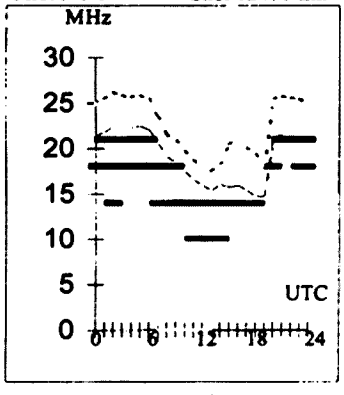
Melbourne-Montreal 62
First F 0-5 Shor 16731 km



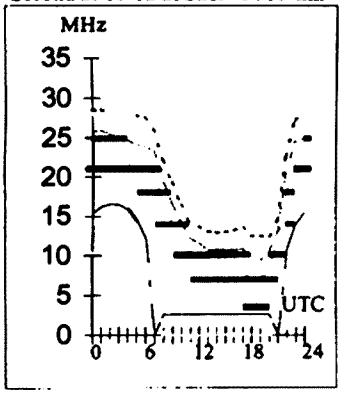
Perth-London ##
First F 0-5 Long 25543 km



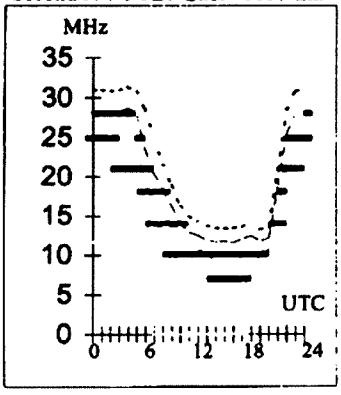
Sydney-Seattle 47
First F 0-5 Shor 12470 km



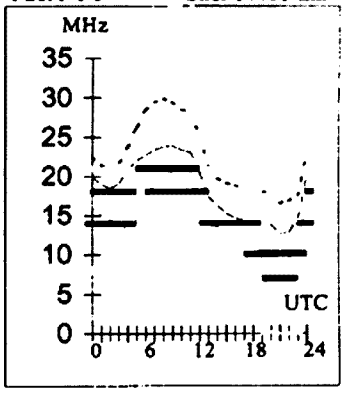
Hobart-Port Moresby ##
Second 2F10-12 21 Shor 3710 km



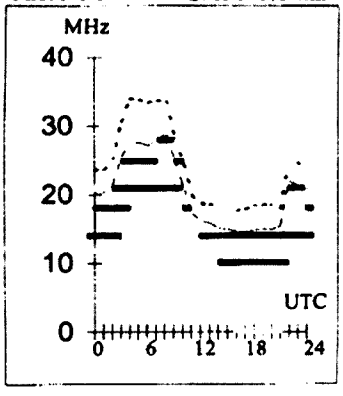
Melbourne-Papeete 90
Second 3F7-9 3E0 Shor 6687 km



Perth-London ##
First F 0-5 Shor 14481 km



Sydney-Tel Aviv ##
First F 0-5 Shor 14173 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE ACT

• DRAKE TR3 Transceiver, remote VFO, AC and DC Power, some spare valves, manual, microphone $400. VK1US QTHR, phone 02 6281 3587.

WANTED ACT

• TOWER, NALLY TYPE, wind up and tilt-over, for ACT Division hamshack. Gilbert VK1GH, phone 02 6254 3266 or 0427 543 003

FOR SALE NSW

• PACKRAT 232MBX packet control. Serial No M00667. Complete with cables, handbook, software. Excellent condition, used twice. Cost $649. Sell posted insured C O D $260. Charlie VK2NAJ QTHR, phone 02 6456 1646. Jindabyne NSW

• KENWOOD TS-50S, very good condition SN 60800838 $950. KENWOOD TS-680S, good condition SN 9031265 $600. KENWOOD SP-430 SN 0090218 $60. ICOM IC281H, very good condition SN 16035 $225. Bruce Morley VK2ZNB, phone 0418 684 701. PO Box 3029, Teralba NSW 2284

• COMMAND [SCR-274N] receivers, transmitters and modulators, on racks, with connectors, remote controls and tuning cables. Brian VK2GCE, phone 02 9545 2650 or brianclarke@telstra.easymail.com.au

WANTED NSW

• Circuit diagram for TEKTRONIX 5403 OSCILLOSCOPE main frame. VK2EDD, phone 02 4982 9847

• VALVES. I'm trying to contact the seller at the Wyong Field Day, who had boxes of CV valves for sale. He had a stall near the entrance to the undercover seller area. I need some morel WHIP AERIALS. I also want to contact another seller who had some green whip aerials in boxes. He was also at the Wyong Field Day and was located up the hill near the main entrance in a large van. Ray Robinson VK2ILV, phone 02 9489 8561

• CIRCUIT diagram/technical manual for a LEADER LBO 505 DUAL TRACE OSCILLOSCOPE. Stan Dogger VK2KSD, QTHR, phone 02 6677 9292.

• The radio base of the Variety Club of WA is looking for somewhere to stay overnight between 10-18 Aug. Must be RF quiet. Must be in GSM service. Will be travelling fully self contained along the Barrier Hwy, Mitchell Hwy, Newell Hwy, Gwydir Hwy to Byron Bay. Will be operating 5 MHz mobile. Please contact Peter VK6PK on phone 08 9573 1316 or email beta@vianet.net.au mni tnx.

FOR SALE VIC

• COMMAND[SCR-274N] receivers, transmitters and modulators, on racks, with connectors, remote controls and tuning cables. Bill VK3AQB, phone 03 9337 4902 or jikajika@net2000.com.au

• YAESU Transceiver FT-102, synthesised scanning EXTERNAL VFO FV-102DM, ANTENNA TUNER FC-102, EXTERNAL SPEAKER AUDIO/FILTER SP-102, EXTERNAL SPEAKER/PHONE PATCH SP-102P, MICROPHONE MD-1, MICROPHONE MH-1, G5RV antenna, DUMMY LOAD model MFJ-250. Prefer not to separate Yaesu marked equipment. All manuals. Harrow VK3CHM QTHR, phone 03 9890 5960.

• ICOM IC-T81A hand held, current model, 4 band, 6-2-70-23. Has DESKTOP CHARGER model BC119, CASE, SPEAKER MICROPHONE, SPARE BATTERY, QUAD BAND GAIN ANTENNA. In mint condition, hardly used. You can pay $1375.00 or you can buy mine for $800.00 S/No of Radio is 01029. VK3GV QTHR or phone 03 9560 3773 or valentine@unite.com.au, Glen Waverley.

• KENWOOD TS-850S, built-in tuner, mint cond. $1800. YAESU FL-2100Z LINEAR AMPLIFIER, mint cond $1000. YAESU FC-902 ATU mint cond. $450. KENWOOD TW-4100A DUAL-BAND 144/430 MHz Ex. Cond. $350. ICOM IC-27A 144MHz XCVR $250. All with manuals in boxes. David VK3NDS, phone 0419 357 104.

• CUSHCRAFT R7000 VERTICAL ANTENNA $500. KENWOOD TS-520S TRANSCEIVER, $160, AT-200 ANTENNA TUNER $160, VFO-520 REMOTE VFO $160, MC-60 DESKTOP MICROPHONE, $90. MIZUHO SX-9 PRE-SELECOR 3-30MHz $120, HUSTLER Commander 400 ROTATOR $150. Contact David: Mobile 0438 404 515. Email cookdavo@hotmail.com

• YAESU FT-890 in mint condition, bought brand new, one owner only, fitted with ATU. This is a very clean beautiful radio, orginal box, cables, handmike and manual, $1500. KENWOOD TS-820 in fine working condition with MC-50 base mike, only ever used it on 160m. $375. YAESU FT-101E in good working condition, I only ever used it as an 'I.F' for the FTV-250B, R.F Processor not fitted, a clean, no marks, work horse $300. ALINCO DUALBANDER DR-570, working ok on VHF/UHF. Display is clean and clear, 10 channel memory, bought brand new 10 years ago and has never failed me. $350. Phone A.H 03 9792 4500, B.H 03 9212 4070 or email csjeffry@ozemail.com.au. Clint Jeffrey VK3CSJ, QTHR.

• Shack Sale & Workshop Clearance:1 X ICOM IC-271H 2m high power all mode BASE STATION $900. 1 X ICOM IC-471H 70cm high power all mode BASE STATION $1000. 19 X MOTOROLA MAXAR 80 VHF MOBILES $30 each. 2 X Commercial UHF REPEATERS PHILIPS PRF-15 (430 - 500 MHz) $1600/pair. 1 X Commercial VHF REPEATER - needs minor repairs $250. 1 X TEKTRONIX WFM-1480 VIDEO WAVEFORM MONITOR - VGC $400. 1 X TEKTRONIX 465 OSCILLOSCOPE VGC $800. 1 X BOSCH HQ COMPOSITE VIDEO DECODER to RGB/YUV $500. 3 X COMPAQ DESKPRO-4100 486dx4/100 PCs with 16Mb RAM $100 each. (No keyboards, mice or monitors). 2 X DATAPRODUCTS LZR-895 LASER PRINTERS $ 200 each. 1 X APC Smart-ups 400 POWER SUPPLY - $150. 1 X TIMEWAVE DSP-59+ AUDIO DIGITAL SIGNAL PROCESSOR $300. All offers considered! Paul VK3KHZ (Ex VK3VRD / VK3YWD) QTHR, phone 0412 302 939

• LINEAR AMPLIFIER, the Rolls-Royce of linears BUILT BY VK3AHT, built with highest quality professional and commercial components, guaranteed better than Drake or Collins linears, using 3-500Z valves. Front panel controls input and output meters plus spare 3-500Z, r r p $US340. The lot $1400. Harry VK3AXJ QTHR, phone 03 9802 5704

• ICOM IC-281H MOBILE 2m TRANSCEIVER SN 001702 with manual (& home brew Slim Jim antenna) $345. MOBILE ANTENNA MFJ 1728B 2m 5/8 wave, magnetic base $25. DIAMOND F-23A ANTENNA - 2m 5/8 wave 3 element vertical $95. Plus misc info. David VK3DNG QTHR, phone 03 9859 4698. Email darodda@jeack.com.au

• NALLY TOWER, 2 stage, dismantled $800 ono, for inspection ring Mark Dunn, phone 0418 315 747

• KENWOOD TL-922 LINEAR, new unused, $1600. KENWOOD TS-940S, exc condition $1300. KENWOOD TS-440S, v good $750. KENWOOD PS-50 mint $300. Ron VK3OM QTHR, phone 03 5944 3019

FOR SALE QLD

• KENWOOD TRANSCEIVER TS-440S Serial No.8060024 with Manual $900. KENWOOD DC

Power Supply PS-50 Serial No. 8080466 with Manual $250. KENWOOD 144 MHz TRANSCEIVER TH-25 Serial No.9042210 with Manual $200. PHILIPS TRANSCEIVER FM-828 Serial No.41899 $120. VK POWERMASTER DC POWER SUPPLY $50. W.G.WULF Multi-band (10-80 m) VERTICAL ANTENNA with assembly diagram and instructions $90. Errol Mattingley VK4MEH, phone 07 4973 8514.

• YAESU FT-1000MP HF TRANSCEIVER in excellent condition $4200. YAESU FL-7000 HF LINEAR AMPLIFIER VGC serviced by Dick Smith Electronics to manufacturer's specification $2400. Manuals included with both units. Contact Harry VK4EL on phone 07 5445 2647 or heverett@one.net.au

• SHURE 404C HAND MICROPHONE. Same insert as 444 Shure desk mike (brand new in box) $100.00. YAESU MUSEN LANDLINER PHONE PATCH SPEAKER with full instructions $225.00. KENWOOD MC-50 DESK MICROPHONE (as new) $75.00. KENWOOD PS-52 HEAVY DUTY POWER SUPPLY, brand new in box $575.00. KENWOOD PG-2N DC POWER CABLE $35.00. (New) KENWOOD PG-3B NOISE FILTER DC POWER LEAD $35. (New) KENWOOD DM-81 GRID DIP METER complete $125.00. ICOM MH-98 DTMF SCANNING HAND HELD MICROPHONE, new in box $75.00. John Abbott VK4SKY QTHR, phone 0417 410 503. Email japat5@bigpond.com

• ICOM IC-471H 70cm ALLMODE and IC-16 SATELLITE I/F $900, KENWOOD SM-220 STATION MONITOR (inc BS8) $220. TOPWARD TAG-403 AUDIO GENERATOR. $80. MICRONTA & REACE SWR, HF PWR meters $25 ea, and G.M.E. GX284 6ch MARINE CB & new antenna $50. all ono, Dennis VK4ADY QTHR, phone 07 4639 2369. Email dennisa@hypermax.net.au

• YAESU FT-101 HF Tx/Rx $150. YAESU FT-757GX HF Tx/Rx $500. PALOMAR HF AMPLIFIER 300W 13.8V $150. YAGI 3-element tri-bander, balun, coax $125. peterhadgraft@yahoo.com VK4APD, phone 07 3397 3751.

WANTED QLD

• Service/owner manual (or copy) for H P SIGNAL GENERATOR (VHF) model 608E. All costs refunded. FILAMENT TRANSFORMERS 5v @ 15/30a and 10v @ 10a. Gwen VK4CB QTHR, phone 07 3202 7137

• POWER PLUG for YAESU FT-101, could be just the (Jones) plug, DC power cable or AC power cable. Michael VK4BMV QTHR, phone 07 3260 5776 or e-mail fmrtech@msn.com.au.

FOR SALE SA

• Deceased Estate: KENWOOD TS-180S with operators manual $500. TH3 3 ELEMENT BEAM $150. COMMANDER ROTATOR with control box, power supply and spare rotator $100 (needs attention). Paul VK5MAP QTHR, phone 08 8651 2398

WANTED SA

• BATTERY CHARGER for MOTOROLA HT-220 handheld. Hank VK5JAZ, phone 0403 285 940 or vk5jaz@hotmail.com

FOR SALE WA

• KENWOOD TS- 790A DUALBANDER S/N 50400212 (2m/70cm) pristine condition, in original packaging with operating and service manuals and MC-60 desk mic $1500. Don VK6DJP, phone 08 9458 3449

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

FOR SALE ELECTRONIC VALVES

If you are looking for valves you can contact, Gamini Liyadipitiya at email: gamini@ee.unsw.edu.au Small negotiated fee — first come first served.

• AMIDON FERROMAGNETIC CORES:

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please. 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports.

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura: Tower Communications, Perth: Haven Electronics, Nowra

New email address for hamads:

newsletters@ozemail.com.au

If you have sent a hamad to the old email address since 22/6/01, please resend. We apologise for the inconvenience (our ISP went broke!)

http://www.hamsearch.com
a not-for-profit site that is a search engine for hams

PLAN AHEAD

ACTIVITIES FOR JULY

- **Remembrance Day Contest preparation.**
  Note letter this issue on manners. The RD has always been the Friendly Contest let us keep it that way as a mark of respect to those Amateurs who died in war.

ACTIVITIES IN AUGUST

- Take part in the **Remembrance Day Contest** and met a few or more old friends.
- Take part in the **ALARA Contest** and meet a few new girls. Every one can take part. It now runs for 36 hours covering two evenings.

ACTIVITIES FOR OCTOBER

- Plan now to help some Scouts or Guides in **JOTA** or **JOTI** and spread the word that Hams are fun, Amateur Radio is interesting and it helps people.

"Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the

Radio Amateurs Old Timers Club Australia

or if you have been licensed for less than 25 but more than ten years, you are invited to become an Associate Member of the RAOTC.

In either case a $2.50 joining fee plus $8.00 for one year or $15.00 for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to

RAOTC,
3/237 Bluff Road
Sandringham VIC 3191

or call Arthur VK3VQ on 03 9598 4262 or Allan VK3AMD on 03 9570 4610, for an application form.

ADVERTISERS INDEX

Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

Compulsory Membership

On the subject of membership, I feel it should be mandatory.

In my opinion compulsory membership would ruin the WIA. It may give it some increased resources, but the effectiveness that these are used would fall, so we would be no better off than we are now. Our standing with government will fall. It would make WIA office bearers completely unaccountable. All amateurs in Australia would be forced to pay for an entrenched bureaucracy that could make a crony-stacked club look like an open democracy! There is also no realistic possibility of a government ever legislating for compulsory membership.

To quote from my WIA opinions page http://www.alphalink.com.au/~parkerp/wianat.htm

"*Compulsory membership and the 'freeloader problem'*

When loyal WIA members see that they are paying for services and facilities that non-members can use for free, they quite justifiably get upset. Why should non-members get many of the benefits members pay for (e.g. repeaters, spectrum space obtained through WIA and IARU lobbying) and contribute nothing in return?

These concerns are quite legitimate. Some well-meaning people have suggested that Institute membership be made a condition of holding an amateur radio licence, an/or become a component of the annual licence fee. At first sight this appears quite attractive. Because the costs of national representation, Amateur Radio magazine and administration would be spread over 16 000 amateurs instead of less than 5000, per-capita membership subscriptions could fall. Greater membership gives the Institute more clout in the corridors of power and allows improved services to members.

All these are laudable aims. However I am forced to conclude that any requirement for Australian radio amateurs be WIA members would be contrary to the Institute's best interests. I hold this view for the following reasons.

- The legitimacy of the WIA as the representative organisation for Australian radio amateurs would disappear overnight if it were widely known that membership was compulsory. This would demean the WIA in the eyes of both its members and the ACA.
- The WIA would become lazy. It would no longer be required to work to retain members by providing services members want. Thus though there would be more money available, there would be less discipline to spend it efficiently.
- Thus members would get less value for their membership dollar.
- The WIA is currently a democratic organisation. Members can come and go as they choose and seek election for office. Compulsory membership would transfer power from individual members to WIA office-bearers and employees. There would be fewer checks and balances to curb the damage that could be caused by incompetent (but well-meaning) office-bearers.
- Membership loss is a symptom, not a cause. It is the causes that should be treated, not the symptom. Compulsion solves nothing.
- If membership were made compulsory, the WIA would become very unpopular because Australians value freedom of association and resent forced unionism.
- Any decision by a future government to rescind compulsory WIA membership for Australian amateurs would plunge the Institute into crisis because the organisation would have lost the skills to attract and retain members (who belong due to choice rather than compulsion). People who advocate compulsory WIA membership for all Australian amateurs mean well, but should never be allowed to get their way. Fortunately, even if this misguided idea becomes WIA policy (which is unlikely), there is absolutely no prospect of any Australian Government acceding to it. And this will be for the good of all of us.

Supporters of compulsory WIA membership should cease their misguided bleating and instead work to make the WIA such an attractive organisation that nearly all Australian amateurs will want to join. Compulsion fixes nothing!

73, Peter Parker VK3YE

Invisible Antennas

I wish to compliment both you and Ron Holmes, VK5VH, on the article on 'Invisible Antennas' published in AR, April 2000.

The article was well written from both technical and English points of view. With the greying of our ranks, an article like this can bring new hope to those of us displaced by age or economic rationalism from our normal hobby pursuit.

It is quite clear from Ron's article that one doesn't need the latest whizz-bang radio and an antenna farm to remain in contact with lifelong friends. I also got a feeling of joy as I read the article – Ron knows how to write a motivating article. I hope he has more in the pipeline.

73 de Brian Clarke VK2GCE

Address Letters to:

The Editor,
Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

YAESU'S DONE IT AGAIN

NEW FOR 2001

YAESU

Yaesu FT-1000MP Mark V Deluxe HF Base Station

Yaesu is proud to enter a new chapter in the history books with the release of the new premier-class MARK-V FT-1000MP. Offering new features such as 200W PEP RF output, a Class-A RF power amplifier, interlocked Digital Bandwidth Tracking, a variable RF front-end preselector filter and improved control layouts, the MARK-V represents the highest overall performance ever offered in a Yaesu HF transceiver. Whether your interest is in ragchewing or contest operation, the MARK-V's outstanding hybrid analogue/DSP receiver IF chain incorporating a new 10 pole Collins SSB filter and the use of Enhanced Digital Signal Processing (EDSP) with improved front panel access provides dramatic improvements in readability under tough conditions. For ease of use, the new MARK-V uses an external FP-29 power supply which can be mounted next to the transceiver, or under your operating desk. Yaesu's IF-based EDSP system provides noise-reduction protocols, audio enhancement with equalisation programs for Tx and Rx use and an automatic notch filter which identifies and eliminates multiple interfering carriers. The MARK-V FT-1000MP also features selectable receiver front-ends, High-stability Reference Oscillator, an internal high-power auto antenna tuner, two main antenna sockets, selectable tuning steps as small as 0.625Hz, dual-mode noise blankers, 500Hz and 6kHz IF filters, an RS-232C computer interface, plus easy digital mode interfacing. With so many new and improved features, why not ask for a copy of the 8 page colour brochure today to learn more about this amazing new transceiver.

D 3450

$6500

On display at selected PowerHouse stores only. Please call for details. All Yaesu products are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia.

Offer expires 31/7/2001.

DICK SMITH ELECTRONICS

That's where you go!

2733 IBC 4 col.

MORE GREAT GEAR FROM ICOM

IC-T81A

A remarkably compact quad bander.

· VHF/UHF Multiband FM transceiver · 2M, 6M, 70cm, 23cm
· 124 alphanumeric memory channels · Ni-MH battery
· tone squelch, "joy stick" operation

IC-910H NEW!

The new dimension in the VHF/UHF World!

Tri band multimode transceiver • 2M - 100W, 70CM - 75W, (optional 23CM,10W) • 9600 bps packet operation • Satellite communication • Reverse/normal tracking doppler shift compensation • CIV capability for PC control

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional DSP capabilities, including noise reduction and auto notch function. It's versatile, compact and loaded with features.

IC-756PRO The HF & 6M multimode professional performer.

100 watts of power, newly designed 32 bit floating DSP for noise reduction and auto notch function, and AGC loop operation for wider dynamic range. Plus digital IF filter, built-in RTTY Demodulator/Dual Peak APF, and a whole lot more.

IC-706MKIIG

The amazing evolution of the legendary 706.

Now includes the 70cm - 20W and output power has been increased to 50W on 2m. You get base station performance and features in a mobile rig-sized package.

ICOM
Clearly Ahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

2 YR WARRANTY

August 2001
Volume 69 No 8

Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

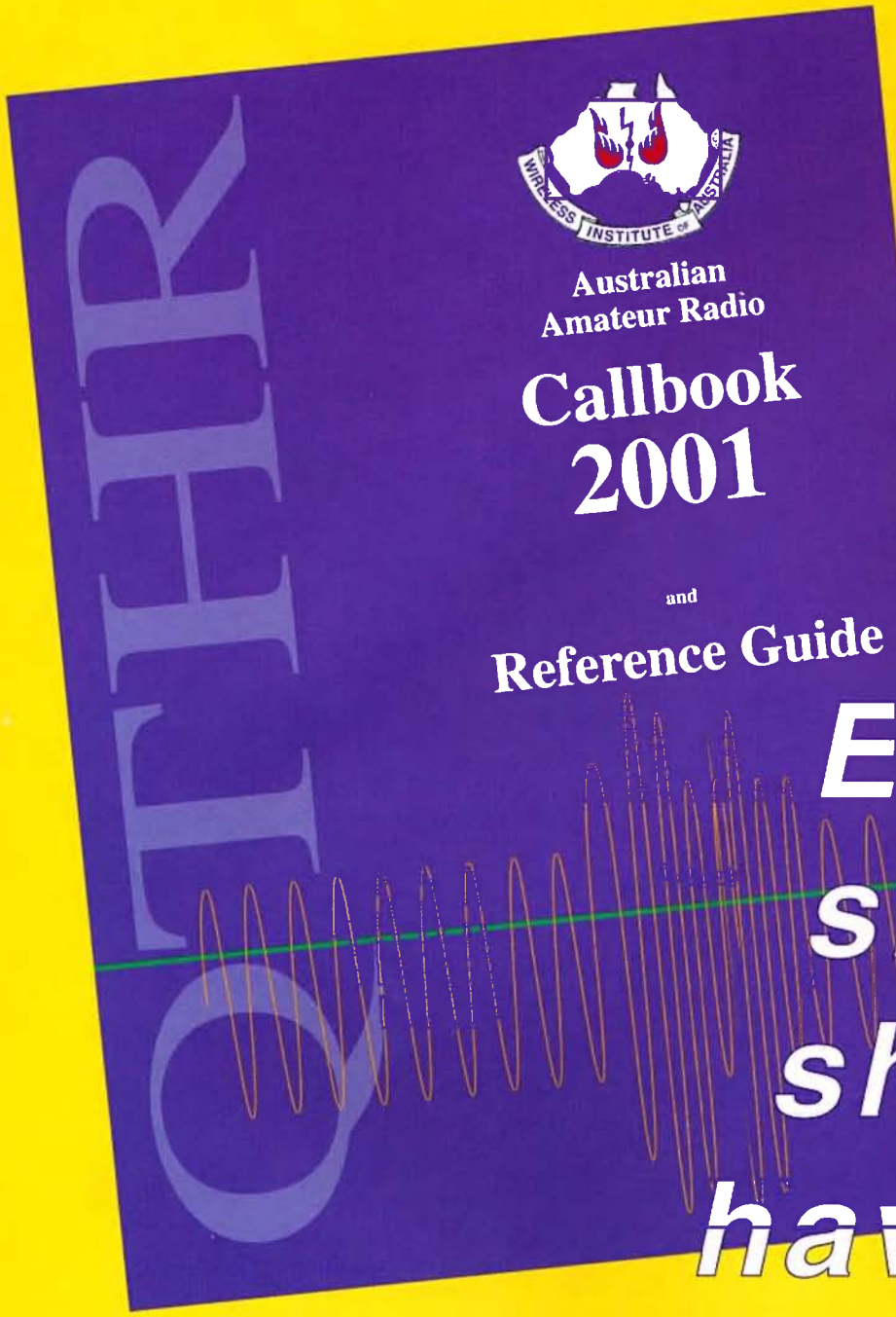
Remembrance Day Contest

International Lighthouse/Lightship Weekend

Internet Repeater Linking

- [redacted] Reference Oscillator
- Noise Blanking for the High Q LF Loop Antenna
- Review of the Prosistel 2051B

Technical Abstracts: • RFI Tracker • Grounding



Every shack should have one

Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies ***and more!***

The "WIA Call Book 2001" is available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 8
August 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members
Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI
Bill Roper VK3BR

Advertising

Mrs June Fox
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031
e-mail: *newsletters@ozemail.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191
Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

General

Technical

Columns

Our cover this month

Focusing on the present and future for Remembrance Day: SIG Julie Meredith and CPL Cristian Birzer (kneeling), members of 144 Signal Squadron. Photographs from Captain Sandra Turner of 9th Brigade, the Army Reserve Unit in SA and Tasmania, taken by Pte Kathryn Thomas.

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues
Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Editorial Comment

Colwyn Low VK5UE

Getting it right!

Well I seem to more often than not get things just a bit wrong with this magazine. The July cover had to be redone and changed at the last moment. The proof cover was far too grainy to publish. You will have read the notes on photograph requirements in the July issue. Please send either hard copy original prints or digital picture with at least 300dpi. There are also a few SKs, which have appeared more than once, and I apologise for any hurt this has caused. These entries will be entered from an editor's database in future.

This month we say good bye to two regular columnists John Kelleher VK3DP who has provide the AWARDS column for 10 years and Peter Parker's Novice Notes. We will have other input from Peter, but we now need a Novice Columnist. John has not been in the best of health recently so in addition to our thanks we hope he can enjoy better health and do a few of the things that give him pleasure We will miss you John. Hands up now for a new Awards Officer.

I am pleased to announce that Ian Godsil VK3VP is again Federal Contest Co-ordinator. Congratulations Ian.

We have a different RD Contest cover subject this year. Remembering the past while acknowledging the present. August will see both the RD and the ALARA contests. These are significant Australian Amateur Radio events please support them.

The public face of Amateur Radio needs to be continually spruced up and presented to the public for at least two reasons. 1. To let people know who we are and what we do and 2. That we do provide a community service in times of emergency and disaster. If this is more widely known and recognised in the community we may find it easier to justify our access to the RF Spectrum.

There are several areas where we could do just a little more and make a much greater impact. For example at the Coopers Adelaide Rally scoring details were handled by WICEN, each operator could display a 600 by 1000 mm sign with the WICEN logo and underneath Radio Operator. However 'Does everyone know that Wireless Institute is the Amateur Radio Organisation?' I feel we need some further sign that say 'Radio Amateurs assisting the Community – Ask the operator for more information in a quiet moment'. Think about it.

Further this month sees the International Lighthouse–Lightship Weekend. This is an opportunity to have some time out and work from a 'Different' location. If you stay home you can share in the activation by providing some contacts and if you are into collecting QSL cards some very interesting ones will be on offer.

The RD and ALARA contests take place this month. Both are more about contacting old friends and making new ones rather than squash all to win contests. How about working 10 contacts in each for starters and some more if you feel like it.

The editor recently got out in the early mornings to work with WICEN (Ran out of petrol on the way home. Even Historic VW Beetles need more petrol than one fill up between February and July). Keith VK5OQ has given me a circuit to get 200mW at 1296MHz so I will have to get back to SMT.

Have a great operating and constructing August.

Colwyn, VK5UE

Silent Keys

The WIA regrets to announce the recent passing of:-

E MARSTELLA VK2AEZ
R M C (Ronald) STUART VK2ASJ
C H UTBER VK3AHU
J H (John) WARREN VK3DKD
S A BRUNETTE VK3IS
C R ALLEN VK6ACR

WIA Comment

Ernest Hocking VK1LK

Meeting the Members

Last month I went to Parramatta for the VK2 conference of clubs. The agenda included several business items, most notably increased charges for access to State Government owned property for the operation of repeaters. VK2 has assembled a team to approach the various State organisations to see if a more sensible arrangement can be arrived at in light of the importance of these sites to WICEN and similar activities. Following the discussions two talks were given. One by Peter Illmayer VK2YX on Internet Radio Linking Project and the other Steven Pall VK2PS on the future of amateur radio. Both identified the importance of membership to the future success of amateur radio. One, through the involvement in technically exciting areas such as that surrounding the use of the Internet to enhance amateur radio, and the other through a more active involvement in the local community. Both approaches have their merits, although I suspect that we need to encompass both approaches if we are to attract the widest range of potential members.

Also discussed were reports of the use of the Olympic Radio Network recently. The VK3 Division first brought this to my attention and has now been confirmed by the VK2 division. On my return to Canberra I approached the ACA to see how they wished to approach the matter. After a few days I was informed that the use of the system had stopped. It appears that an engineer at the site had inadvertently switched the equipment on. I was very pleased to see the way in which the WIA and ACA worked together on the solution of this problem. Each has a role to play in reporting and dealing with such incidents.

Work recently took me to Adelaide. Although a short visit, I was able to meet with the members of the S.A. UHF Group/Elizabeth Amateur Radio Club. Thanks to everyone who made me welcome and allowing me to discuss how we can improve amateur radio. I always welcome the opportunity to meet and listen to fellow amateurs. Hopefully I will get more opportunities.

Federal Executive Business

The month much other important business has been conducted. I can report that David Pilley has been working hard on the issue of budgets. It is a fact that with our current membership funds are tight. The simplest way out of this situation is to recruit more amateurs and persuade them to become members of the Institute. This will take some time so David has taken on the job of determining what we can and cannot afford to do.

Brenda and her team have completed work on the WIA response to the ACA examinations discussion paper. This has now been submitted and we await the issue of the Request for Tender. I have made it clear to the ACA that the WIA is very keen to take up the full responsibility for administering the amateur examinations. Don Wilchefski has been hard at work filling gaps in the current Federal coordinator portfolio. If anyone has the time to devote to such activities I am sure that Don would be delighted to hear from you. By the time you read this I hope that Ian Godsil has been re-elected to the position of Federal Contest Coordinator. I hope to confirm an appointment to the position of Intruder Watch coordinator by the next issue of AR.

Other Matters

Recently Barry White has put forward a motion from VK2 for the WIA to investigate the role of a foundation licence in attracting new members to the hobby. You can visit the web site for a copy of the paper or speak to your local Divisional Councillor. This action is a natural sequel to the motion passed at Convention regarding the investigation of an entry level license. It would need to be carefully planned. This matter was recently discussed informally with the ACA at a meeting attended by Gilbert Hughes of VK1 and I. I can report that these initial discussions suggest that the ACA are not averse to the consideration of this matter as part of an overall license rationalisation exercise. The full report on this meeting will be published separately.

One matter does need everyone's immediate attention. This is license fee increases. The recently released ACA price schedule has identified a one dollar increase in the amateur license. It should be pointed out that this increase is the first since 1995. This is significant since the ACA went to some trouble during the recent introduction of the GST to absorb any cost increase. I would ask all members to accept this increase in light of the length of time that the previous fees have been in place. The ACA liaison committee will be dealing with the matter of license fees over the next year in time for the next ACA price review. We already know that other overseas administrations have taken radical measures with their pricing. We need to assess these and make a suitable proposal to the ACA.

In terms of work with the ACA I can report that the first meeting of the new format International Radio-communications Advisory Committee (IRAC) has been scheduled for 30 August. I will be discussing the agenda items with the various WIA representatives over the next few weeks in order to be prepared for the meeting.

This will be a great opportunity to ensure that the interests of the amateur community are represented at a national forum.

The number of letters, emails, and phone calls to me continues to increase. I am grateful to everyone who as taken the time to put their thoughts to paper. Most correspondence relates to ways in which the WIA can improve the way that it works. Many people also offer their time to assist. I am heartened by the passion that so many people have for the hobby. Please keep the correspondence coming. It is the only way that the WIA executive can get to know the concerns you have.

ar

Noise Blanking for the High Q LF Loop Antenna

Lloyd Butler VK5BR
18 Ottawa Avenue
Panorama SA 5041

A high Q tuned loop has many desirable features for LF reception including the reduction of localised noise. However the high Q prevents operation of the usual receiver noise blanker. The article describes how noise blanking can be achieved by using an auxiliary antenna in conjunction with the loop.

The advantages of using the tuned loop antenna for LF reception have been described in previous articles. The signal level induced into the loop is quite low and to ensure that this level is well above the inherent noise level of the following interface amplifier, it is desirable to use a loop which has high Q to achieve a high voltage multiplication within the loop tuned circuit. There are also a number of other advantages in raising the Q such as improving rejection of strong adjacent signals, which might cause cross modulation in the following mixer. However, this high Q inhibits operation of the normal noise blanker installed in most receivers. Noise blankers work on impulse type noise and the aim of the system described is to provide a means to blank out this type of noise whilst still taking advantage of the feature of high Q within the loop.

In previous articles, I described a loop converter (Reference 1) and a noise cancelling unit (Reference 2). These operated from an auxiliary antenna to provide a cancelling signal, which was mixed with the output from the loop antenna. In the following text I describe a further blanking unit, which is fed from the same auxiliary antenna and the same noise cancelling unit, but in this case the latter operates as a tuning and gain controlled interface unit.

The System

Figure 1 shows how the system is connected up. The auxiliary antenna is connected to the noise cancelling unit, which controls phase and amplitude for adjusting noise cancellation. The output of this unit is fed via a switch in the blanking unit and, with the switch selected for noise cancelling, the output is fed to the loop converter for mixing with the loop signal. For this switch connection, the system operates as described in Reference 2.

With the switch selected for noise blanking, the noise cancelling unit output is fed into the blanking detector. In this operation, the phase control is

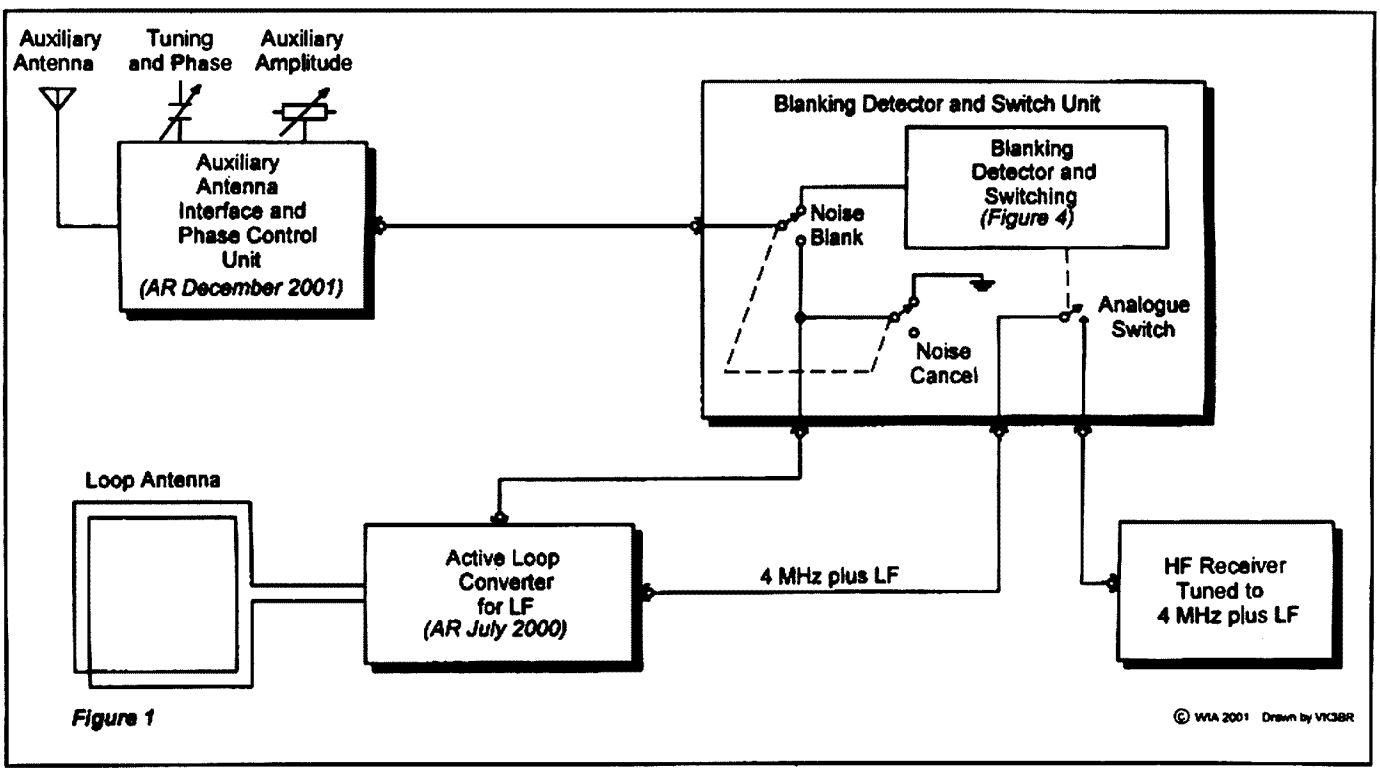


Figure 1. Active loop converter set-up with noise cancelling and noise blanking arrangement

simply a tuning control and the amplitude control sets the level into the blanking detector. When triggered, the blanking detector operates a CMOS bilateral analogue switch, which opens the 4 MHz loop converter output to the host HF receiver for a defined preset period.

The noise cancelling and noise blanking units are in separate metal boxes to the loop converter and the three are interconnected via BNC connector ended cords. The arrangement is how the experimental system evolved. I initially built the LF Converter with regeneration for Q control. I later thought I would try noise cancelling and later again the blanking system.

Impulse Noise and Blanking

I t is interesting to observe with a CRO what happens across a tuned circuit when it is energised by a short impulse. The tuned circuit is triggered into oscillation and a damped wave train is generated with each cycle decreasing in amplitude to that of the previous one. The higher the Q of the tuned circuit, the longer it takes to dissipate the energy and the longer it takes for the amplitude to fall to a given low level.

A formula derived from information in the Admiralty Handbook gives N as follows:

N=1+0.73Q

where N = No of cycles for amplitude to fall to 10% of initial value, and Q = Circuit Q

A sample frequency of 200 kHz is the lowest frequency for aeronautical non-directional beacons and is close to the New Zealand amateur band of 165 to 190 kHz. The period of one cycle at 200 kHz is five microseconds. Selecting this frequency and using the above formula, Fig 2 is evolved plotting time for the damped wave train to fall to 10% of its initial value verses circuit Q.

Take a good typical loop, which has a Q of 200. It can be seen from the curve that for this loop, it will take more than 735 microseconds for a triggered wave to fall to a negligible value. If the effect of the impulse is to be eliminated, the received signal will have to be switched off (or blanked out) on the first cycle and remain off for a period not less than 735 microseconds.

Now let's turn to the question of how the start of blanking is initiated and how the impulse is selectively detected. The blanking system normally relies on the fact that the impulse is of higher amplitude than the signal and is of very short duration so that the blanking is triggered by this short pulse. If there is a tuned circuit in the triggering path and the Q is low, triggering occurs on the first cycle of the damped wave train generated and the second and subsequent cycles fall away rapidly in amplitude so that they don't confuse the triggering circuit.

However, if the Q is high, the change in amplitude from cycle to cycle is very small as the decay of amplitude with time is stretched. Detecting this to operate the blanking trigger produces a stretched version of the original impulse, which is unsuitable for edge triggering of the blanking switch. So, to get over this problem with the high Q loop, we feed the blanking trigger from an auxiliary wire antenna via low Q tuning. We could also use an untuned noise pick-up but some form of selective tuning or bandpass filter is needed, at least in the City, to stop false triggering of the blanking circuit by strong local broadcast stations and aeronautical beacons.

As it turns out, the tuning system in the unit already built for noise cancelling has quite low Q and I was able to put the unit to use, without modification, as the auxiliary antenna interface for the blanking unit.

An interesting point is that this problem of the noise blanking system not working with the high Q loop is a characteristic of the low frequency band. As already discussed, for a Q of 200 at 200 kHz, the decay period of the impulse triggered damped wave falls to 10% of its initial value in 735 microseconds. However, for a Q of 200 at 2 MHz, the decay period is only 73.5 microseconds and is possibly short enough to work the normal blanking circuit.

To demonstrate this theory, I tested another loop antenna, which I had made for 1.8 MHz, on two different HF transceivers with blanking fitted. The loop has a Q of around 100 and, based on the above calculations, would have a decay period to 10% in 41 microseconds. The blanking worked quite successfully on impulse noise with impulse repetition frequencies of 50 and 100 Hz. Operation failed for higher repetition frequencies, but the blanking circuits were probably only designed to cope with power line interference at the lower frequencies. Using the same transceivers converted up from 200 kHz with my LF loop set to a similar Q, there was no way in which blanking would work.

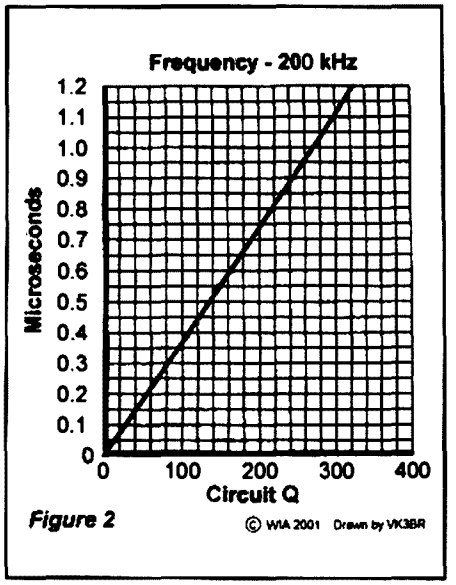


Figure 2. Tuned circuit triggered by impulse. A plot of the decay time for damped waveform amplitude to fall to 10% of its initial value versus circuit Q.

The Blanking Unit

Fig 3 is a block diagram of the blanking unit. Circuit detail is shown in Fig 4 and operation is as follows:

Noise signal from the auxiliary antenna interface unit is amplified by the two stage amplifier N1, a twin JFET operational amplifier package type LF353. The output of N1 is coupled to Schmitt trigger N2 via full wave rectifier circuit L1, D1, D2. The idea of the full wave circuit is to ensure that the leading edge of the first half-cycle of the impulse initiated wave train triggers N2 independently of whether the first half is positive or negative. N2 (74LS14) is a TTL type of trigger requiring a five volt rail and this is derived from the zener diode circuit ZD1, R13. The five volts is also used to set the operating points of amplifiers N1. I could have used a CMOS type trigger here with the 12 V rail, but I didn't have one and I did have the 74LS14 on the shelf. There are six individual Schmitt trigger gates in the N2 package and, of course, five are spare.

The rectified output of D1-D2

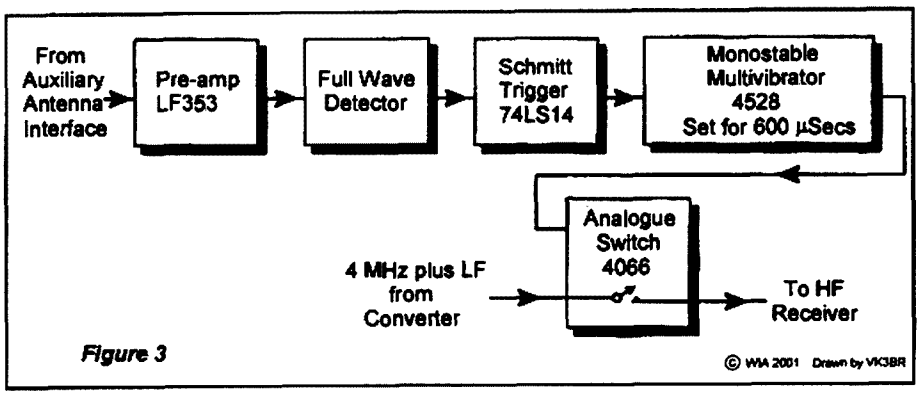


Figure 3. Blanking unit block diagram.

produces negative going pulses and N2 bias is set by trimpot RV1 so that N2 is triggered on by the negative going signal. I found it operated nicely at 1.8 V of bias.

When triggered, N2 produces a 5 V step which is differentiated by C5, R8-R9 and the spike flips the mono-stable multi-vibrator N3 (type 4528) to an 'on' state where it remains for a period determined by the values of R10 and C8. Because the output of N2 is only 5 V, the setting of reference voltage at pin four of N3 is fairly critical and this reference is set by the ratio of the values of R8 and R9.

Of course, the 'on' time of the multi-vibrator sets the blanking period and I experimented with this quite a bit. For very high loop Q, the blanking period can be advanced to around 800 microseconds. Advancing beyond this deteriorates the tonal quality of the detected audio signal as heard in the receiver. Referring to the 10% level curve of Fig 2, this equates to a Q of 220. In the loop converter used, I can apply regeneration and increase the effective Q to quite a high value. In practice, using 800 microseconds, I found that I could advance the regeneration control somewhat and achieve blanking on what would appear to be much higher values of Q. An explanation of this might be that most of the noise power is concentrated in the earlier part of the damped wave train and that is the most effective part to cut out by blanking.

The blanking period is easily altered by changing the value of C8. A blanking period of up to 800 microseconds (C8 = 10 nf) can be used for impulse repetition frequencies below 200 Hz such as the usual 50 and 100 Hz power line noise. Logically, the blanking period must be less than the impulse repetition period and must be reduced for higher impulse repetition frequencies. For impulse repetition frequencies up to 1000 Hz, a blanking period of 200 microseconds (C8 = 2.2 nf) can be used with the maximum loop Q then a little lower. As a compromise, I settled on 400 microseconds with C8 = 4.7 nF

Whilst most repetitive impulse interference in Australia probably initiates from the 50 Hz power mains, I mentioned higher repetition frequencies in the light of 600 Hz interference being reported in New Zealand due to DC to AC conversion in their power distribution system.

Switching out or blanking of the received RF signal is done by CMOS bilateral analogue switch package N4, type 4066 which contains four individual switch units. One is operated by the inverted (Q bar) output of N3. The normal condition is that this output is high and the switch in series with the RF circuit is closed. During blanking, the output of N3 goes low and the RF circuit is opened.

To help in reducing stray coupling across the opened series switch, two of the other switches are connected in parallel, one at the input to the series switch and one at its output. These are driven from the non-inverting (Q) output of N3 so that they are normally open when the series switch is closed, and closed when the series switch is open. The switches have a finite closed resistance of around 50 - 100 ohms and hence, as shunt units, they are not as effective as the series opening switch. However, as they are in the package, they might as well be used to provide a little extra attenuation during the blanking period.

The load current for the system from a 12 volt DC supply is as follows:

LF Converter	12.5 mA
Noise Cancelling Unit	6 mA
Noise Blanking unit	37 mA

The higher current in the Noise Blanking Unit is mainly due to the 5 V Zener diode regulator. Of course, this current could be reduced considerably by replacing the Zener with a small 5 V series regulator,

Operation of the System

As this article is meant to concentrate on the noise blanking section of the system, I don't intend to discuss in much detail the operation of the converter or the noise cancelling section of the system. These were previously described more fully in References 1 and 2.

In attempting to use either noise blanking or noise cancelling, it is important to check whether the noise to be reduced is also being received on the auxiliary antenna, otherwise neither system will work. To do this, the gain control for the loop is turned right down; the noise cancelling/noise blanking switch is selected to cancelling and the gain control in the noise cancelling unit is advanced. The tuning (cum phase control) in the noise cancelling unit is then peaked for maximum signal. After this is done, the loop gain control is restored to its maximum setting.

For noise cancelling, the phase switch, phase control and gain control in the noise cancelling unit are adjusted for minimum noise as described in Reference 2.

For noise blanking on impulse type noise, the gain control in the noise cancelling unit is turned right down and the noise cancelling/noise blanking switch is set to blanking. The gain control in the noise cancelling unit now becomes the blanking threshold control and is slowly advanced until the noise is reduced or ceases. Just past this point is likely to be the best setting; advancing too far might increase noise, or even blank the received signal right out by continuous triggering of the blanking switch.

One characteristic of the system might worry the operator when the loop gain control is turned right down with the blanking circuit still being triggered. With the signal removed, the AGC in the host receiver raises the receiver sensitivity to its most sensitive state and some noise pick-up from the blanking

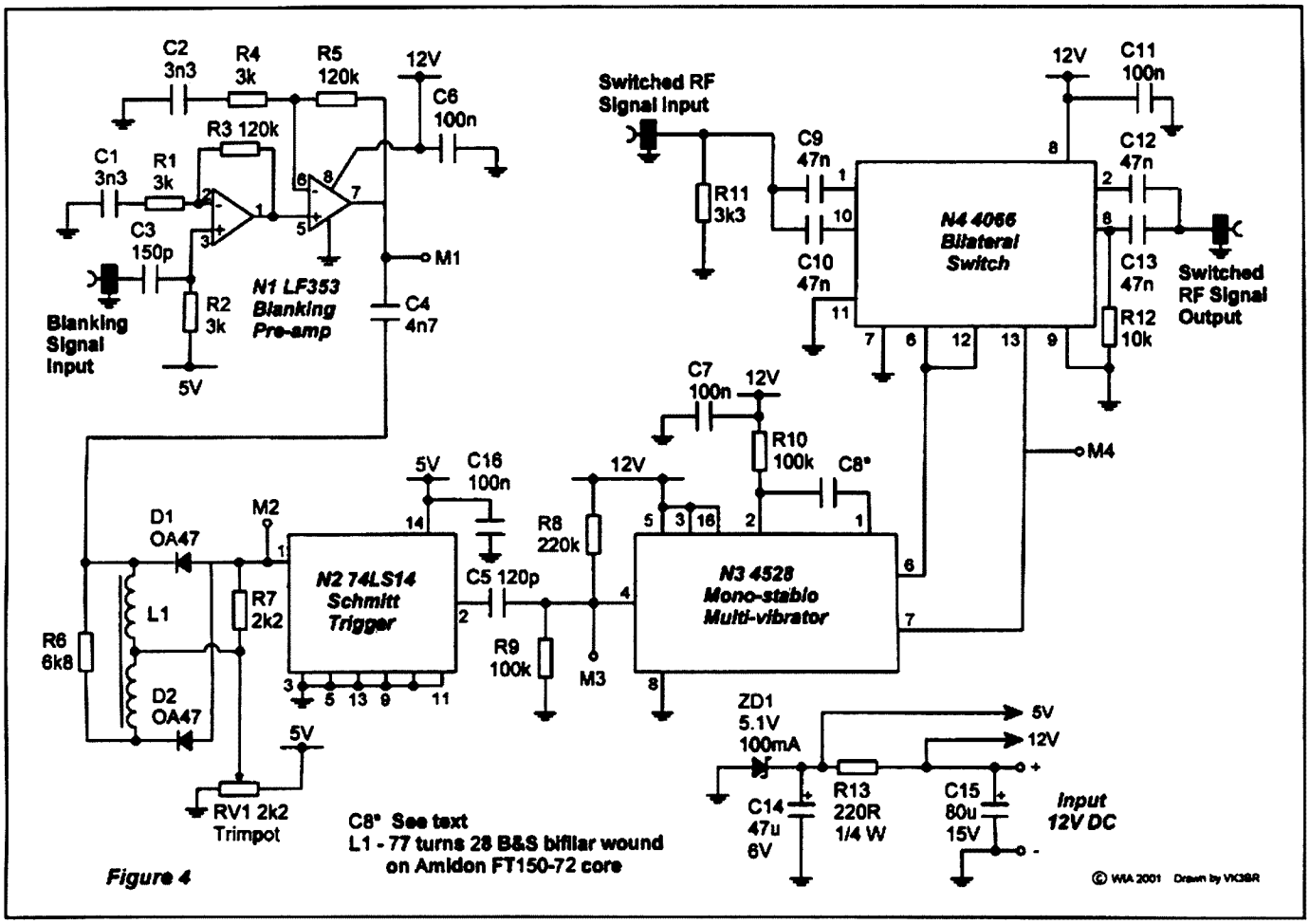


Figure 4. Blanking unit circuit diagram.

switching is apparent. This is well below the normal signal level and is essentially suppressed by the AGC when the loop gain control is advanced.

Testing the noise blanking system during experimentation can be a challenge if there is no impulse noise being received to make the tests. I found the easiest way to generate some noise for testing was to feed a square wave generator into a third antenna wire on the site and select a square wave frequency equal to the required impulse repetition frequency (say 100 Hz to simulate noise from power mains). To observe the waveforms in the blanking system with a CRO, simply synchronise the CRO time-base to the square wave.

In Conclusion

The high Q loop antenna has many advantages for use at LF frequencies, but the high Q can prevent the usual type of noise blanker from operating in the receiver. The article shows how noise blanking can still be achieved by using an auxiliary antenna with low Q tuning to feed the blanking circuit.

A blanking unit is described which is combined with a loop operated LF-to-HF frequency converter and a noise cancelling unit, both previously described in *Amateur Radio* magazine.

The combined system gives a choice of different ways to reduce noise interference and improve the general signal to noise ratio. Which way works best can depend on the nature of the noise. The various options include the following:

- Choice of loop antenna or long wire on its own, whichever works best.
- Use of the loop to make use of its directional properties and its insensitivity to localised electric field noise.
- Means to increase the Q of the loop antenna above its natural Q to limit the bandwidth of broadband noise and further restrict strong adjacent unwanted signal from causing intermodulation interference within the mixer stage.
- Use of the loop in conjunction with the auxiliary wire antenna to phase out unwanted noise or an unwanted other signal coming from a different direction.
- Use of the wire antenna as a noise reference to blank out impulse type noise, which might cause interference in the loop antenna.

References

1. *An Active Loop Converter for the LF Bands* - Lloyd Butler VK5BR. Amateur Radio, July 2000
2. *Antenna Noise & Signal Cancelling at LF* - Lloyd Butler VK5BR. Amateur Radio, December 2000.

ar

A 10 MHz Reference Oscillator

Keith Gooley VK5OQ

A quartz crystal oscillator in a temperature stabilised enclosure to be used as a reference for a counter or narrow-band mode receiver or transmitter at UHF/SHF

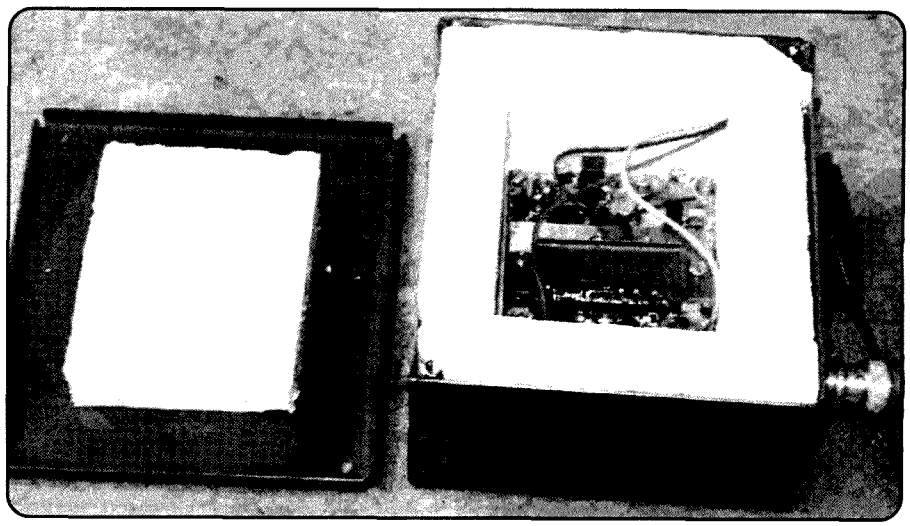


Photo 1

The need for this reference arose in my shack when I was using a 1 GHz counter to measure frequencies in the 450 MHz region and finding errors of the order of 3 kHz. This is not that much, as a percentage but even for FM, it is a significant part of the bandwidth of a narrow-band FM signal. As the frequency is increased, the requirements on the stability and accuracy of a reference become more demanding. The original reference in the counter was a simple microprocessor crystal in a CMOS type oscillator. It was calibrated some years ago but had obviously drifted off. So the idea for this more stable reference was born. The ultimate aim is to lock its frequency to the horizontal sync pulses of a TV signal along the lines of Ref 1. The TV networks use accurate standards to generate their sync pulses. The ABC derives its reference from Global Positioning System signals.

Design

There are two main causes of drift in the frequency of quartz crystal oscillators, namely temperature changes and aging of the crystal itself. To make a high stability oscillator therefore requires that both these causes of drift be compensated for. Putting the crystal and often, its associated oscillator components in a temperature-stabilised oven has long been a means of reducing or removing the effects of temperature. There is not much the average amateur can do about aging of the crystal other than obtaining the best quality crystal

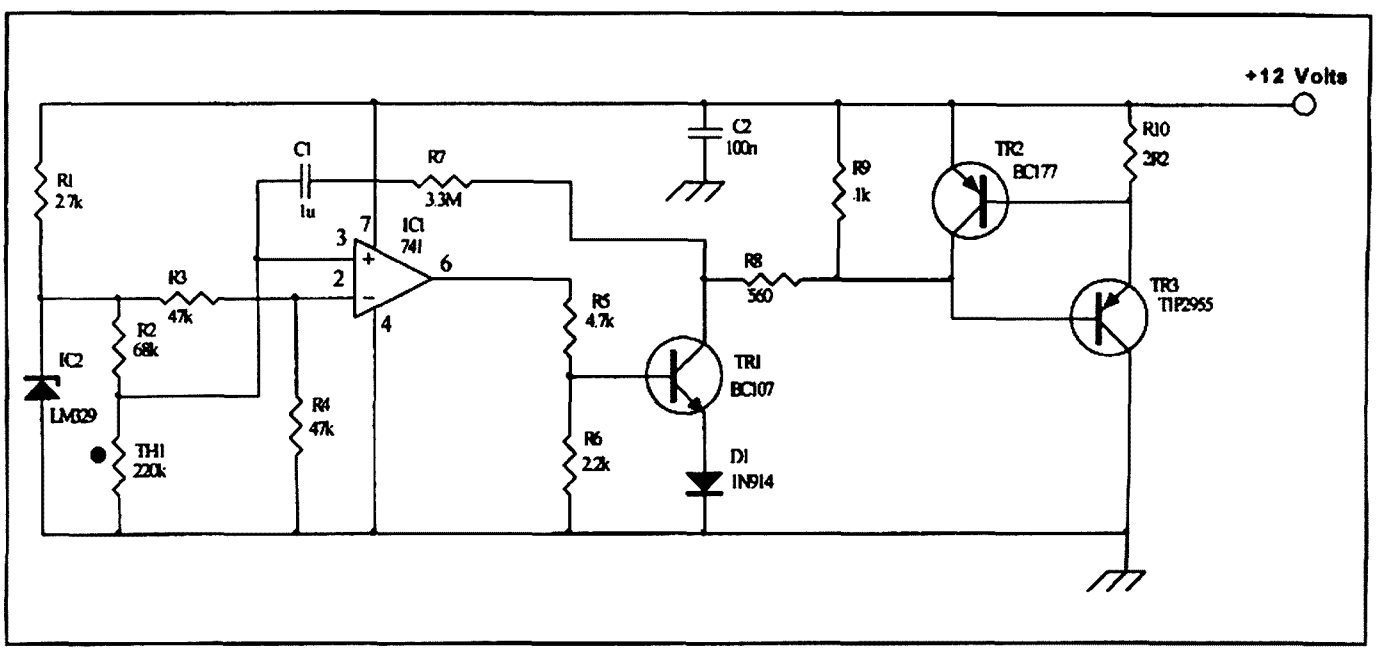


Figure 1. Oven Controller

that can be afforded given the requirements of the application.

More recent reference oscillator designs use a temperature sensor such as a thermistor and adjust the frequency of the oscillator based on the sensor output. This may be done by directly coupling the thermistor to a varicap or if more accuracy is required a microprocessor may be used. The temperature reading is brought into the micro via an A-D converter and a lookup table used to determine the output voltage required on a varicap to correct the frequency. The digital representation of the output voltage is then applied to a D-A converter and then to the varicap. This latter method can be made very accurate as the table of values in the micro can be tailored to the particular crystal.

These two methods of compensating for temperature changes generally result in very low power consumption for the oscillator and its compensation and therefore are well suited to modern battery operated equipment. However, they are not easy for an amateur to reproduce, building a one off reference. Therefore I have chosen to take the old "tried and true" method of putting the whole oscillator and buffer in a temperature stabilised enclosure with good insulation to minimise the power consumption of the heater once the internal temperature has stabilised.

I tackled the design and building of the oven controller first as I reasoned that if I couldn't get that right, there was no point continuing. As it turned out, the controller works very well to the point that temperature variations at the thermistor are difficult to determine, certainly less than 0.1 degree C. Temperature variations at the thermistor are one thing but the secret is to make the thermal coupling between the heater, the thermistor and the crystal as tight as possible. The heater is a PNP power transistor in a large TO-218 tab package screwed to a copper heat spreader. The thermistor is soldered to a lug under the transistor fixing screw, making good thermal contact. The crystal is clamped to the heat spreader alongside the heater transistor. The layout is illustrated in the photographs. The heat spreader is a 60 mm length of 25 by 3 mm copper bus bar.

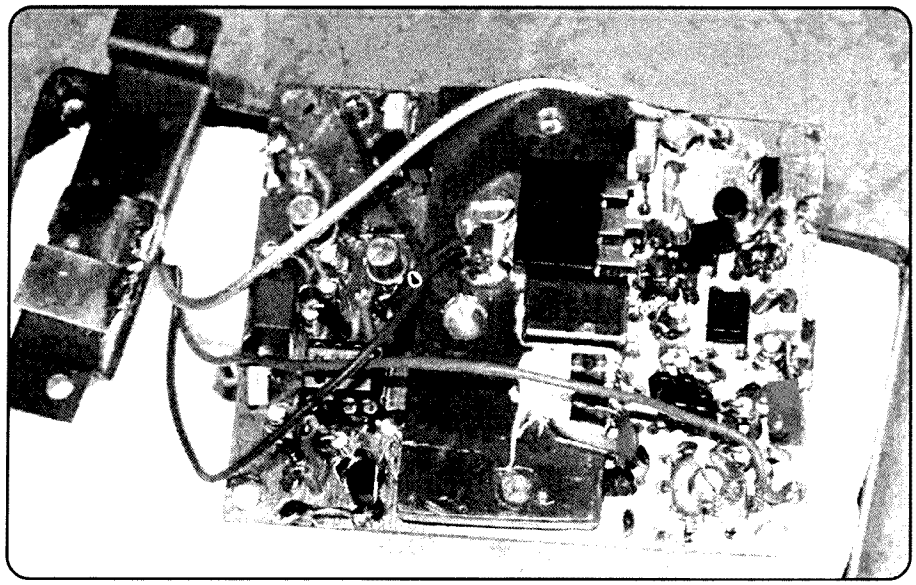


Photo 2

Circuit Description - Oven Controller

Refer to Fig.1, the oven controller circuit. This circuit is a feedback control system in which the temperature is sensed by a thermistor and any error between it and a reference is amplified and used to control the heater. IC2 is a precision voltage reference of 6.9 volts, providing a precise supply for the resistance bridge R2, R3, R4 and the thermistor, TH1. The latter has a resistance of about 220 k at 25 deg and 68 k at 60 deg. Any imbalance in the bridge is applied to the op amp IC1 which amplifies it and passes a correction voltage to the heater driver transistor, TR1 If the temperature is too low, TH1 is higher than R2 and the plus input to the opamp, pin 3, goes positive causing the output to rise. This results in TR1 drawing more current, which flows out of the base of TR3. TR3's emitter current rises until the voltage across R10 causes TR2 to turn on. This shunts current away from TR3 base, limiting the emitter current to about 300 mA. This configuration of a current limiting transistor (TR2) in the base circuit of another to protect the latter from excess current is a very useful one, which can be quite widely applied. In fact it is commonly used in the output circuits of IC's, both digital and analogue.

TR3 dissipates about 3.5 watts when hard on and heats up the oscillator components and the thermistor. The thermistor voltage falls lowering the correction voltage into the opamp which reduces the current in TR1 and therefore TR3. The diode D1 ensures that when the opamp output is at its lower limit which is about one volt, TR1 remains off since two diode voltage drops (1.3 volts) are required to turn TR1 on.

The components C1 and R7 are for frequency compensation of the control loop. Without them the loop is unstable with hum and noise picked up on the opamp input causing large amplitude oscillations at the opamp output. In addition, the loop tends to "hunt" with the heater going from hard on to hard off. The resulting temperature fluctuations cause the oscillator frequency to fluctuate as well, after all, the idea of the oven controller is to keep the temperature constant within as close limits as possible. Close thermal coupling between the thermistor and the heater transistor makes stabilising of the control loop easier. I found that placing the thermistor on the heat spreader 15 mm away from the transistor fixing screw resulted in a thermal delay which was difficult to compensate for. The drill hole where the thermistor was placed initially can be seen in photo 2. As it is, the compensation is close to ideal with only a little overshoot of temperature during warm-up.

10 MHz Oscillator

The oscillator circuit, Fig 2. shows the details of the Colpitts crystal oscillator and buffer amplifier. This is a version of the Colpitts oscillator using a darlington

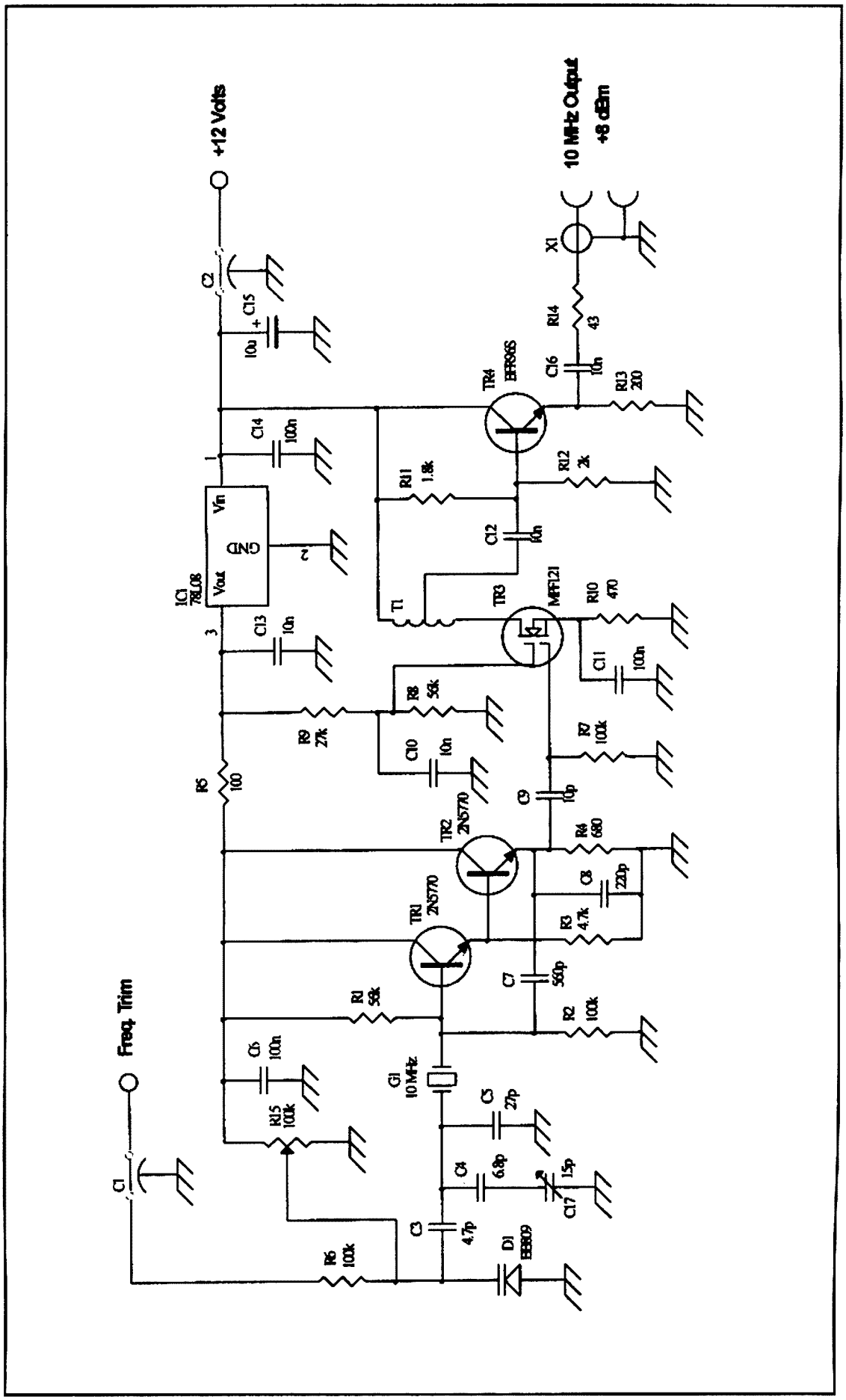


Figure 2. 10MHzReference Oscillator

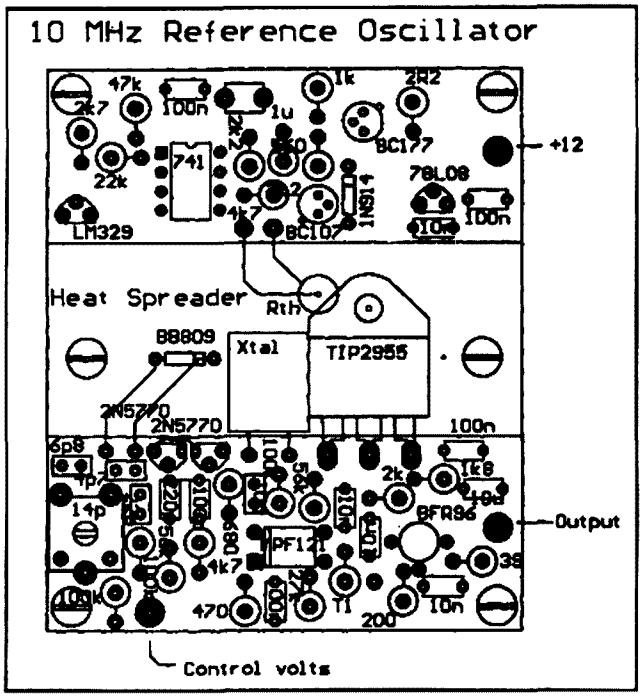


Figure 3

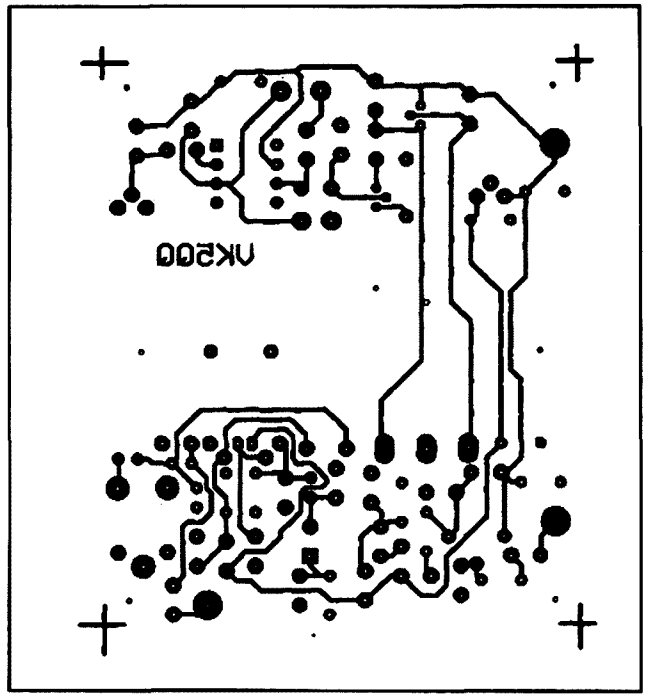


Figure 5

connection of two transistors, TR1 and TR2. I have used it in the past and found it to be more reliable than the single transistor version. The crystal is on its parallel resonance frequency and the frequency can be adjusted by changing the capacitance seen by the crystal. Both electrical and mechanical adjustments are provided for by a varicap and a good quality air dielectric trimmer. With the trimpot R15 set at about the centre of its range, varying the frequency tuning voltage from zero to 5 volts causes the oscillator frequency to increase by about 3 Hz.

The high gain of the darlington connected transistors enables larger values of feedback capacitors C7 and C8 to be used. This provides improved isolation of the crystal from variations in transistor parameters. Transistor parameter variation due to temperature is minimised by clamping the two oscillator transistors to the heat spreader alongside the crystal. Likewise the varicap is placed in thermal contact with the heat spreader. I put thermal grease on all the mating surfaces to help keep the temperature more uniform.

The oscillator output is lightly

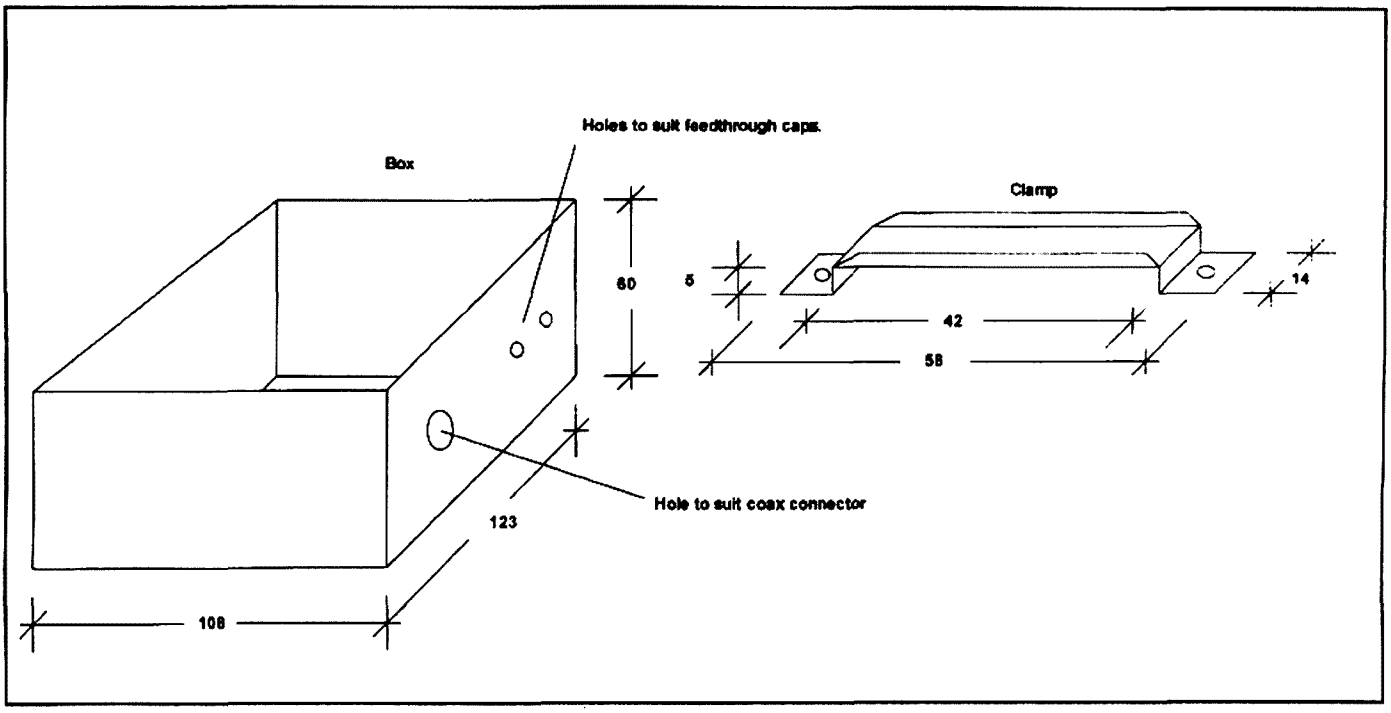


Figure 4. Box and Clamp dimensions

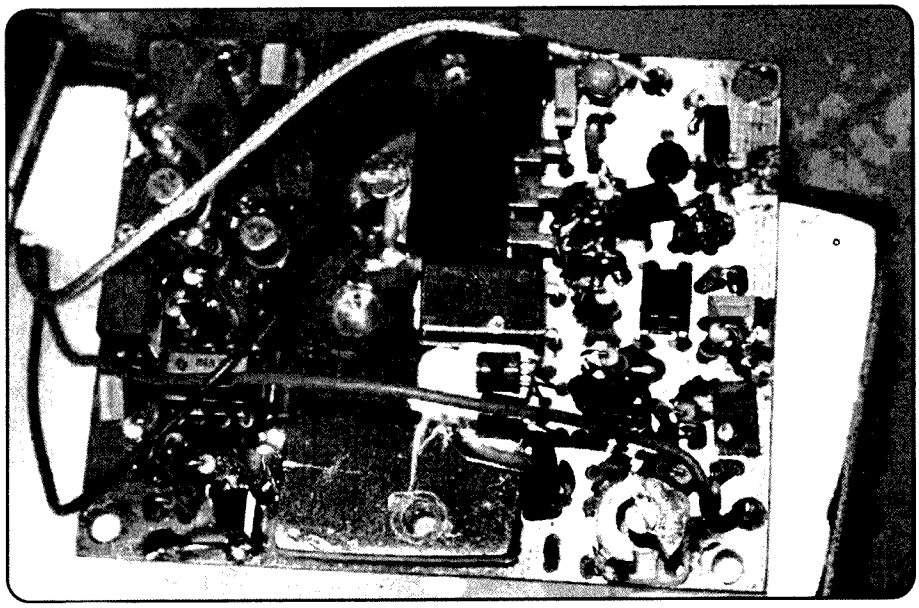


Photo 3

coupled to a dual gate mosfet TR3., through capacitor C9. TR3 has very low feedback capacitance (of the order of 0.02 pF) and therefore there is very little effect on the oscillator from influences at the buffer output. The drain circuit of TR3 contains an autotransformer, T1 with the centre tap coupling signal to the base of the output emitter follower, TR4. A resistor, R14 is included in series with the emitter of the output transistor to make the output impedance close to 50 ohms. The output power in the prototype was 8 dBm or about 1.6-volt p-p into 50 ohms.

Construction

The two sections of the reference are constructed on the one circuit board separated by the copper heat spreader. Photo 2 and the layout diagram Fig. 3 show the arrangement of components. The heat spreader is held onto the circuit board with two screws and spacers separate it from the circuit board, though in retrospect, this is probably not necessary or even desirable. There is a clamp over TR3, the crystal, TR1 and TR2 but it has been removed for the photograph. Springy copper leaves can be seen soldered to the underside of the clamp to press the crystal and the two transistors onto the heat spreader.

The thermistor is soldered to a solder lug under the heater transistor mounting screw. The thermistor originally comes with two wire leads and to solder it directly to a solder lug, scrape the paint off one side of the thermistor, unsolder the wire and solder that side of the thermistor to the previously tinned solder lug. Place the thermistor as close as possible to the mounting hole in the lug, leaving enough space for the screw head. An insulating sleeve should be placed over the remaining wire, which is run to a hole in the circuit board. The oscillator transistors TR1 and 2 are in plastic TO-92 packages and are mounted flat side down on the heat spreader. The varicap is placed in a dob of heatsink compound adjacent to the transistors. A small ferrite toroid is used for the core of autotransformer, T1 with a bifilar winding of 7 turns of 0.3 mm (about 30 SWG) enamelled copper wire. Toroid types FT23-43 or FT-37-43 would be fine.

The circuit board is a piece of single sided copper laminate with the components mounted on the copper side which acts as a ground plane for the whole circuit. Most of the component leads go through holes in the board and the non-grounded ones have the holes slightly countersunk to prevent shorting to ground. Inter-connections are made underneath the board using mostly just the component leads. This is a method that I have developed after less than satisfactory results making medium density PCBs at home. I lay out the board using a computer package (Protel) in the normal way as if I were making a PCB but instead of etching the board, I use the top overlay diagram as a template to drill the holes.

First thoroughly clean the copper side of the board with steel wool and water then tape the layout diagram over the copper side. Use a punch to make pop marks through the paper where the holes are to go. Next remove the paper and drill all the holes with the smallest size of drill. I find 0.8 mm is a good one for most components. The larger holes can be bored out to the correct size later. Now we have to countersink those holes where leads pass through the board without connecting to the ground plane. I find it much easier to make the solder joint to ground if the hole is not countersunk, so mark with a felt tip pen those holes where a ground connection is to be made. Most inks in these pens can be soldered through so don't worry about the ink preventing a good solder connection. Try to mark all the earth holes so as not to countersink them but don't worry if you miss one or two as it is still possible to solder the lead to the ground plane around a countersunk hole. It just takes a little more solder.

All the unmarked holes can now be countersunk. Do this very carefully with a small drill bit. 2.0 mm is about right. Only a slight countersink is required, just enough to remove the burr around the hole. A 1.5 mm countersink diameter is plenty. The board is now ready for loading the components except for one thing. It is a good idea at this stage to spray the copper side with PCB lacquer to keep it shiny looking. If you are using IC sockets it is useful to cut away a bit of the plastic housing of the socket above any pins which are grounded. Doing so makes it much easier to solder the pin directly to the ground plane once the socket is inserted in the board. This is most applicable to the corner earth pin of logic and opamp IC's but can be done with all earthed pins. Terminals for power input and signal output are made to pins soldered to isolated pads in the ground plane. These pads can be cut with a PCB counterbore available from Farnell Electronics (Cat. No.146-413) They aren't cheap at $22 or so but do a nice job of cutting round pads in the ground plane. It isn't necessary to cut these isolated pads, though. The 0.8 mm hole can be drilled out to the size appropriate for the pin that you have and the pin will be retained in the countersunk hole by the solder joint under the board.

Components can now be placed in the

board a few at a time and the underside connections made. Solder the connections as you go rather than putting many components in then turning the board over. This will prevent the components falling out when you turn the board over to make the solder joints. Inevitably some connections will be required which cannot be made with the existing component leads. To make the shorter connections, I have retained a large number of offcuts of component leads in a flat tin so that when a short connection is required I use one of those. For the longer links I use single strand kynar insulated wire, the type used for wire wrapping but any ordinary hookup wire will do.

This may all sound messy and time consuming compared with simply dropping the components into a PCB and soldering them in place, but I have found it preferable to generating a PCB layout, transferring it to coated board or using a toner transfer process then etching the board in the XYL's laundry often with not entirely satisfactory results.

An etching pattern is provided for the bottom side of the board for those who wish to etch their own. Double sided laminate should be used and the top side protected from etching by covering with adhesive tape or adhesive "Contact" film.

The board in the original is mounted in a box fabricated from 1.5 mm zinc annealed steel. The corners were welded at a local workshop for $10. Two coats of self priming spray paint gave a nice finish to the box. The lid is secured with two screws in opposite corners of the lid going into threaded spacers screwed to the bottom of the box. Insulation was cut from a sheet of 20 mm thick polystyrene board with pieces on all 6 sides of the box. A diecast box would serve very well if you don't want to roll your own and even a plastic "zippy box" would do although a metal box is preferred for RF screening

Testing

I built and tested the oven controller section first. When you first power it on having checked your wiring, monitor the supply current. It should start out at between 300 and 350 mA falling to a level dependant on how well the board is insulated. Initially, it probably isn't insulated at all, so the current will vary depending on draughts blowing across the board. Check that the reference voltage is correct, 6.9 volts with the LM329 device shown on the circuit. Look at the voltage on the output of the opamp. It should be free from large variations or oscillation. If you have used similar components to the original and a similar type of construction, the compensation components C1 and R7 in the oven controller should not need to be altered. If the thermal coupling between the heater transistor and the thermistor is changed substantially or the reference voltage is changed, you will most likely have to suppress oscillation in the control loop. I find in these circumstances that if you make C1 and R7 comply with the following equation, the loop will stabilise.

$$F = 1/[2*pi*(C1*R7)]$$

where F is the frequency of oscillation of the loop.

I chose a value for C1 (1 uF) then worked out a value for R7 based on the above equation. This is certainly not a rigorous design based on control system theory but a "good enough" cut and try method.

With some rudimentary insulation over the board, say a folded up towel or other piece of cloth, the supply current should stabilise in about 4 minutes after a cold switch on and settle at somewhere between 50 and 150 mA depending on the insulation and ambient temperature.

Testing the oscillator section starts with setting R15 and C17 to about mid-range. Ensure that the regulator output voltage is close to 8 volts. Measure the output level with a diode probe or oscilloscope. I got about 8 dBm or 1.6 volts peak to peak into 50 ohms at the output. Mount the circuit board in the box, fit the insulation and you are ready to set the frequency.

Couple a little of this signal into a receiver tuned to WWVH on 10 MHz with the receiver set to USB, LSB or CW. Adjust the BFO for a note at a comfortable audio frequency. Adjust the coupling of the oscillator so that you hear the audio beat note itself beating at the frequency of the difference between the oscillator and WWVH. You should then be able to adjust the oscillator for zero beat with the Time and Frequency Standard signal.

Components

Some comments on component selection will assist those wishing to duplicate this reference oscillator. Many of the components in this design were selected as they were in the junk box which has been swelled considerably in recent years by the wealth of electronic equipment of many types being available at low prices or being given away or thrown out. Therefore where I have used a specialised component because it was on hand I will endeavour to give a commonly available substitute.

Oven Controller:

The *reference diode* LM329 is available from Farnell (Cat # 411-530). A zener diode would do as the bridge output differential is not very sensitive to the supply voltage on the bridge. 5.1 volt zeners have the lowest temperature coefficient.

Thermistor - could substitute 100 k device (Dick Smith R1797) change R2 to 33 k. I have a few spare 220 k thermistors if you are stuck.

Opamp is non-critical. Any single or one of a dual opamp will do, FET or bipolar input. Suitable alternatives to the 741 are LF351, TL071, TL072, LM358 etc

C1 should be a plastic film capacitor, non-polarised.

TR3 can be any TO-220 or TO-218 PNP transistor but don't use one with a fully insulated tab.

The copper heat spreader on which TR3 and the crystal and other components are mounted is a 60 mm length of 25 by 3 mm copper bus bar. Aluminium bar could be substituted but aluminium has half the thermal conductivity of copper.

Oscillator components

Crystal. This is the key to the oscillator stability but I thought that I could get good enough stability if I used a crystal of unknown source from the junk box. If you want the best stability though, a crystal should be ordered especially for oven operation at the temperature of the oven. In my case this is 60 deg. The oscillation mode is parallel 30 pF capacitance.

Varicap. Almost any reverse biased diode will give enough frequency variation but a varicap proper will have

a higher Q. 1N914's and even power diodes such as the 1N4001 series have been used as varicaps. There are lots of varicaps available in old TV tuners, FM radios and the like so there shouldn't be a need to resort to using a power diode.

Transistors. The 2N5770 is a 2N706 with tighter specs but the latter could be substituted. BF199F (Altronics Z1106) would work and at these frequencies the BC547 would probably work as well, as would the 2N2222 or PN2222. A plastic case transistor is to be preferred as the metal case devices usually have the collector connected to the case. Dual gate mosfets, which could be substituted, are MFE131, BFR84 or BF981. A BC 547 could be substituted for the output emitter follower.

Performance

Output Frequency 10,000.000 kHz (adjusted)

Warm up time Frequency within 1 Hz after 4 minutes

Frequency drift Of the order of 0.2 Hz per day (2 X10^{-8})

Output signal level8 dBm

Power consumption 12 volts DC at 350 mA warm up for 4 minutes 140 mA at 25° C ambient

Conclusion

A 10 MHz oven controlled reference oscillator suitable for home construction is described. The oven temperature controller is of the proportional type and some hints have been given to achieve stability in the control circuit. The best frequency stability of the oscillator was not sought in this instance as it is intended that the oscillator be locked to the horizontal sync pulses of a television signal. A method of construction is described which does not involve the etching of a PCB.

References.

1. Pogson, Ian "A TV-Derived Time and Frequency Standard" *Electronics Australia*, July and October 1989.
2. Kimberley, Kenneth VK2PY, "An Amateur Radio Engineering Project" *Amateur Radio*, September and October 1986

ar

Remembrance Day Contest

Photo top: SIG Donna Feltus and LCPL Tim Williams.

Photo right: SIG Julie Meredith and CPL Cristian Birzer.

The War in the Pacific ended on 15th August 1945. Many Radio Amateurs served in the Services, both on active duty and at home. Some never returned from service. The Remembrance Day Contest is held on the weekend closest to the 15th August each year as a mark of respect to those who died.

When we look back at the sacrifice of our servicemen and women and of civilians, who stayed behind enemy lines and died, we acknowledge the debt we owe them for our continued democratic way of life in Australia.

However at such times it is also good to look forward and hope we have learnt something from these sacrifices. So this year I have chosen to focus on the present and the future and focus attention on the signallers of today. The pictures on the cover and with this article show how we now have both men and women in the field. They are still awfully young. Some of their equipment is still backpack and whip aerial, but more of it is computer keyboard and monitor screen. The frequencies used are higher as well and satellites are important links in the total system.

Let us not forget the past, but let us make sure we have learnt from the lessons so dearly paid for and we apply them to the future.

LEST WE FORGET

Photographs from Captain Sandra Turner of 9th Brigade, the Army Reserve Unit in SA and Tasmania. The personnel are all members of 144 Signal Squadron. Pte Kathryn Thomas took the photos.

I wish to thank them all for their contribution to our annual act of Remembrance.

ar

Review of the Prosistel 2051B

Martin Luther VK5GN

The VK5GN HF station is still in development, given my interests I think it always will be! The next project is a 70ft tower to support a four or five element beam for 20. I needed a new rotator.

figure 1

I have a number of rotators, five of them are Emotators. They have given excellent service. The oldest is now 25 years old and has been thoroughly abused but never failed me. My first reaction was to just buy a new Emotator. An initial enquiry to the local agent for a suitable model showed that the prices were now into the area where it is necessary to shop around. Big rotators seemed to be about $2000 or more.

I had seen reference in overseas journals to "Big Boy Rotators" which were made in Italy. By coincidence I also came across reference to their use by an OH amateur who was very impressed. After some searching on the internet I found the manufacturers at http://www.prosistel.it .I recommend you visit their site as they have some very interesting stuff. Their biggest rotator, PST71, has braking torque of 52000kg/cm and claims to be able to turn antennas of 8.8 square metres. Don't use these on a roof mounted tower, if the beam got stuck it would turn the house!

I had some discussions with them via email. My interest was in the PST 2051 whose specification appears in table 1. However, as it uses a 12volt motor I was concerned at the kind of wire I would need for the rotor cables, would it need to have a low voltage drop? I was reassured by their specifications sent to me via email. They defined the start up and run currents. They also pointed out that the motor was designed to operate over a range of voltages and the control unit had a tapped transformer so that the voltage drop could be overcome by putting in more volts if necessary. I was able to show to my satisfaction that my normal cable would do the job very nicely.

Their responses were always polite, accurate and prompt. I was impressed by the service.

I decided after looking at costs, exchange rates, freight etc that I would go ahead and buy a PST2051B.

The total landed cost at that time was just over $1500 AUD. It would be more now because of a poorer exchange rate to the Euro. Telegraphic transfer of the funds from my bank was no problem. I had to get the correct category from the customs people but they were extremely helpful via their telephone enquiry service. In fact the only problem I had was the freight company's Sydney office who decided that my address did not exist so held it there until I tracked it via the internet and asked why it was stuck in NSW!

The pictures tell the story of what the PST 2051 is like..

Picture 1 shows the control unit .I chose the B model controller which has the following features:

- Preset with true 360 degrees rotary encoder. Means that you can turn the small knob at the top right to point to the direction that you want the antenna in. The rotator then moves the antenna round to that direction then stops. The preset is accurate to 3degrees for you vhf types. The digital display is accurate to one degree but stopping at 1 degree intervals takes a bit of skill, even using the manual paddle!
- South stop with plus/minus 70 degrees extra travel for each side
- Manual control with paddle key which includes a reverse delay
- Soft stop. Brings the beam to a gradual stop rather than just a sudden lurch that would put strain on the beam, tower and rotator itself.
- Large green digital display.
- DB9 connector for computer control via computer interfaces such as SARtek1, ARS, KCT etc
- Rotor control cable uses a professional connector with quick disconnect.

The second picture shows the inside construction of the control box. This is generally very good construction. There was a small mod on one PC board which gave the added feature that you could choose either to have the stop at South or North. While the paddle looks nice and works very well the mechanical parts behind the panel are not well finished. The general construction is very rugged with an all metal container and adequate RF shielding and filtering all round. The appearance is a bit more utilitarian than the sexy curves found on most of the Japanese equipment. Should stand up to being abused by the various guest ops in the VK5GN shack! Only joking fellows!

My only serious criticism of the control box is the same for any that use digital displays or electric meters. They have to be turned on to see where the beam is headed. If I can get into the habit of always using the preset rather than the paddle then that knob will always point to where the beam is!

Picture 3 shows the actual rotator. It uses a unique design. The motor is located on the side of a worm gear box. The output shaft terminates in a flange where different kinds of mast clamps may be fixed. The wiring in and out of the rotator passes through quality bushings and seals. There is a connector on the cable coming out of the rotator which is of excellent quality. The mating connector is supplied for putting on the cable down the tower. These have a mechanical locking system to keep them connected.

The picture shows the rotator with a flexible/elastic joint between the unit and the mast clamp.

The flexible joint allows for any misalignment in the mast as well as containing a plastic material which allows some shock absorbing effect in the joint. It was included in the all up cost I mentioned earlier.

The worm gear takes away the need for any braking mechanism. A good thing in my view, the less bits there are to fail the better when it is so awkward to get rotators down from the top of a tower.

The general workmanship on the rotator is good with everything giving an air of heavy duty ruggedness.

The unit has still to do any real work at VK5GN. For various reasons the project has been stalled and will not get completed now until later in the year. However, I am sufficiently impressed with the unit to share this information with fellow hams.

ar

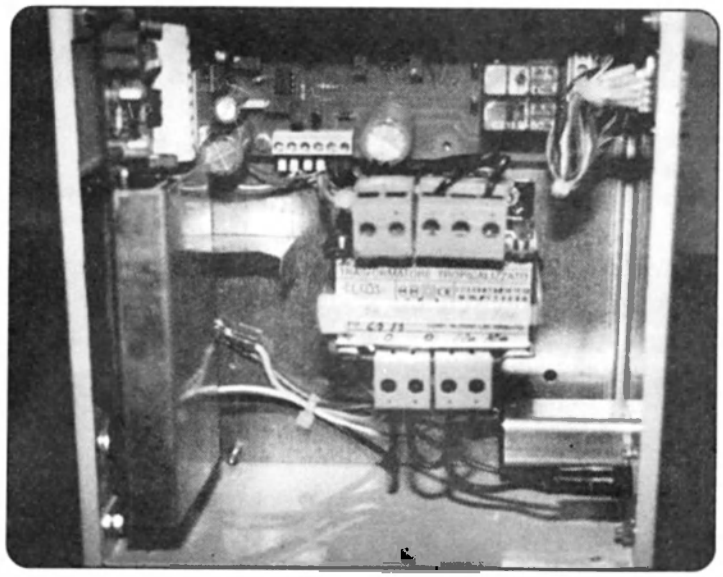


Figure 2

Table 1

PST2051 Specification	
Wind Load Area	36 sq ft or 2.5 sq m
Braking Torque	10,800 in/lb or 12,500 kg/cm
Rotating Torque	1760 in/lb or 2000kg/cm
Rotation Speed for 360	+-60"
Control cable cores	5
Weight Rotator unit	6kg
Height	17cm
Base Diameter	16cm
Control box	117-230Vac
Motor power	12Vdc

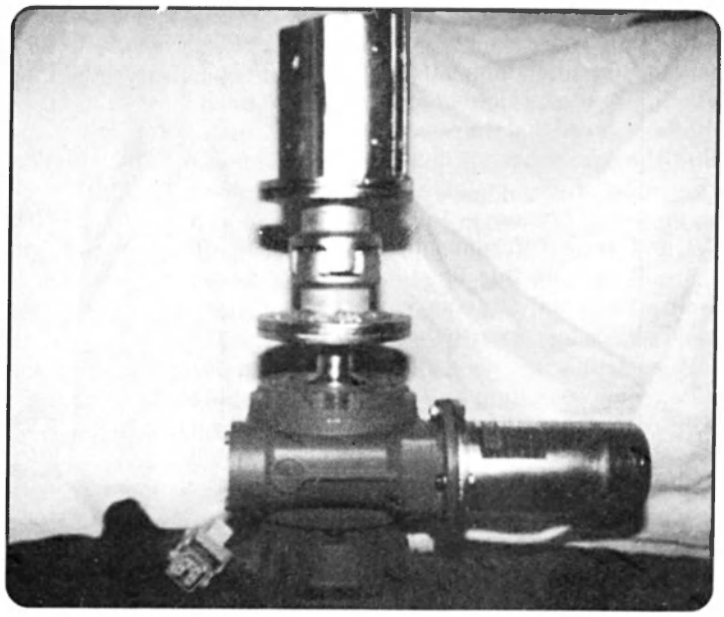


Figure 3

Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

New problems for amateur radio?

In March 2001, a department of the German Telecom Authorities conducted a workshop, on Ultra Wide Band Communication. Participants came from all communications user groups, military to radio astronomer.

What is UWB? Ultra wide communication is a modulation method, where the transmitter produces a signal of extreme bandwidth. The main areas of use are communication and position detection based on the radar principle. In both cases the intended range is very small, and maybe restricted within buildings. The most interesting aspect lies in the very high data transfer rate of several 100 MBit/s. For detection purposes, the resolution would be the equivalent of radar working with frequencies in the cm wavelength area.

UWB transmitters produce a very short pulse of 0.5 ns radiating the signal through a wideband antenna. The intended output level is between 1mW and 20 microwatts. Even with this small amount of power, during the duration of the pulse, the energy produced is quite high. The transmission rate of this pulse is controlled by a random generator and spread over the entire spectrum. The following method of modulations can be used AM, Pulse position and reversing the polarity of the pulses.

In the US the FCC has already set the maximum allowable values for this type of emission. Even applying very strict rules, one problem still persists, the level of noise generated will be far above the galactic noise level. Due to the large bandwidth, it will be impossible to spare any frequency range. A broad range of investigation has shown very little influence on mobile communication and GPS systems. The British Radio Agency has conducted their own investigation, but the results are not known yet. Radio astronomers and the European Air traffic control authority, Eurocontrol, are strongly against this new mode. Radio astronomers work with signals near or at least close to the noise floor level. A permanent increase in this level would make their work very difficult. Eurocontrol argues, an increase in noise would influence and increase the difficulty to communicate with aircraft flying at high altitude.

Concluding the workshop, all participant groups, announced in their opinion they could live with UWB. Exception were, as pointed out, Radio astronomers and Eurocontrol. As a member of the DARC German Amateur Radio Club, Dr. H.Cuno, DL2CH participated as an observer. Dr.Cuno raised the question if the amateur radio service could participate in the investigation of the Radio agency. Unfortunately this wish was denied due to the fact that the investigation could not have more then ten participating groups. Never the less it has been acknowledged that the amateur radio service would hold the same position as the Radio astronomers and Eurocontrol.

Considering the present technological level, our microwave bands could be affected. The problems from this mode would be not as severe as from PLC. Power Line Communication, but it would still add up towards existing problems.

Compiled from a report from Dr. H Cuno DL2CH CQ-DL 6/2001. *(Translated by VK4BDQ)*

In the July 'QST' there is more on UWB and the ARRL has joined a coalition to give further study to this system of communications. They believe this new technology may offer significant benefits but feel it has not received adequate testing for potential interference with other services. In spite of the FCC saying it does not interfere with other communications systems, they are not alone in their concern, with some of the big names in communications being part of the coalition, with concerns of effects on such systems as GPS and PCS which could be crucial to navigation. Their proposal is to restrict the system to above 6 GHz.

Mobile Problems?

GM creates Web link to aid mobile installations: In response to a request from ARRL, the General Motors Engineering Center has created a Web link to its official guidelines for installing radio transmitters in vehicles. The Radio Telephone / Mobile Radio Installation Guidelines page is http://service.gm.com/techlineinfo/radio.html. Installation guidelines for Chrysler and Ford are reprinted, with permission, in the ARRL RFI Book, http://www.arrl.org/catalog/6834. ARRL offers additional information about automotive RFI on its Web site, http://www.arrl.org/tis/info/rficar.html.

(From ARRL Newsletter).

Aeronautical Help.

Hams assist US Navy flight: Participants on the 20 metre Maritime Mobile Net June 13 were a bit surprised when a ham aboard a US Navy plane checked in for assistance. John Pierce, KC4YWP, informed the Net that the Navy aircraft—using the military call sign 'Copperhead 5'—had lost communication with its base. 'He asked us to place a telephone call to his base to inform them he was

After reading the various News info lines on the Internet and reading the overseas magazines, there isn't too much to write about. If you have any news that you feel would interest our readers, please e-mail or snail-mail me.

returning due to loss of communications,' said Bob Puharic of Pennsylvania—one of the net controllers. Puharic said that retired US Air Force Col Bob Botik, K5SIV, placed the call and informed Copperhead 5 that it had been delivered. 'The US Navy thanked the net and secured,' Puharic said.

(From ARRL Newsletter)

Are we getting older or younger?

Progress Report on the N.Z. Amateur Radio Examinations 2001 showed that 7 females and 43 males took part with an average pass mark for the exam 45 questions correct out of 60. The highest pass mark was 60 and the lowest mark attained was 24, that being the one and only failure. The average age is 43 years and the youngest candidate was 13.

NZART Morse Testing had 29 candidates, the failure of only one candidate!

A pass rate of about 97% *(NZART info line)*

Following on with this analysis, earlier in the year Bernie McClenny, W3UR, who is the editor of 'How's DX' in 'QST' carried out a survey on the DX chasers. The result was printed in April 2001 QST. Over 1400 Amateur Radio operators took part in this 32 question survey. Questions such as 'How long have you been licenced?' 'How old are you?' etc., were asked. 72% had been licenced over 20 years. 48% were aged between 15 and 30 and 69% were now aged between 51 and 80. Bernie summed it up very well by saying, and this of course refers to the U.S.A. – Most DX chasers were licenced as a teenager over 20 years ago. Most are just about due to retire, has worked over 300 countries and spends an average of 5 hours a week on air. He uses a computer for logging and is most active on 40, 20, 15 and 10. The average age of his equipment is 5 years old and he has a 50 ft tower with a tribander attached to which he runs 500 watts. His main interest is obviously DXing and he spends under $2,000 on his equipment.

So how did you compare?

ATTENTION ALL YLs

See you in Palermo!

at the

International YL Meet 2002

From the podium at YL2000 in Hamilton, Ruth IT9ESZ, President of the Italian YL body, Elettra Marconi, invites all YLs to the next International YL Meet in Palermo in June 2002.

Start planning NOW

Visiting Ireland

Ireland is pushing for the introduction of the 5wpm code standard. The Irish Radio Transmitters Society has called on the ODTR, their regulatory body for amateur radio licensing in Ireland, to implement CEPT policy and immediately reduce the Morse code proficiency speed to 5 words per minute. Society Secretary, John Corless EI7IQ, in a letter to the authority has also called for a substantial increase in UHF allocation for amateur/experimenter use in Ireland, in line with ITU allocations.

The Harmonised Amateur Radio Examination Certificate TR 61/02 was revised in The Hague in early February 2001 and published by CEPT on March the 7th. Under current regulations, applicants for Irish Class A licenses must pass a test of 12wpm, and a situation exists whereby visitors to Ireland with Class A licenses gained at the 5wpm speed, can not operate on HF bands while in that country.

This is an unacceptable situation for the IRTS, as Ireland has proven to be a very popular holiday destination for amateurs.

(From QNEWS 1/7)

Hamventions declining?

The attendance at famous Dayton Hamvention 2001 was down this year according to General Chairman Jim Graver, KB8SPO. Hamvention 2001, the 50th event, attendance 26, 151, was down roughly 9% from last year's attendance of 28,804. Hamvention attendance peaked at 33,669 in 1993, before the change in date from April to May in 1996. Graver blamed rainy weather on the opening day of the event and high gasoline prices for the attendance drop. Graver also will chair next year's Dayton Hamvention 2002.

(From ARRL Newsletter)

Amateur LF Signal Spans the Pacific!

A signal transmitted on 184 kHz from ZL6QH—the Wellington, New Zealand, Amateur Radio Club's Quartz Hill station—has spanned the Pacific. The transmission, part of a series of announced transpacific tests, was received on June 30 by Steve McDonald, VE7SL, of British Columbia, Canada.

'A claim is made for the confirmed reception of ZL6QH by VE7SL, on 184.4 kHz, over a path of 11,709 km.' said Bob Vernall ZL2CA, who organized the transpacific tests. 'This is a one-way confirmation, as VE7SL does not have transmitting capability.' Vernall said that on June 30, seven New Zealand stations—including ZL6QH—and one Australian transmitted test signals in the 160-190 kHz band for the transpacific tests. Amateurs in New Zealand have access to that band.

Reception of weak LF signals typically is done using spectrographic software. McDonald used Argo software to capture the ZL6QH signal and very likely that of ZL4OL, although no claim was being made for the latter. The reception occurred right around the time of sunrise in British Columbia.

ZL6QH was transmitting dual-frequency CW with two-minute elements, one frequency representing dits, the other dahs. The ZL6QH station was running approximately 100 W into a longwire antenna.

Amateurs spanned the Atlantic in both directions earlier this year on 136 kHz. Efforts to make it across the Pacific on LF have been under way during the winter season in the Southern Hemisphere.

The ARRL has petitioned the FCC to authorise Amateur Radio allocations at 136 kHz and in the 160-190 kHz band. The petition is pending.

(ARRL Newsletter)

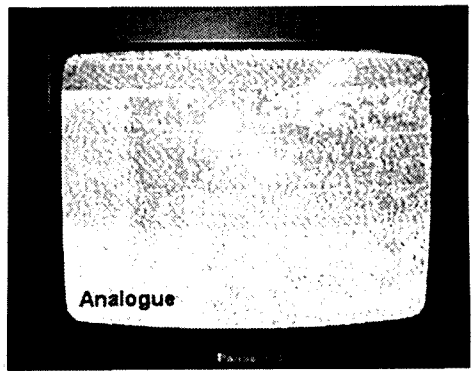
ar

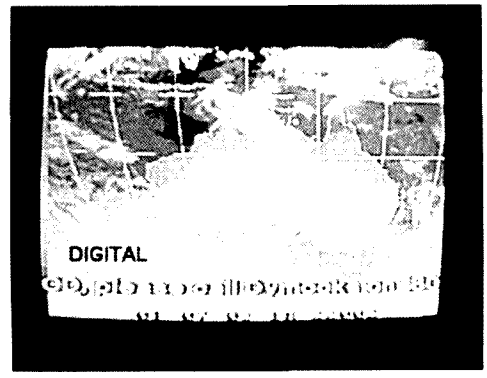
Repeater Link

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
will2@iinet.net.au VK6UU@VK6BBR

Digital TV: How good?

Six months after the start of Digital Television, how is it performing? Not many of us have a digital TV or a digital set top box, but in my work environment, digital is becoming common, and in particular looking at the final output to the viewers.





If you want to view digital TV you require either a digital TV, or go the cheaper way with a set top box at a cost of $700. About the size of a small VCR, the set top box requires a TV aerial to be plugged into it to produce a video and audio output, what we call base band. The video and stereo audio outputs are then connected to your existing analogue TV's video and audio inputs.

If you choose a digital TV there is the advantage of the wider screen which is where TV is headed. At the moment most of our television is in the 4 by 3 format, 4 units wide by 3 units high, called the aspect ratio. Digital television is designed for 16 by 9. During this transition phase from 4 by 3 to 16 by 9, interim aspect ratios, like 14 by 9 will be used so as not to annoy 4 by 3 viewers too much. You see black bars at the top and bottom of the picture when wider aspect ratios other than 4 by 3 are used. Trying to present 16 by 9 aspect on a 4 by 3 screen is always a compromise and until you have a 16 by 9 television you will be at a disadvantage as to gaining the full advantages of digital television. However aspect problems aside, digital television has much to offer right now.

Put simply, digital television from a set top box into your existing AV inputs on your analogue TV produces a high quality picture. If you live in a good signal strength area and have a good TV aerial installation, with no ghosting, then your existing analogue television reception can be just as good as a set top box plugged into your TV. However if your television reception is varied across the TV channels, with some a bit noisy and some with ghosting, then digital television can produce impressive results.

Actual Tests

A set top digital decoder installed in a vehicle connected to an omni directional TV aerial, produced perfect pictures while mobile driving through the centre of Perth city with tall buildings all around. Noise free pictures with no ghosting and no picture or sound break up. The TV transmitter being located 25 kilometres away. Very impressive, and I would not have believed it had I not seen it.

Another installation, in a small truck used for microwave linking, gave the opportunity to directly compare existing analogue television to digital transmissions. With the vehicle parked inside a building the analogue pictures were very poor, noisy with considerable ghosting of varying degree depending on the particular TV channel. Some channels were unwatchable. Switching to the digital equivalent produced amazing results with perfect pictures on most channels. This test was the equivalent of an indoor "rabbit ear" type of aerial installation. However not all digital channels could be received in this poor signal situation and some explanation of just what you see in the digital world is needed.

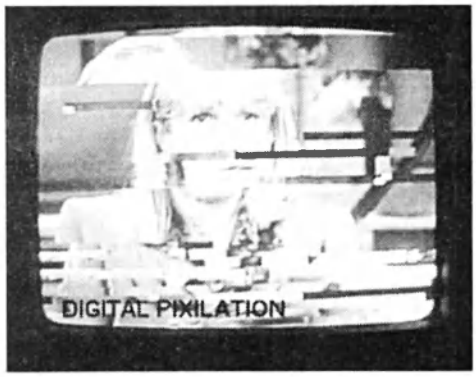
The detail of Digital

The accompanying photographs were taken inside the link truck and demonstrate just how dramatic the improvement is between analogue and digital. The digital system has ghost cancelling and this is perfect. You will not see a ghost on a digital TV receiver no matter how bad the ghosting is. Digital is either perfect or nothing. When the digital signal falls below a particular signal strength, or the ghosting is really, really bad, the digital decoder produces no output: the TV screen goes blank or blue when they have no signal. This transition between perfect and nothing is very narrow and at a guess, from observation, occurs at about 6dB signal to noise of the video picture with reference to an analogue picture. 6dB vision signal to noise is a very noisy picture and is not easy to watch to say the least. There is a narrow window of perhaps 2dB when the digital decoder goes from a perfect picture to nothing, where the digital decoder starts making a large amount of errors. This transition phase causes the picture to freeze and the sound to stop and or block pixilation. The picture breaks up into random small squares about of a few millimetres square. Some times the picture pixelates or shifts part of the picture in relationship to the rest of the picture. This narrow signal strength window, in which the digital decoder is working

hard, is difficult to watch enjoyably. The stop start, from perfect picture and sound to pixelation, frozen frame and intermittent sound is the only distortion of the picture and sound you will see on a digital picture.

Pictures

The accompanying pictures say it far better than words. The pictures fall into 3 categories, analogue (lots of noise and or ghosting) digital (perfect) and the in between state for digital with frozen frame and or pixelation.



Digital Conclusions

Digital television produces a high quality picture free of ghosting and noise at signal levels that the analogue cannot. An added benefit is if you live in an area suffering from power line interference, a digital decoder will produce a perfect picture in all but the most extreme cases of interference. Also if you live in a fringe area and you are able to receive a pixelated stop start digital picture, then only a small improvement of say, 2dB in your TV antenna, would be required to receive a perfect picture. The Thompson digital decoder I used has a signal and digital quality software meter in the setup.

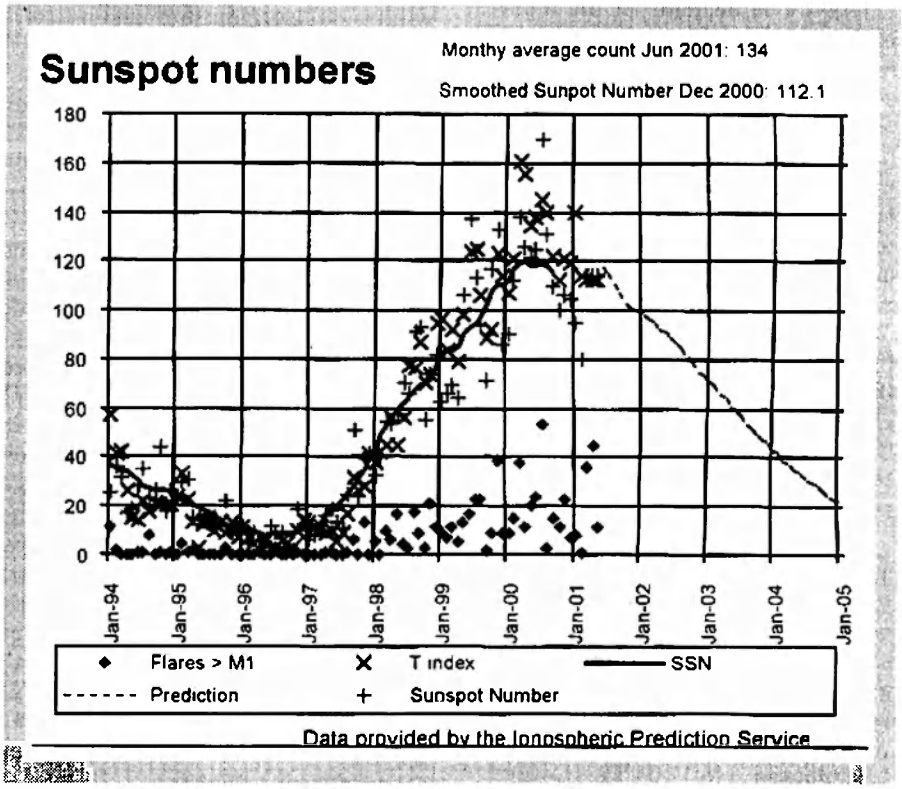
What about amateur radio TVI? It would appear that we could expect digital television to be less susceptible to other radio transmissions nearby. I used a VHF transmitter close by the digital receive aerial and when the transmitter did cause problems the results on the digital reception was just the same as described with lack of signal strength, frozen picture and or pixelation. At the very least it could prove more difficult for the viewer to figure out their digital reception problems are coming from amateurs.

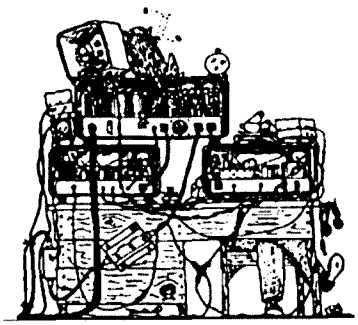
There is another bonus with digital television: the television stations are moving from analogue production, recording and inter station transfer to digital means. This results in a considerable improvement in picture quality and in particular vision noise. When all this comes together the viewer equipped with a digital decoder on his analogue receiver sees a picture with a 10dB improvement over the very best of the previous analogue picture.

Erasing Digital

I witnessed a demonstration of a digital videotape being bulk erased twice in a large powerful commercial tape bulk eraser. The tape was then inserted back into the digital recorder and played. The picture was near perfect with only the occasional pixelation where there were moving aspects in the picture, but all in all a near perfect picture!

ar





Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 5: Upgrading

Most computer users are caught in the "upgrading frenzy" attempting to keep up with the technology explosion. For most Radio Amateurs, this practice might not be the best or a cost-effective option on a tight budget.

Having decided your intentions, and gazing at your old or existing Ham Shack Computer, lift the lid and list all the important attributes. These may include:

- Type of motherboard.
- Processor chip make and type.
- Memory size and hard disk capacity.
- Input and output devices such as floppy drives, com ports etc.
- CD-ROM, printer, mouse, keyboard and the operating system software.

With this information, including spare card slots, space to add new devices in the computer case, then serious planning can be done to determine if it's worth upgrading the computer. XT, 286 and 386SX type computers with limited hard drive space and small memory size can only be effectively used for DOS based packet and logging applications. Later Pentium 100 computers with bigger hard drives and around 32 Mb of memory are fine for running today's Windows AR applications.

Adding Floppy Drives

Old Intel 8086, XT computers with a 20Mb hard drive and a single 360kb floppy drive can be "recycled" by fitting a new 1.44Mb floppy drive in place of the clumsy and obsolete 5", 360kb drive. The new drive will need a large faceplate to fit the XT case, and rails to secure the 1.44Mb drive neatly into place. Fit an adapter cable to connect the power between the existing wiring harness to the new drive (DSE X2605). Lastly, plug in the data cable and boot up. Set the BIOS to acknowledge that drive A:\ is now 720kb.

Next modify the DOS **config.sys** file by adding: **Drivparm=/d: 0 /f: 720**

Use another computer to format some 3", 1.44Mb high-density disks for your old XT as 720kb floppies. Do this at the DOS C:/ prompt with the command: **Format A:/f: 720**

The "old XT" is now ready to install your favorite software using the new 720kb floppy A:\ drive.

Readers with more modern computers can add a second 1.44Mb drive, or replace old 5", 1.2Mb drives with a 1.44Mb drive for less than $50. Fit the new drive in a spare hole in the case, add the data cable using the second multi-plug on the floppy ribbon cable. Lastly, connect a spare power supply plug into the new drive. Reboot the computer and enable the BIOS setup menu. Configure the BIOS to recognise the new drive as drive B:\ and the size setting to 1.44Mb. Save and Exit, then reboot. Now you have TWO floppy drives (A:\ and B:\) which are great for copying floppies for software back-ups or swapping with a friend.

Hard Drive Expansion

As the saying goes–"There's never enough room on my hard drive!" One easy trick is to ADD a second hard drive. Computer dealers have stacks of old drives left over from "upgrades". These drives range from 200Mb upwards and can be bought for a few dollars. Installation is easy, with a crosshead screwdriver, the drive is fitted to a spare mounting in the case. Fit the power supply cable and connect the second ribbon cable plug in the harness between the motherboard and drive C:\.

Enter the BIOS system; add the new drive as say D:\ with automatic setup recognition. Reboot and check the installation of your new drive.

A brand new 20Gb hard drive!

Upgrade parts are continually falling in price. The DSE XH7041, 20.5Gb drive seen above will offer massive hard drive storage. Modern motherboards have a secondary EIDE bus to connect your new drive with an additional ribbon cable. Like the earlier floppy drive installation, connect a spare power supply feed to the new drive, then use Microsoft Windows 95/98/2000/Me to Install New Hardware option. Windows will move your CD-ROM to drive E:\ and allocate the new hard drive as drive D:\

Copy all the files from your old C:\ drive onto the new D:\ drive. Swap around the EIDE plugs on the motherboard, and use Windows to identify the new drive as drive C:\ and the old hard drive as drive D:\. Windows should now boot from your new 20Gb hard drive.

The smaller old hard drive can now be used to backup programs and files simply by copying them from drive C:\. This is a cost-effective option offering bigger disk space and fast backup capacity all-in-one simple modification.

Disk Maintenance

When installing new or "recycled" drives, check for disk errors using Microsoft Scandisk and Defragmenter. Use the View Details option in Defragmenter to see if there are any bad sectors on the drive. A clean drive is your objective, but check and defragment them at least monthly to keep data contiguous and maintain fast data access.

R/W CD-ROM's

Another excellent upgrade for your Pentium 100 or higher is to replace your old read-only CD-ROM drive with a new read and write CD-ROM drive. For about the same price as an Iomega Zip Drive kit storing only 100Mb on one $25 disk, R/W CD-ROM drives can store 650Mb on a $1 write only CD-ROM disk! For both read and write capability the blank disks retail at around $5, which is still 75% cheaper than blank Zip disks.

Use Windows to uninstall the old CD-ROM drive, fit the new R/W CD-ROM drive according to the instructions in the kit, and then ask Windows to Plug-and-Play install the new R/W drive. Good quality R/W disks are capable of 1,000 R/W passes which are more than enough in the average Ham Shack. If you still use old data tape backup systems then it can be finally relegated to the rubbish bin! Most proprietary software these days is distributed on CD-ROM's. Recycle the old CD-ROM drive in your 486DX2/66 computer making future software installation a breeze.

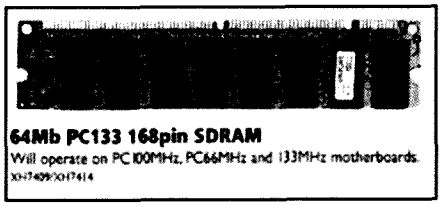
Memory Chips

Small, onboard memory chips used in old 286 and 386 computers cannot cost effectively be upgraded. Use this computer as a dedicated packet/logging machine. 486DX/50/66/100's use EDO RAM (Random Access Memory) chips that come in pairs. With a spare pair of EDO sockets, add a pair of 8, 16 or 32Mb RAM chips. EDO is hard to find these days but "computer recyclers" might have what you are looking for.

Modern AT/ATX motherboards use single 168pin SDRAM chips in sizes from 32 or 64Mb at about $100. Onboard free sockets can be used for a very simple upgrade just by plugging in the new chip and Windows 95/98/200/Me will identify your new memory size.

When upgrading computers, and to minimise damage to chips by electrostatic discharges, always use an anti-static wrist strap earthed to the case. Keep the power plug connected to the computer but with the supply switched off at the power outlet.

Clock Batteries



Often ignored but essential in keeping the master clock in the computer running when the computer is switched off.

Batteries are usually 3.0-volt mercury or lithium built in stacks with metalised ends for soldering or round "button batteries" clipped into a small plastic holder on the motherboard. The latter is easiest to replace with a new battery from Big W stores (EG: Panasonic CR2032 or equivalent).

Colin, VK6BQ suggests one way to replace soldered 3.0-volt computer batteries is to use a double AA plastic battery case (Altronics S5025/P0455) with the wire ends soldered to the motherboard. Secure the holder inside the case with Velcro. AA batteries are cheap and interchangeable with the XYL's TV remote control!

Universal Serial Bus (USB)

ATX/BX or higher motherboards now support USB technology and can "hot connect" devices such as cameras, scanners, printers and mouse's in a cascade manner from the same bus connector. AT computers without USB can be upgraded with the addition of a USB card plugged into a spare PCI motherboard socket.

Windows Plug-and-Play automatically configures USB ports for new devices. USB networking can also be installed using a hub and connecting other USB compatible computers into the network.

BX and later motherboards have 2 RS232 ports and 2 USB ports. By using a USB port for a mouse, it clears a valuable RS232 port for AR applications such as transceiver control and logging.

Sound Cards

Any SoundBlaster compatible 16 bit ISA card will do fine for experimentation with PSK31, MFSK16 and other data modes. If you find a card with Line In together with a Mic In sockets – all well and good for connecting your AR rig. The writer uses ESS 1868 sound cards which are economical to buy, and delightful in PSK31 or RTTY pileups!

With sound cards, some have ATAPI ports to control CD-ROM's, so if you are upgrading check with your dealer before spending hard earned cash.

Upgrading Software

Most active RA's are always upgrading software. New versions are released, upgrades as "bug fixes", better versions from somewhere else etc – and the list goes on. Hence the valuable nice new BIG hard drive which can store several versions of the same program so proper evaluation and comparisons can be done.

This is a "never-ending topic" to which the writer cannot hope to satisfy all the readers of this column. The quick answer being ... "Some do, and some don't, and some will, and others won't". We each have different computers, with different software, and use it differently!

Some AR's prefer Linux, some even use Macintoshes with System 7, others are DOS fanatics, many prefer Windows – and there are many versions of all these operating systems from which to choose.

Applications are the programs that run "on top" of the operating system. There are thousands to choose from. So, with just two pages in this magazine we don't stand much of a chance to cover the lot!

Ham Tip No. 5

Place your finger on top of the processor chip in your computer. If it's too warm to touch, fit a $10 mini processor fan to keep it cool (Altronics F2010).

Ham Shack Computers, Part 6, Internet

Looks at installing, connecting to and using the Internet for AR applications on your Ham Shack Computer. Thanks to all respondents for support, comments, feedback and suggestions.

73's de Alan, VK6PG

ar

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

The Contest

Remember we have a new date for the ALARA Contest, this year, the last weekend in August. This means that there will only be two weeks between the Remembrance Day Contest and the ALARA Contest. The gear you specially prepared for the RD should still be all ready and waiting for ALARA as well.

Remember also we have two evenings on 80 metres as well as the whole day in which to make use of the other bands. The contest starts at 0600 UTC on Saturday 25th August and ends at 1159 UTC on Sunday 26th. Please be there. We hope that the change of date and extended hours will make it possible for more people to join in. As well as YLs and OMs operating on their own, clubs (whether they have YL members or not) are very welcome, as are Guide and Scout Groups (you might even treat this opportunity as a practice run for JOTA)

Please let us have a winner for the Florence McKenzie Trophy this year. All CW operators are permitted to enter and the minimum number of logs is only 5 (five) though we would like you to have more than that, Of course, please remember that we can have repeat contacts after an hour, on all the bands and modes.

If you are a CW operator or even if you CAN operate on CW, but don't want to compete for the trophy, you can still give contacts to those who do wish to enter a CW log. I know there have been complaints recently that there are simply not enough people willing to give it a try. Hopefully that will not be the case, this year.

This year as well as the usual snail mail method of submitting your logs, you can send them by email to Marilyn, VK3DMS at the address gsyme@hotmail.com instead.

All the details are in the ALARA Newsletter or in the May AR. Do participate. It is a fun contest in which there is always time for a chat.

International Lighthouse Weekend

Last month mention was made of the participation of Susan VK7LUV and her OM Alan VK7JAB, in the International Lighthouse & Lightship Weekend, which takes place in August each year. Susan has sent me more information about it all which I am sure you will find to be of interest, especially if you have heard of it but don't know just what it is all about.

The International Lighthouse & Lightship Weekend is a 'Special Event', not a contest, which is intended to promote both Amateur Radio and Lighthouses in a fun manner. The ILLW event is used to gain exposure for our hobby and to highlight the international aspects of Lighthouses, Lightships and Amateur Radio.

For 2001 this event will be from 0001 UTC Saturday 18th August to 2359 UTC Sunday 19th August, Susan and Alan will be operating from Low Head Lighthouse as well as the Tamar Leading Lights (Tasmania).

NOTE This is the same date as the RD Contest so Susan and Alan will be participating in both contests from the lighthouse.

Last year (2000) approximately 200 Ham Radio Operators worked from Lighthouses or Lightships around the world, this year we are expecting many more. There are often special QSL cards, with a photo of the Lighthouse, and some stations offer certificates also.

No doubt a number of amateurs already participate but there is always room for some more. Why not have a listen and make a few contacts. The QSL cards sound as though they would be an interesting addition to your 'brag wall'.

Recent Hamfests

Judy VK3AGC and Claureen VK3LCM were the only two YLs at the Bendigo Hamfest while Marilyn VK3DMS and Brenda VK3KR were both at the SERG Convention in Mount Gambier.

Mary VK5AMD is usually at SERG Conventions but this year family commitments prevented it. However, on their way home Marilyn and OM Geoff VK3ACZ called in and spent a pleasant hour or so with Mary and OM Murray.

A couple of corrections

Recently you read the story of the Vegemite tasted in Hamilton. In error it was suggested that June VK4SJ had taken the Vegemite – and some honey – to Hamilton. In fact it would be breaking import laws if they had done this. It is forbidden to take honey from one country to another because of the danger of infection. Sorry about that, June. I misread the item (which I translated incorrectly from German).

In fact I should have realised and remembered. There was Vegemite in the 'goody bag' we were all given on registration.

However, June and Doug were present when the Vegemite was tasted – and not appreciated.

There was also an error in the name of the café where the VK3 YLs meet each month. There has been a change of name but not of location. It is the "Melba Café" in Little Collins Street where they meet on the second Friday of each month.

Any visiting YLs are very welcome from about 10.30 onwards.

ALARAMEET 2002 Website

In preparation for the ALARAMEET in Murray Bridge next year we now have a website where you can leave an expression of interest etc. Our thanks to the son-in-law of our coordinator, Jean VK5TSX. Find us on: -http://alarameet2002.8m.com/

There are links to the accommodation venues, where they have them, and information about the plans in hand. Please have a look and leave you email address so we can keep you updated.

ar

Pounding Brass

S.P. Smith VK2SPS
4/6 Taranto Rd Marsfield NSW 2122 E-mail vk2sps@one.net.au
(H) 02 9876 8264 (M) 0419 602 520

More interesting Websites

Over the past few weeks I've been investigating a number of interesting Internet sites on telegraphy and electronics. The amount of information contained within these sites is absolutely astounding. As much as I would love to take it all in its just impossible especially with family and work commitments at the moment, its just a matter of sifting through each site in turn and absorbing the information relative to your needs.

So let's continue on with last month's column in relation to interesting telegraph Internet sites.

Dxer.com-Morse code (CW)

Address:http://dxer.com/cw.html

This is just a brief overview of Dxer.com site; it's worth looking at.

This site contains a number of links to other telegraph societies from around the world. Some of these societies are as follows:

1. EHSC–Extremely High Speed Club.
2. HSC–High Speed Club.
3. SOWP–Society of Wireless Pioneers.
4. Vibroplex–Vibroplex Collectors Page.

Moving along will have one of the best sites so far found on the Internet.

PA3BWK's Ultimate Morse Code Website

Address:
http://www.morsecode.dutch.nl/index2.html

This site is absolutely amazing and contains the following:-

1. CW Links This contains commercial software and links to other telegraph sites.
2. Morse Code Dr. This is a question and answer forum.
3. Morse Code Clubs Current clubs from around the world.
4. Art Page This contains artwork, poems and comics with a telegraph theme
5. Various Contains such things as PDF Library, CW Study Tips and Building

Projects

Let's have a look at 'Building Projects'

Opening Building Projects you are give a Project List that contains such things as:-

Antenna's, RX, TX, Amps, Morse Circuits and a wealth of other technical information for the home brewer. Under each of these headings you are given a list of projects to build. For example looking at 'Transmitters' we have at least 10 different projects to construct, some of these include the following:-

1. QRP HF TX.
2. 250mw HF CW TX.
3. 1 Valve CW TX.
4. QRP SSB HF TX.

I would rate this site as excellent and strongly recommend it to you.

Moving along we have, Morsum Magnificat, The Morse Magazine.

Links to other web sites of Morse interest

Address: -
http://www.morsum.demon.co.uk/links.html

Again another excellent site to visit with a wealth of historical and technical information. This site contains a number of main headings and under each heading is a particular topic relating to that heading.

The main headings covered here are as follows:-

1. Samuel F.B. Morse
2. Morse Telegraphy – articles and online information
3. Telegraph Museums and Collections
4. High Speed Morse contests
5. Clubs and Organisations with an interest in Morse
6. Morse for the disables
7. Maritime Morse
8. Morse Miscellany
9. Morse Practice Schedules
10. Morse Programs Available
11. QRP (low power operating)
12. Suppliers of Morse equipment

Let's take an example: "Morse Programs Available"

Under this main heading we have about 14 different Morse related programs from around the world, some of these programs are:-

1. G4ZFE CW Pile Up Simulator
2. Morse Code–From Canada for beginners and experts
3. NuMorse–a shareware Morse tutor for windows.

It would take many a long hour to go through all of these programs but I'll give it a go and report my findings in later issues of this column.

Other sites on the web are:-

1. NW7US Morse Code Radio Center
   Address:http://cw.hfradio.org/
2. VK3NDS Amateur Radio Website
   Address:http://www.tbsa.com.au/~dsimp/cw.htm
3. Morse Code Practice Oscillator by Tony Van Roon – Using the common IC 555 Timer Chip
   Address:http://www.uoguelph.ca/~antoon/circ/morse1.htm
4. Last is the Morse code pileup trainer for sound blaster compatible sound cards
   Address:
   http://packages.debian.org/stable/hamradio/pileup.html

Well this concludes telegraph Internet sites for the time being or until I come across one of interest and of course I will let you know.

My e-mail address is in doubt at the moment as I am with one.net, temporary e-mail address is: vk2sps@yahoo.com

See you next month

Steve VK2SPS

ar

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

RFI Tracker

A simple RFI tracker appeared in QST March 2001. The author was Rick Littlefield K1BQT. The design uses a TRF receiver and a compact 2 element beam to provide a means of tracking RFI.

The TRF receiver is tuned to a frequency in the 136 MHz region which is a portion of the aircraft band with only a small amount of traffic. The antenna used is a compact two element Moxon Rectangle which you might have met in another guise as a VK2ABQ HF compact beam.

The receiver circuit is shown in Fig 1. The components are all readily available and reasonably non critical. The inductors are air wound. L1 and L2 were given as 5 turns No 24 tinned wire formed on the threads of a #6-32 screw. Try 1/8 inch or 3mm. L3 was 11 turns No 24 tinned wire formed on the threads of a #8-32 screw. Try 5/32 inch or 4mm.

The coils are tuned by spreading or compressing the turns.

The antenna is shown in Fig 2. It is a simple compact two element design. The antenna has a cardiod pattern with a broad forward lobe and a sharp and deep rearward null. The peak is used for initial tracking and the null can be used to pinpoint the RFI source.

You may hear aeronautical traffic but it should be brief and transitory. The tracker should be peaked in the middle of the antennas resonant frequency to give best performance.

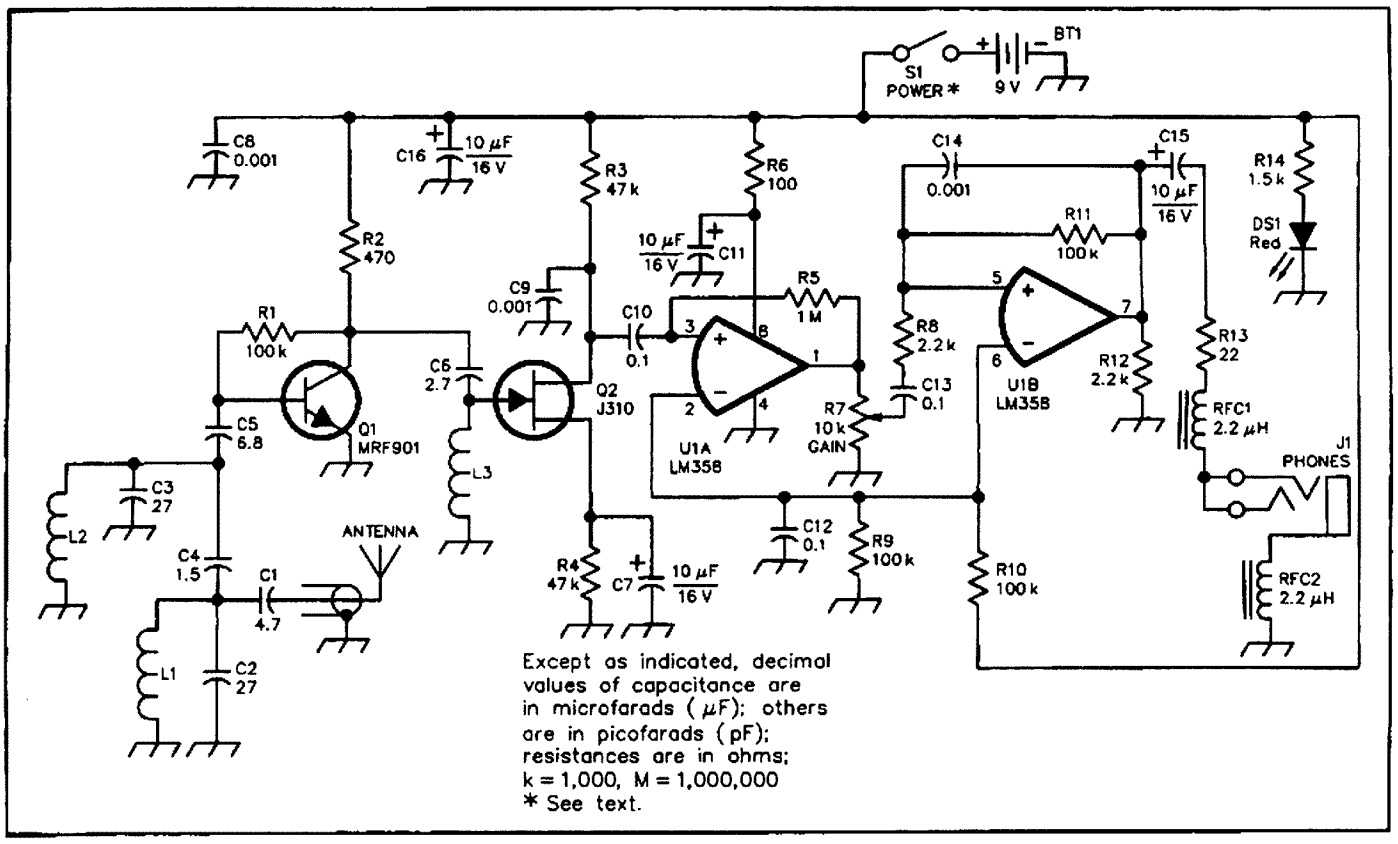


Fig 1. TRF RFI Receiver.

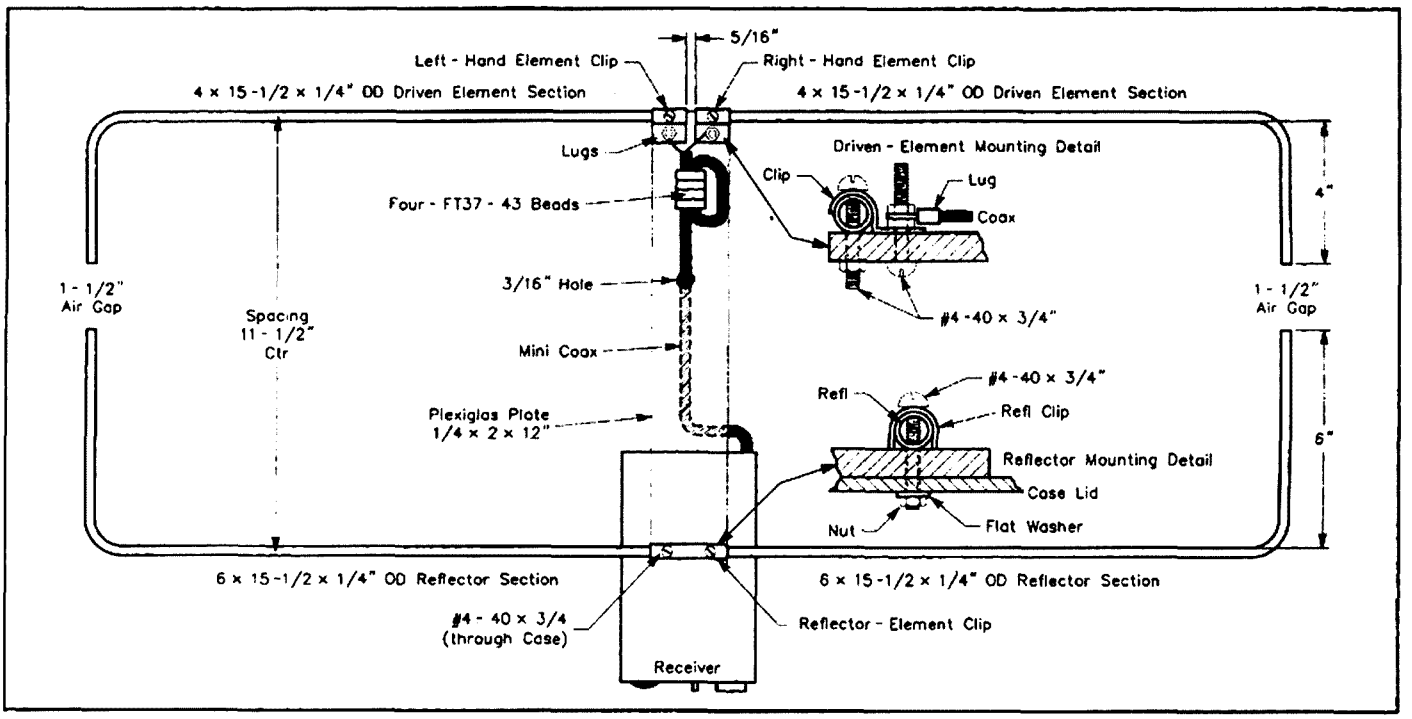


Fig 2. Antenna for RFI Tracker.

Grounding

In his In Practice column in Rad Com Ian White G3SEK discussed grounding of components on printed circuit boards. The discussion appeared ion the January 2001 and March 2001 issues of Rad Com. For VHF/UHF circuits and where microstrips are used one side of the board has the circuitry and surface mounted components and the other side is a groundplane. There are a number of places on the component side which will need to be grounded. This is done commercially by making an earth patch or area on the component side linked to the ground plane by a series of plated through holes. For amateur one off circuits this is impractical and instead of plated through holes wire links are used.

The use of wire links is shown in Fig 3(a). The wire used is between 1.5 and 2mm in diameter. This results in a low impedance ground with a number of links in parallel particularly at lower frequencies. The equivalent circuit of the earthing is shown in Fig 3(b). The parallel inductance of the links and the capacitance of the patch produce a parallel resonant circuit which may be in the 5 Ghz region. The impedance is low but will climb sharply in the region of resonance. This is fine for many applications but may give problems when bypassing GASFETs such as are used in Rx frontends as these devices have gain well up into the GHz region. This could explain unwanted oscillation.

An alternative circuit from S53MV is shown in Fig 3(c). Here a 2 to 2.5mm hole is drilled adjacent to the position of the earthy end of an SMD bypass capacitor. On the groud plane side of the board a piece of copper foil is soldered over the hole. The hole is then filled with solder. The SMD component is then soldered to the solder filling the hole. The solder filled

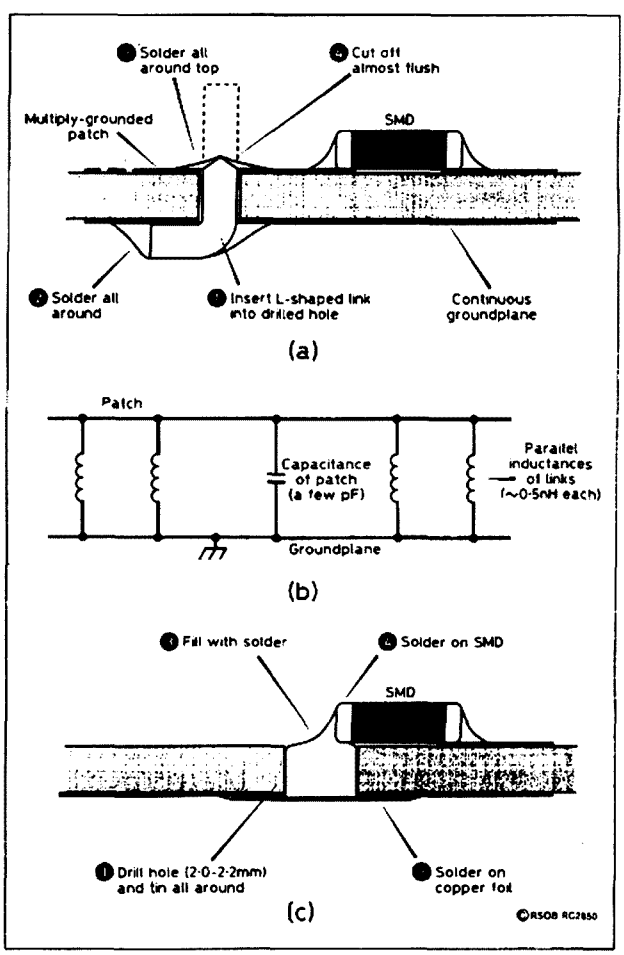


Fig 3. (a) Dip Links using solid wire. (b) Equivalent circuit of several dip links in parallel. (c) Alternative technique from S53MV.

hole acts as a large diameter post to provide a low impedance earth for the component.

In the March 2001 column in Rad Com Ian White G3SEK provided another method of bypassing which was submitted by Chris Bartram G4DGU who was involved originally with MuTek. This technique is shown in Fig 4. A small SMD capacitor is mounted directly through a drilled hole. For 1.6 mm printed circuit board the ideal capacitor size is 0603 because the metallisation on the capacitor ends will be flush with the copper on both sides of the board. An 0603 size capacitor is 0.06 x 0.03 inches which is 1.6 x 0.8 mm in size. A hole of about 1.1 mm diameter is required. The best approach is to drill an under size hole and then open this up to 0.9mm square using a hard steel broach. A broach is a tapered hardened steel tool used to open up round pilot holes. You will need to be very careful so as not to snap the tool.

This technique can be used to provide virtually zero lead length bypassing. The use of multiple bypasses using this technique could produce an effective bypassed patch.

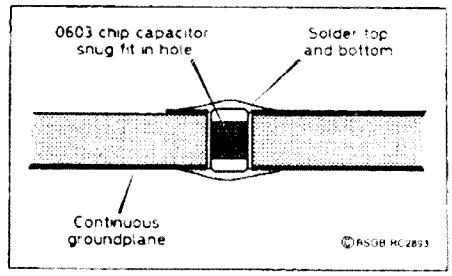


Fig 4 G4DGU's Technique Using an 0603 SMD Chip Capacitor mounted directly through a hole in 1.6 mm PCB.

ar

International Lighthouse/ Lightship Weekend 18-19 August 2001

From Kevin VK2CE,
Australian Co-ordinator for the event.
Web site: http://www.vk2ce.com/illw

The event is NOT a contest, each station decides how they will operate their station regards modes and bands. Participants are not committed to being on the air during the entire period - only as much as they can. There are no restrictions on aerials or power. We wish operators to enjoy themselves and have fun whilst making contact with as many amateur radio stations as possible. We request stations to take some time to work the slow operator, the newly licensed and QRP stations. Space in many lighthouses is filled to capacity, so our activity does not have to take place inside the tower itself. Field day type set-up at the light or other building next to the light is OK.

The event is used to obtain maximum exposure for our hobby. We might catch a future radio amateur while creating goodwill for the hobby. So do not forget to get PERMISSION from any interested parties i.e. THE OWNER OF THE SITE.

We use the event segment of the 5 'Classic' bands with a centre frequency if conditions are bad, at least we have one place we can (try to) meet. We request that the centre frequencies are not used as primary frequencies but as a last point of call to other participating stations.

CW	Centre	
3.510 -3.540	MHz	3.521 +/-
7.005 -7.035		7.021 +/-
14.010 -14.040		14.021 +/-
21.010 -21.040		21.021 +/-
28.010 -28.040		28.021 +/-
PHONE		
3.650 -3.750	MHz	3.721 +/-
7.040 -7.100		7.051 +/-
14.125 -14.275		14.221 +/-
21.150 -21.250		21.221 +/-
28.300 -28.400		28.351 +/-

Because it is not a contest you can operate on any authorised QRGs as per your licence. Participating stations are asked to add 'LIGHT' , 'LGT' , 'LIGHTHOUSE' or 'LIGHTSHIP' after their call. UK stations normally obtain a GB callsign with the letter L in the suffix to assist other stations identifying them. So come and join us in the fun of the weekend, establish a station at a lighthouse, lightship or maritime beacon. The more the merrier. If you decide to join us could you let me know the callsign you will use, QTH and QSL information. This year there is an on-line entry form at http://www.vk2ce.com/illw. There are also links on this web site to the list of entrants for 2001.

73s Mike GM4SUC,
gm4suc@compuserve.com

Contributing to

AR

is now as easy as sending an e-mail!

Send your articles to:

edarmag@chariot.net.au

SCOOP PURCHASE!

All-mode operation on the HF, 6m, 2m, and 70cm bands with full satellite capability...

Yaesu FT-847 'Earth Station'

Ready for action on SSB, CW, AM, FM and digital modes, the FT-847's compact size makes it ideal for a variety of portable/mobile applications as well as for serious base station operation. You get a solid 100W output on the HF and 6m bands, 50W output on both 2m and 70cm, dual fan cooling and a rugged diecast chassis. Plus, the ultra-quiet HEMT receive pre-amp on 2m and 70cm contributes to the FT-847's amazing sensitivity figures. Advanced Digital Signal Processing (DSP) circuitry enhances received signal/noise ratio for easier copy of signals under marginal conditions through the use of 16 selectable noise reduction algorithms, while the Bandpass and Auto-notch filters aid the IF based Shift and Noise Blanker circuits in reducing interference on crowded bands.

The FT-847 is ready for satellite operation, with crossband full duplex operation, normal and inverted VFO tracking of the satellite uplink/downlink, as well as 12 special satellite memories with alpha-numeric tags. Also provided is a low-noise Direct Digital Synthesiser (DDS) that provides tuning steps as small as 0.1Hz, plus there's an adjustable DSP bandpass filter as narrow as 25Hz for exceptional weak-signal CW performance. You can also install optional Collins® mechanical filters in both the transmit and receive chain for enhanced SSB operation, as well as a 500Hz Collins® filter in the receiver side for CW. An effective speech processor with adjustable frequency shift voice tailoring is also provided to add punch to your SSB transmissions. The FT-847 is ready for data modes, with a rear panel Data In/Out socket and a packet socket for 1200/9600 baud VHF/UHF operation. Other features include extended receive operation (36-76, 108-174, and 420-512MHz), a high-speed computer control interface, 10-key keypad for band/frequency entry, and a Shuttle-Jog tuning ring for fast QSY. Also included are encode/decode CTCSS and DCS operation, selectable channelised steps for FM operation, FM narrow/wide modes for 29MHz use, and a large LCD screen with adjustable backlighting.

Each transceiver is supplied with a hand-mic, DC power lead and a comprehensive instruction manual. Call us for a copy of Yaesu's 6 page colour brochure to learn more about this incredible value 'Earth Station' transceiver.

D 3125

2 Year Warranty

YAESU

$2995

SCOOP PURCHASE!

SAVE $441

Offer expires 30/9/01

DICK SMITH ELECTRONICS

That's where you go!

2935 DPS SPOT

DON'T MISS THE ACTION!

YAESU VX-1R 2m/70cm micro handheld

One of the worlds smallest dualband handhelds, just 47 x 81 x 25mm (WHD) including a high capacity 700mA/H Lithium-ion battery! The VX-1R covers both 2m and 70cm amateur bands, plus offers AM/FM and TV sound reception, 2 hour fast charging as standard, simple settings and a large LCD screen.

Features:

- Tx: 144-148, 430-450MHz • Rx: 0.5-1.7MHz, 76-300MHz, 300-580MHz, 580-999MHz (cellular locked out).
- Output: 2m/70cm 0.5W (at 3.6V), 1.0W with external DC. • 291 memories, most with Alpha naming.
- AM, FM (n), and FM (w) reception modes. • CTCSS encode/decode.
- 31 smart search memories • Tone search for CTCSS and DCS.
- Includes FNB-52LI 3.6V 700mA/H Lithium-ion battery, regulated AC adaptor/charger, antenna and belt-clip.

D 3665

SAVE $37

$348

2 Year Warranty

YAESU FT-1500M Heavy Duty 2m FM Mobile

Another Yaesu transceiver breakthrough, the new FT-1500M blends an efficient transmitter with an almost bullet-proof receiver front end, and is packaged in rugged die-cast aluminium casing. You get powerful 50W RF output, direct keypad frequency entry, Alpha-numeric memory labelling, easy data interfacing, and much, much more.

- Transceiver coverage of the 2m Amateur band (144-148MHz), with extended receiver coverage of the 137-174MHz range.
- 50W RF output, with selectable 5, 10, or 25W lower power levels. The efficient PA stage only draws 8A at 13.8V DC for full RF power output.
- High-performance receiver front-end circuitry using Yaesu's renowned Advanced Track Tuning (ATT) tracking bandpass filter design.
- Includes MH-48B6J DTMF microphone for direct keypad frequency entry, plus convenient Menus with 35 'set and forget' functions.
- 149 memories are provided, with 130 regular memories, 9 pairs of sub-band memories, and an instant recall 'Home' memory.
- Additional features: Supply Voltage Display, transmit Time-Out Timer, Auto Power Off, and S-meter RF Squelch.

D 3638

2 Year Warranty **$399**

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

PHONE FAX AND MAIL ORDERS direct link

PHONE: Within Australia: 1300 366 644 (local call charge)

FAX: (02) 9642 9155 within Australia and (+612) 9642 9155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 500, PO Box 500, Regents Park DC NSW 2143 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 30/9/2001. All prices shown are in Australian dollars and are inclusive of GST.

2935 DPS SPOT

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashbunon VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9289
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq:powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Bill Riis	VK4YCU
Secretary	Bruce Jones	VK4EHT
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	David Minchin	VK5KK
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATO

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@iinet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.30pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $70.00. Without *Amateur Radio* $48.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $83.00 Pensioner or student $71.00. Without *Amateur Radio* $52.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $67.00 Pensioner or student $61.00. Without *Amateur Radio* $36.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hoban), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $52.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

VK1 NOTES

Forward Bias

Peter Kloppenburg VK1CPK

What shall we do with all that old junk?

During the last 12 issues of 'Amateur Radio' we read in 'Silent Keys' the passing of 69 members. This number does not include Silent Keys who were not members of the WIA and never attended a local club meeting. They passed away quietly without us knowing anything about them.

Maybe it is not a happy subject, but this piece of prose is aimed at the 'oldies' among us. They have spent many years using old equipment with key and microphone, documentation, books, components and valves, sometimes to the despair of the XYL.

When such an amateur becomes a 'Silent Key' one day, she sighs 'What shall I do with all this junk?' Papers and old books are cleared and put in the 'Yellow' bin. Small pieces are put in a container somewhere. 'Gee, that's nicely cleared up. Now for those large pieces of equipment...'

Sometimes, someone remembers that the WIA exists: usually too late, because by that time much has already been lost. Often it is decided to call in a second-hand dealer who then clears out the shack. The moral of this story: Amateurs watch out for your gear!

Again: it is not a happy thought, but you could make it a lot easier for the XYL if you made an inventory, and in black and white let it be known what must happen to your gear when you are gone.

There are various possibilities, firstly, you can have your local amateur radio club collect all your gear and dispose of it at a sale, or have it advertised as 'Deceased Estate' in the AR journal.

Secondly, if the equipment is old, or, of historical value, it can be sold through the 'Historical Radio Society of Australia' or donated to a vintage radio museum.

Thirdly, make a Will! That solves many problems and ensures that your Will is carried out. In these ways you can be sure that none of the gear is lost or falls into the wrong hands.

After all, you haven't collected all that gear over the years for nothing, have you? Translated from VERON's 'Electron' of March 1994.

On a lighter note, the Farrer facility has been painted and most of the required furniture acquired. The fitout for the first year of operation is modest in equipment and planned activities. After 12 months there will be an assessment to determine what changes are required.

However, one thing is clear. The Farrer facility will be mainly used for Contests, Aspiring Radio Amateurs, JOTA operators, WICEN operators, and amateur visitors. More on this next month.

The next general meeting will be held on August 27, at the Scout Facility, Longenerong St, Farrer, at 8:00 pm. Cheers.

VK7 NOTES

"QRM" Tasmanian notes

First, may I apologise for no Tasmanian notes last month, of course knowing full well how all our readers wait with bated breath to read them !!? I was out visiting my friend Jim, VK9NS.

We welcome two new members this month, VK7JUF in Bellerive and also Mike Emery from our southern area who is studying hard for his licence.

As I write this two of our northern stalwarts, Barry, VK7BE and Al, VK7AN have been on Flinders Island (I.O.T.A. OC195) working as VK7FLI from the QTH of Peter Blundstone, VK7KPB. These island W.I.A. DX-peditions certainly bring the worldwide island seekers out in droves. Congratulations to Barry and Al on a great job done. Pat and Peter are wonderful hosts and welcome all hams who come to the Island.

Two months ago I reported that thieves had broken into the Northwest branch's repeater of top of Mt. Duncan, stolen a solar panel and caused other damage.

Winter is now playing it's part and we are experiencing difficulty in getting the large storage batteries charged again. The 2 metre repeater is active but with a fraction of it's normal use while the 6 metre repeater has been switched off till the batteries charge up again.

We have now installed alarms on all sections of the site so that we'll all know immediately there is any more hanky-panky up there.

Our State Awards Manager states that we now have 601 recipients for the "Tasmanian Devil" award. Have YOU tried for this fine award yet?

August 4th and 5th sees our Southern WICEN members running the Command Net for the "Saxon Safari" – a gravel road rally over 240km through some of the toughest mountain and forest country in Australia. It's a daunting task for communications in this environment but our boys (and ladies) every year "deliver the goods"

At our last State Council meeting we decided the guide lines for "family membership" namely – One full membership (in whatever category the applicant requires) plus the federal component for each extra amateur living in the same household.

We feel this is the fairest way to encourage all family members to join the W.I.A.

Cheers for now Ron Churcher, VK7RN.

VK4 Notes—QNEWS

from Alistair Elrick VK4MV

SUNFEST 2001

The Sunshine Coast Amateur Radio Club will be presenting the 2001 SUNFEST on Saturday September 1st at the Nambour High School commencing at 9am. Admission will be just $3:00 or $5.00 for a family pass.

Table-space booking applications, phone Angus on 5443 2074. Tables will be $15:00 per 2 metres and open air or boot sales spaces $8.00. Firm bookings must be received by August 3rd.

One reminder will be on your application form which is very important, *Nambour High have insisted you bring carpet etc if you are putting gear on 'their polished floor!'* So be ready for that if you are going to sell any 'boat anchors'.

The Sunshine Coast Club will be mounting Amateur Radio displays for the general public at 3 local Libraries this year. These will be at, Kawana 1st of August to 4th of September; Caloundra 4th of September to 3rd of October and in Maroochydore 8th of October to 20th of October.

A good lead for all local clubs to follow, these displays could be both static and manned at various times for the duration, with plenty of contact details for club meetings. I hope there is a rush of interested people.

WICEN gets their exercise

The Gladstone clubs recent car rally was really tremendous, everyone who participated had a good day, even if it took over 2.5 hours getting home due to a lot of cattle on the road along with very thick fog. Then there was the severe storm with a great deal of lightning and thunder in the Kalpowar area adding a lot of interest!

Members of Mackay Amateur Radio Association ran the communications at a Horse Endurance Trial at Dennison Creek on Sunday the 27th May for the Mackay and Pioneer Valley Horse Endurance Club. Wally VK4AIV, George VK4HAN and Bruce VK4NPF ran communications on the 2-metre amateur band. This was the first time that this site had been used. About 23 horse riders participated on a 100km ride and a training ride. It ran from 5.00am till 4.00pm.

On Sunday 10th June the Horse Enduro in Twin Hills was supported by Bruce, VK4NPF and Wally VK4AIV from the Mackay ARA.

Wally VK4AIV organised the communications and operated at two checkpoints and Bruce VK4NPF operated another checkpoint using the 2-metre band in conjunction with UHF CB operators.

The ride started at 4.00am Sunday the 10th June and finished at 4.00pm. There were 100km and 60km rides where fourteen riders participated. Twin Hills is approximately 130km from Clermont on the Clermont to Charters Towers Road.

Sunshine Coast Amateur Radio Club has taken on a WICEN role. Dave VK4KDL recently showed the club a video regarding the Tsunami that hit New Guinea and caused mass destruction. The Club discussed their role and the availability of repeaters after cyclone's etc

Len VK4ALF told the meeting the tower the repeater antenna was on was unlikely to withstand a major cyclone. It was decided to apply for a licence for a new portable 438.175 UHF repeater for 'SARC WICEN' Do you wonder how your repeater would survive severe or cyclonic winds.

Mt Stuart TV Tower Update

More work than expected will be required to restore normal VHF/UHF broadcast television and radio services in the Townsville/ Thuringowa Region.

This work is required to repair damage caused by a spectacular fire on the Mount Stuart NTL Tower during February 2001. This ignited the fibreglass radome and melted the aluminium elements and coaxial cable in the UHF TV Array and caused considerable damage to the VHF TV and FM Array.

The cause of the fire has never been officially released, however those in the technical 'know' point to a power divider in the UHF TV array which was possibly damaged by a massive number of lightning strikes on Mount Stuart a few weeks prior to the 'towering inferno'.

FNNQARG from Far North QLD

One of VK4's premier Ham Social events occurred at Mission Beach on the weekend of 9th June. Gavin VK4ZZ, a FNNQARG scribe says at least 57 attended.

Displays included 'Rock' Hudson's Radio Emporium, Navcom Electronics with Barry VK4TBD and help from Yoshi VK3BZX, brought along at least 4 crates of equipment and goodies for the display. Don VK4MC deployed the TARC ARDF beacons and Ron VK4BRG showed equipment designed for Amateur Radio Direction Finding.

Sunday night saw VK4ATV call into the North Queensland Net. Evie VK4EQ at Rosslea was net controller utilising club call VK4WIT and this was the first time the TARC Inc has communicated between its two club calls from different regions!

All 57 who attended FNNQARG could enter a free prize draw sponsored by ICOM Australia. The prize was an ICOM IC-Q7A Mega-Pocket-Rocket transceiver. The prize was drawn in the VK4WIT Communications Centre live on-air on the North Queensland Net by Yoshi VK3BZX and was won by Teri VK4HYL. Teri couldn't believe she had won the prize, but fate was to make things even more amazing!

Everyone from far and wide had purchased tickets in a raffle sponsored by Navcom Electronics. The raffle prize consisted of a ICOM IC-Q7A Mega-Pocket-Rocket transceiver. Imagine the incredulous response from everyone when the winner was announced as Don VK4MC, XYM of Teri VK4HYL!

FNNQARG - cricket match umpire's report - South Mission Beach, 10th June 2001. It was the first year, for quite a few years, that the number of players for both Townsville and Cairns/Atherton teams were equal, having 19 players in each team.

Of note too was that Yoshi and Hikaro from ICOM Australia had their first ever go at playing cricket, contributing well to the score of the Cairns/Atherton Team.

73's from Alistair

AMSAT

Bill Magnusson VK3JT

AO-40 orbit finalised and stable

Peter DB2OS announced on 2001-Jun-22 that the first activation of the ATOS (Arcjet Thruster on OSCAR Satellite) propellant feed system was performed successfully during orbit #295.

Telemetry confirmed that the ammonia heater, the flow rate controller, valves and pressure indicators all worked appropriately. The time for the out-gassing was about 22 minutes and with the success of this first test, the rate was to be increased during further tests.

Much behind the scenes activity was carried out and a bulletin the following day said that the arc-jet thruster had again been testedfor about an hour on Orbit 296 from MA 118 to MA 135.

The S-band transmitter had been turned OFF from MA 100-180 to allow more power for the ATOS. The gas generator for the ammonia draws about 120 - 130 W of power when cycled on by the thermostat. The IHU-2 was left running during the tests and it logged telemetry into a circular buffer capable of holding about 2.5 days worth of data.

When the telemetry was downloaded from this hour-long "burn", it indicated a positive power budget and all looked nominal. The thrust on orbit 296 started at MA 121.4 and lasted for 3618s. The acceleration was "guestimated" to be 54E-6 m/s^2, and the direction of acceleration is towards alon 274, alat – 2; the attitude at the time of the tests.

Since everything went so well, the computer onboard AO-40 was commanded to initiate 2h "burns" starting around apogee on orbit 297 for the next three orbits. All telemetry looked good and it was hoped to expand to four-hour "burns" and possibly increase the thrust level as well.

The control team intended that before the "hot" arcjet firing with electrical power, the spacecraft attitude would be moved to a position that would favour good telemetry and communications. It was also hoped to test the 3-axis momentum wheels in the near future. The goal of the control team by doing these firings was to raise the perigee by about 200 km or so.

If you would like more information about the ATOS system, try the following URL:

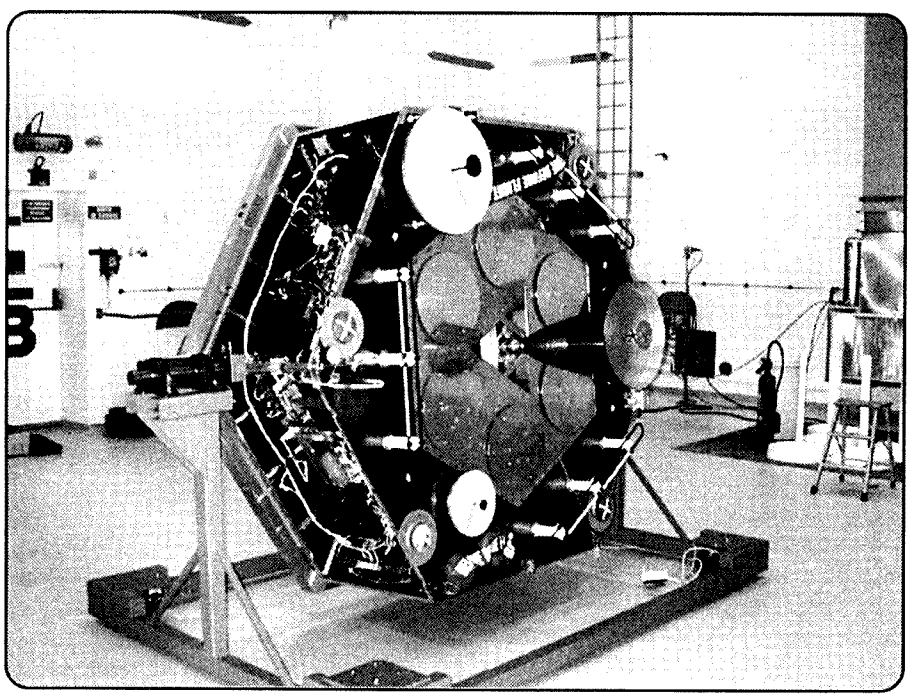
http://www.irs.uni-stuttgart.de/RESEARCH/EL PROP/PROJ/e_atos.html

It was announced a few days later that the blowing of cold gas through the Arcjet had stopped and in fact all of the ammonia fuel had been exhausted.

The perigee height had been raised from 280 km before the outgassing to 864 km after,the apogee height is almost unchanged. This is good news indeed as it confirmed that AO-40 is now in a safe and stable orbit!

Forward projections indicate that the orbit should be stable for at least 20 years. The perigee will oscillate between approx. 810 and 1260 km during that period, the mean motion (number of orbit revolutions per day) steadily decreases, and inclination varies from approx. 5 to 10.5 degs.

There is a graphic depicting the forecast on the AMSAT web page. The URL is included below.



Phase 3d undergoing integration at Orlando

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA. 5001.
Graham's email address is:
vk5agr@amsat.org

Should magnatorquing be required to alter the attitudein the future, the higher perigee will allow far greater control over this process. The next major items on the agenda are the testing of the 3-axis stabilisation momentum wheels and the unfurling of the solar array.

This is real "rocket-science" and it has been an education for all to watch the triumphs and disappointments of the control team along the way so far. We wish them well for future operations to fully commission AO-40.

DIY Special..."S" band ... and how to get there on the cheap!

Recent transponder tests on AO-40 have indicated that the UHF and microwave modes are going to be popular on the new high orbit satellite.

Many international contacts were made, even with the satellite still being spin-stabilised and the squint angles far from optimum during much of the period.

"S" band or 2.4 GHz is not new to the amateur radio satellite service. AO-40 is at least the 6th amateur radio satellite to carry 2.4 GHz gear either in beacon or transponder form. The longest serving 2.4 GHz amateur presence in space is on UoSat-11. Launched in March 1984, its "S" mode beacon is still used by experimenters wishing to test out their 2.4 GHz apparatus.

Many amateurs regard anything above 144 MHz as the realm of the guru. This has been eased to a degree by the ready availability of off-the-shelf 435 MHz - and higher- transceivers in recent years.

Apart from ATV there has been little building of gear for this part of the spectrum. Little wonder then that frequencies like 1.2 and 2.4 GHz are held by many to be out of their league and far too techie. This mystery surrounding the "micro-waves" discourages many from delving into areas like "S" band.

Do not despair, dear reader, help is at hand. The advent of MDS (Micro-wave Distribution System) TV in Australia, and overseas has made available to us a source of redundant gear which is usually very cheap and in many cases, easily modified to our 2.4 GHz band.

The first substantial number of these units were the 'Drake' down-converters. Dozens of these little blue boxes were grabbed by the satellite community when they appeared a few years ago.

If you are still "sitting-on" one of them, modifications are fully documented and widely distributed on the internet and can be found by following the links from the AMSAT web site. The supply of Drake converters seems to have dried up.

When I was in Adelaide recently Colin VK5HI showed me a unit, which is causing quite a bit of interest. It's known as the TransSystein AIDC-3733. It's a solid-state down-converter, which can be made to perform quite well in our 2.4 GHz allocation of "S" band. Purchase of these units can be arranged via Ebay.

Detailed modification instructions with excellent pictures are available at K5GNA's web site (all URLs at the end of this column). With a little work this unit can be turned into an excellent performer for use with AO-40.

It's very likely that, as in the transponder tests, the "V" and "L" band receivers will be activated with the "S" band downlink so the AIDC-3733 and similar devices will allow you to exploit these modes for very little financial outlay. A workable, entry level micro-wave receive system which can be used to feed your 2 metre SSB radio can be put together for about $150.

The web site shows the availability of an AIDC-3733 unit already modified and ready for use. Don't be afraid of the mods; they require no specialised test gear and can be carried out by anyone who can use a fine soldering iron. They are much simpler than the Drake mods and the end results are also better.

The down-converter is only part of the 2.4 GHz station. To complement it, a high-gain antenna is needed. A long helical antenna or a small dish with a helix feed seems to be the best answer.

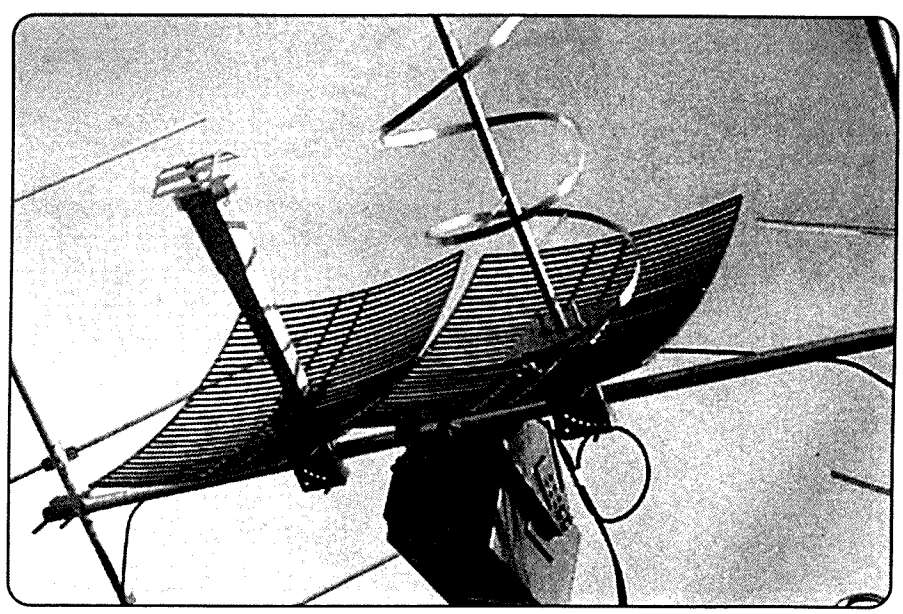
A dish of less than a metre diameter appears to be adequate for AO-40 reception. Such a dish, particularly of open mesh or "BBQ grill" type is easily mounted on just about any AZ-EL rotator system. Or, like mine, mounted on a tripod and hand-pointed.

A range of suitable dishes is available from the Australia-wide Hills organisation. Prices start at under $50 for the "BBQ grill" type of dish, which because of its "slat" construction works best with a linearly polarised feed. Dishes more suitable for circular polarisation using (say) a helix feed will cost slightly more.

James Miller's excellent article describing his helix feed system is available by following the links on the AMSAT web site. James has been a mine of information on simple "S" band gear since the very early days and all his articles are worth a read.

Handy-man tools and a couple of hours will construct such a feed at virtually no cost. Mine consists of an "N" type connector, a cut-down coffee can and a few turns of 3mm copper refrigeration tubing with a small piece of shim brass soldered on.

You can make your own mesh dish if you wish to and have a reasonably well equipped home workshop. I intend to



2.4 GHz Conifer, 70cm helical backed by conifer dish

cover this aspect in a future column.

Loop yagis and helix antennas are also worthy of consideration for 1.2 or 2.4 GHz.. Construction articles abound in ARRL and RSGB publications and they do not require any specialised techniques or materials.

While most of the information referred to so far can be found on the Internet, don't forget about BOOKS! There are many good texts on the subject of amateur radio satellites and their microwave components. A technical bookshop or a larger amateur radio store should have a good range.

More interesting ways around the "S" band situation are coming to light as time goes on. I recently learned of two interesting alternative solutions, one from England and one from nearer home.

Howard Long G6LVB has a novel solution. He details how to modify an ICOM IC-R3 receiver to receive the "S" band signals. Briefly the IC-R3 will cover this band in its original state but it does not have SSB. Howard shows how to take the IF signal out and route it to the input of an HF receiver. Read about Howard's mods at his web site below.

Peter Ellis VK1KEP has kindly provided details of a project he is working on which shows great promise, see his contribution below.

A worthwhile project is a simple signal source for testing and alignment on 2.4 GHz. Until recently this has been a stumbling block for experimenters. Signals from the amateur satellites can be used as mentioned above. While a useful tool, they are not in your sky all the time, are weak signals and are really only suitable when you have most of the "bugs" ironed out of your system.

A parts kit for a 2.4 GHz signal source will be available shortly from AMSAT-UK. Graham, VK5AGR has suitable 3rd overtone crystals available now for $9 including postage for those wishing to use their own favourite circuit.

When using a signal source to check the alignment of dish feeds remember that dish geometry expects a signal source to be an infinite distance away and produce parallel incoming rays. This is impossible to achieve. Even the Sun's rays are not *exactly* parallel!

It means that you should always have the signal source as far away from the dish as possible. Preferably 10 to 20 times the dish diameter away. If you were to place the source just a metre or two in front of the dish you would get a significant error in placement of the dish feed apparatus.

So there it all is. You CAN do an "S" mode system on the cheap, and you don't have to be a techie to do the mods. Everything is available at reasonable prices and within the capabilities of the average amateur constructor. The dish, the feed, the down-converter.

With the help of Colin VK5HI and Graham VK5AGR, Rob VK3OS and now Peter VK1KEP, I have assembled a selection of recent articles on the subject of 2.4 GHz dish-feeds, helix antennas and down-converters, mainly gleaned from the AMSAT bulletin board. It's about 1.5 Mb in all. I will edit it down to fit on a floppie disc. If you contact me I'll arrange to get a copy to you.

Give it your best shot. AO-40 is showing a lot of promise and the more VK stations ready for it when full operations begin, the better.

For late breaking news of AO-40 and all other AMSAT doings, check the web site or for the latest on developments in the 1.2 and 2.4 GHz areas, subscribe to the AMSAT-BB and join in the discussions. There is no greater reservoir of experience anywhere, newcomers are welcomed and given every assistance.

This is an area where the Internet excels, but don't forget about BOOKS!

Harvesting Antennas

from Peter Ellis VK1KEP

I recently had a close encounter with the 'Conifer II' ex-Galaxy TV 'direct broadcast' antennas, available in various Australian areas.

They are just right for picking signals off the new AO-40 AMSAT satellite. When the new AO-40 satellite was launched, I realised that there were Conifer II antennas still on rooftops around Canberra, several years since Galaxy departed the scene, but they are still there for the asking.

Local Linux enthusiasts were using them for 2.4GHz links, replacing the electronics with a simple antenna of their 'air-modem', and that got me thinking. These "BBQ-grill" 18-21dB antennas look like a small "grid-pack" antenna seen at microwave link sites.

At around 50cm x 40cm stacking is a fair proposition if the feeder harness loss is kept reasonable. Otherwise a few extra dB becomes immaterial. They have a transverter from 2.4GHz to near the 70cm band built-in the plastic centre spike.

I went around the neighborhood and 'harvested' some by wearing a big smile and saying something like, "It's only catching the wind rather than TV signals these days, but I can make use of it."

In a few Saturday afternoons. I had enough to share around. I've since seen them in various NSW and QLD areas early in 2001, and hope to have some of them available soon ex-Canberra from an Amateur in the electronics business.

I again made acquaintance with Kerry Richens VK1TKR. an electronics technician. In an hour I discovered things about the Conifer II transverters that I would have been hard-pressed to discover in a lifetime. He's refined his knowledge since then.

Principally, we discovered that the Conifer II can pass the AO-40 satellite pass-bands with quite reasonable

Continues foot of page 36

USEFUL URLS

Peter VK1KEP and Kerry VK1TKR advise that they have a "how-to" site established at www.geocities.com/peter-vk1kep/conifer.html

More details of the "Conifer" unit modifications from Kerry Richens' site: http://www.qsl.net/vk1tkr/

AMSAT-UK 2.4 GHz signal source kit: http://www.g0mrf.freeserve.co.uk/kits.htm

EBAY site for AIDC-3733 downconverters: http://cgi.ebay.com/aw-cgi/ebayISAPI.dll?ViewItem&item=1243439545

K5GNA's modification site for AIDC-3733 down-converters: http://members.aol.com/k5ona/AIDC3733modifications.doc

AMSAT-NA web site with links to just about every other site of interest to amateur radio satellite buffs: http://www.amsat.org

Good VK site for used equipment: http://www.vkham.com

Pre-loved gear within AMSAT-VK is also advertised from time to time by Graham VK5AGR on his mailing list. To get on the list, which also includes news of kits and special parts, send Graham an email requesting that you be added to the mailing list at: Vk5agr@amsat.org

Modifications to the ICOM IC-R3 receiver are on Howard Long's web site: http://www.g6lvb.com/icr3mod.htm

Graphic showing AO-40's final orbit and predictions for the next 20 years. http://www.amsat-dl.org/journal/AO-40_20yrs.gif

AR — Book Review

New Homebrew QRP Book

Radio Projects for the Amateur – Vol. 2

by Drew Diamond VK3XU

Review by an AR Contributor

Australia's answer to the late Doug DeMaw has produced another book that's bound to be sought after by QRPers and homebrewers worldwide.

A follow-up to the original *Radio Projects for the Amateur*, Drew Diamond VK3XU has once again come up with more plans for power supplies, transmitters, receivers, antennas and test equipment to whet the appetites of both new and experienced homebrewers. The content of the 132 page A4 sized book is mostly drawn from Drew's articles in the Australian *Amateur Radio* and *Lo-Key* magazines.

Radio Projects for the Amateur Volume 2 contains nearly thirty amateur radio constructional projects. Each project contains a schematic diagram, several photographs, diagrams of board layouts and two or three pages of text.

You won't find any 'one transistor wonders' amongst the projects described. These projects, though simple, are usually returned to the shelf once the novelty of fruitless CQs with a chirpy, rockbound, milliwatt transmitter has worn off. Instead, you will find projects of medium complexity that have a good chance of working when built and will provide many rewarding contacts. Attention has also been given to specifying readily obtainable parts; many receivers featured use the well-known NE602, 741 and LM386 chips. To avoid the hassle of making PC boards, most projects are constructed on 'paddy board'.

The book provides all the information necessary to construct several interesting QRP and QRP HF stations. It describes three power supply projects. Together these would meet most power needs of the average experimentally inclined amateur. The receiver builder is offered a choice of direct conversion and superhet designs, all using the ubiquitous NE602. Particularly novel is a 'binaural' direct conversion receiver, which is said to make the desired signal take up a position somewhere near the middle of the user's ears, while noise appears evenly spread. Both AM and CW transmitters are described, with an emphasis on 80 and 40 metres. These can be boosted by an easy to build linear amplifier that puts out 50 watts on all HF bands.

The emphasis is on HF projects, though a converter for six metres and an antenna for two metres is described. However the large number of test equipment projects included (wavemeter, dip oscillator, attenuators, inductance bridge, power meter, station monitor, SWR bridge and more) should still make the book useful for the VHF/UHF tinkerer.

Other information provided include workshop hints (cutting holes, making boxes, storing parts, antenna insulators, making chassis, etc), suggested reading and useful websites.

The reviewer has constructed (or borrowed from) several projects described in volumes one and two, including direct conversion and superhet receivers, 50 watt linear amplifier, VHF converter and an SSB transceiver. All have worked as advertised.

The reviewer found the hand-drawn diagrams of good size and easy to read. Photographs were reproduced satisfactorily. The book contains some minor spelling and typographical errors, but none that detracted from the worth of the projects presented. The stapled binding is similar to that used for Volume 1. This has stood the test of time in the author's shack.

Along with its companion volume 1, *Radio Projects for the Amateur Volume 2* is a must for any practically inclined amateur. Like volume 1, and classics such as Solid State Design and Amateur Radio Techniques, it will be so frequently referred to at VK3YE that it will probably spend most of its time off the bookshelf and on the bench!

Radio Projects for the Amateur - Volume 2 costs $24.95, posted anywhere in Australia. To order or to obtain further information, write to

Drew Diamond VK3XU, 45 Gatters Road, Wonga Park, Victoria, 3115, Australia.

ar

AMSAT continued

signals, and transvert from 2401.xyz MHz down to 451.xyz MHz (same xyz numbers).

This means that the Conifer II can be used, virtually as-is, as an AO-40 transverter if you have a 70cm 'general coverage' receiver. An FRG-9600 or WinRadio are ideal.

We think that the crystal frequency is multiplied by 256 to add to the IF (radio), but this is yet to be confirmed with precision. If this is so then it should be possible to specify another crystal and place the IF at, say, 440 or 430MHz.

An 'arm-strong' az-el rotator might even work but the real thing is better. The Conifer II needs around 14-18VDC @ 3-400mA fed up the 75 ohm coax to feed the 'oven' (it gets quite warm!), with the signal stripped off on the return journey and fed into the receiver. There are several versions of these 'power inserters' available on the Web. Naturally, they are for receive, and you'll have to make separate arrangements with co-ax relays and timing circuits if you also want 70cm transmit.

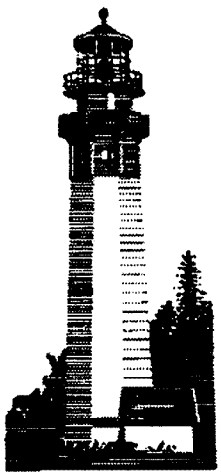
Many thanks to Peter Ellis VK1KEP and Kerry Richens VK1TKR for the above contribution which puts these mods and therefore S-band, AO-40 firmly within reach of all VK amateurs.

The list of the URLs boxed above come with a warning - my experience is that URLs are volatile things! These were all correct and active at the time of writing.

ar

DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com



The International Lighthouse and Lightship Weekend runs over the weekend of the 18 and 19th of August.

The latest list of participating stations (the list can be found at http://vk2ce.com/illw/2001.htm) shows 193 registered stations so far and probably a whole lot more who haven't registered will be operating as well.

The list is quite comprehensive and gives the calls and locations of those stations that are planning for a great weekend of operating. Unfortunately, I am rostered on for work the weekend in question, but hopefully, I will be able to spend some time on the air and will manage to work a few.

Another group of stations to lookout for is the nine special event stations that will be on the air to mark the 17th Commonwealth Games being held in Manchester between the 25th of July and the 5th of August. The nine stations will be GB17CG, GB0CG, GB2CG, GB4CG, GB0MCG, GB2MCG, GB4MCG, GB5MCG and GB8MCG.

The nine stations will be operating from Manchester, England, as the count down starts for the 17th Commonwealth Games. By all appearances this is a big event and the activity will cover all modes on all bands, so there should be something here for everyone. There is also a special award available and the basic rules are as follows,

- The period of the award begins on Wednesday 25th of July 2001 at 00.01 hrs GMT and finishes on Sunday the 4th of August 2002 at 00.00hrs GMT. No contacts before or after these dates will be counted.
- For stations operating outside the United Kingdom and Eire, at least 6 of the 9 special event stations must be heard or worked.
- All entries must be accompanied by log extracts on paper.
- Contacts by electronic mail will not be considered.

Full details on the radio event can be found at www.geocities.com/gbgames2002 [TNX WIA Vic Div]

One of the snippets from last months DX Notes was on the special event station 3Z0GI. Apparently I failed to mention why this was a special event. Actually, 3Z0GI was activated to celebrate the 666th anniversary of the founding of the Polish City of Gorowo Ilaweckie. If you were fortunate enough to work this station then the QSL route is via SP4CUF.

This month looks like a good month on the bands so lets get on the air and work some rare DX, a special event station, a DXpedition or whatever takes your interest.

The DX

3A, Monaco. Gerry, 3A/IZ1DSH will be active on 40, 20, 15 and 10 metres SSB from Monaco from the 4th until the 10th of August. QSL is via his home call, either direct or via the bureau. [TNX IZ1DSH and 425 DX News]

FR, Reunion Island. Carlo, I4ALU, lets us know that he will be operating from Reunion Island, dates are the 15th until the 28th of August. He anticipates being on all HF bands, CW only, as **FR/I4ALU/P**. QSL is via **I4ALU**, direct or via the bureau. [TNX The Daily DX]

GW, Wales. Ten operators from the North Wales Radio Rally Club plan to operate from **Bardsey Island (EU-124)** from the 5th until the 10th of August. They will be using the call **GW0NWR/P**. Activity will take place on all bands 160 to 6 metres.

The group plans to run the station for 24 hours a day. Operations will initially take place from the Bardsey Lighthouse for the first three days then relocating to Plas Bach, a farmhouse situated in the centre of the island for the rest of the trip. QSL is to GW0NWR via the bureau or direct to, GW0DSJ Edward Shipton, 34 Argoed, Kinmal Bay, Rhyl. Conwy LL18 5LN, Wales. [TNX GW0DSJ and 425 DX News]

I, Italy. A group of operators from ARI Trieste plan to operate as **IQ3V from Vittoria Lighthouse** during the International Lighthouse/Lightship Weekend. QSL to IV3LNQ via the buro or direct to Luigi Lenardon, P.O. Box 3959, 34148 Trieste - TS, Italy or via the bureau. [TNX IV3LNQ and 425 DX News]

IS0, Sardinia. IS0AGY, IS0BMU, IS0CAK, IS0CPU, IS0GQX, IS0JOO and IW0USV plan to be active on all HF bands including 6 and 2 metres from **Isola Dei Ratti (EU-165)**. They have requested the callsign **IM0R** and are awaiting confirmation. Date of operations is the 3rd until the 5th of August. QSL via IS0AGY. [TNX IS0AGY and 425 DX News]

J49R, Crete. Roberto, I2WIJ, will be active from Crete **(EU-015)** from the 23rd of July until the 6th of August. He plans to take part in the IOTA contest and will be active on the WARC bands the rest of the time. QSL via I2WIJ. [TNX The Daily DX]

OY, Faeroe Islands. Fred, DF2SS, is planning an operation from the **Faeroe Islands (EU-018)** between the 20th of July and the 8th of August. He expects to be active on all HF bands and 6m, on SSB, CW and RTTY. [TNX The Daily DX and 425 DX News]

S2, Bangladesh. John, KX7YT, says that he will be operating as **S21YV** from **Dhaka** between the 15th of July and the 15 of August. He expects to be active daily around 14:00 to 18:00 UTC on 15 and 20 metres. QSL via KX7YT. [TNX K2FRD and 425 DX News]

VO2, Canada, Zone 2. Fred, K2FRD, reminds us that he is operating as **VO2/K2FRD** from the Canadian Zone 2. If all is going as planned the operation will

continue until the end of August. He will be living and operating from a tent about 90km from the nearest town.

Fred hopes to be on the air at least six hours a day operating SSB and CW on all bands from 40 to 10 metres. Activity from Zone 2 is relatively rare; so if you want to work a station from this zone then check out Fred's schedule at http://sites.netscape.net/thefred3/labr1. QSL to K2FRD direct only, Fred Stevens, 263 Keach Rd, Guilford, NY 13780, USA. [TNX K2FRD and 425 DX News]

IOTA Activity

EU-110. 9A, Croatia. Sven, DF9MV; George, DL1GEO; Chris, DL9CHR and Fredy, DE0MST, will all be active as 9A/ home call from **Porer Island (EU-110)** from the 12th until the 17th of August. QSL via DE0MST either direct to Fredy Stippschild, P.O. Box 1406, D-83657 Lenggries, Germany or via the bureau. [TNX DE0MST, Islands On The Web and 425 DX News]

NA-053. Trinity Islands. Richard, KL7AK; Jim, K9PPY; Larry,KF6XC and Bob,WL7QC will be operating as KL7AK from Sitkinak Island in August. They plan to be on the island from the 9th until the 14th of August (approx.).

The main station will be running an amplifier and a tri-band beam (10/15/20m) mounted on a 30 foot mast. The group will favour 14260kHz +/- QRM. CW QSO's will only be by request and pileups permitting. QSL via N6AWD. [TNX G3ZAY, KL7AK and 425 DX News]

EU-015. SV9, Crete. Ron, WB2GAI, plans to be active on 10 to 160 metres, CW only, as SV9/WB2GAI/P between the 29th of June until the 12th of August. QSL via WB2GAI. [TNX WB2GAI and 425 DX News]

EU-133. Gogland Island. Club station RZ1AWD will be operating as **UE1CIG** from Gogland Island between the 23rd of July and the 5th of August. QSL via RN1AW (direct) or RZ1AWD (bureau). [TNX RZ1AZ and 425 DX News]

UA, Barents Sea Islands. Mike, UA1QV, Yuri, UA1RJ, and a group of other operators are planning to be active, if the weather permits, from a number of the Barents Sea islands. Activity will take place between the middle of July until the middle of August.

Two stations will be set up complete with amplifiers and Beams from each of the following locations;

- RI1PBZ Bolshoj Zelenets EU-086 RRA 03-07
- RI1PCH Chaichij [*] RRA new
- RI1PCO Chaichii [*] RRA new
- RI1PDO Dolgy EU-086 RRA 03-10
- RI1PGO Golets EU-086 RRA new
- RI1PKO Kashin [*] RRA new
- RI1PMZ Malyj Zelenets EU-086 RRA new
- RI1POD Dolgy EU-102 RRA 03-08
- RI1POL Lovetskij EU-102 RRA new
- RI1POP Pesyakov ——— RRA new
- RI1PRO Rvanye [*] RRA new
- RI1PSO Sengeyskij EU-188 RRA 03-06
- RI1PZO Zeleny EU-102 RRA 03-11

[*] = IOTA status is still to be confirmed. If qualification criteria are met these islands should be acceptable for IOTA EU-102.

Special Events

Mike, GM4SUC, would like to remind everyone that the **International Lighthouse/Lightship Weekend** will take place from 0001z on **Saturday, 18th until 2359z on Sunday, 19th of August.** Over 193 stations have confirmed their participation from either a lighthouse, lightship or maritime beacon. You can find a comprehensive list of stations at the following Internet site: http://vk2ce.com/illw/2001.htm [TNX GM4SUC and OPDX]

Special event station, II4ARI, is on from Torino (Turin), Italy until the 28th of October. This event is called "Experimenta 2001."

Further details can be found at http://www.experimenta.to.it QSL via I1JQJ. [TNX I1JQJ and 425 DX News]

For the 'award chasers' amongst us, **The special call ES8SC** will be on air until the 31st of August for the **"Summer Capital Award".**

More details can be found at http://www.ppnet.ee/sc_award.htm [TNX ES8AS and 425 DX News]

DXpeditions

Steve, VK6VZ, sent me an Email about a DXpedition to the South Pacific by his friend Trond, LA9VDA. Apparently a group of Norwegian amateurs will be operating from **Market Reef** between the 5th and 8th of August.
Operators will be Arne, LA3IKA, Bjorn, LA5UKA, Paul, LA6YEA and Trond, LA9VDA. **Callsigns will be OJ0/LA3IKA** etc. Activity will take place on all bands 160 – 2 metres; SSB, CW and RTTY. QSL via homecalls except for LA6YEA which is via LA9VDA. [TNX LA9VDA and VK6VZ]

TY, Benin. Flo, F5CWU; Terry, F5MOO and F5AOV are planning a trip to Benin in West Africa.

The expected dates of operation is from the 11th until the 29th of August. The group hopes to be active on all bands 160 to 6 metres on SSB, CW and digital modes. They are currently awaiting the issue of their licences from the Benin authorities and until then they are unsure which bands will be activated.

They have also invited requests from DXers for required bands, modes etc. E-mails can be sent to F5CWU at f5cwu@wanadoo.fr to organise a sched, they can also be found at http://perso.wanadoo.fr/f5cwu [TNX F5CWU and 425 DX News]

Round up

Gwen Tilson, VK3DYL, sent me and Email to let me know that the **QSL manager** for the recent YL expedition to OH0, **Aland Island, is OH1MK.** A special feature of this operation is that all direct QSLs will be answered directly from the Aland Islands using attractive Aland postage stamps.

Keep an ear open **for Dusan, S52N,** who has been posted to duty with the UN peacekeeping forces in the **Golan Heights, YK.** He expects to be there for a year and has already applied for a Syrian license.

OA, Peru. The planned operation from **San Lorenzo Island, SA-052,** has been postponed until August –September due to problems with the local bureaucracy and transport. Further information will be posted as it comes to hand. [TNX OA4AHW and 425 DX News]

Pierre, HB9QQ, plans to be back in the **Maldive Islands** in the last week of October and the first week of November. He will be operating as **8Q7QQ from Gan Island,** which is approximately 250 kms south of the equator. Activity will mostly be on 6 metres using a 4 element wide-spaced yagi and an Icom 746 running 100 watts.

When 6 metres is closed he will try and get on 10, 12, 17 and 30 metres CW. Keep an ear on 28885kHz. [TNX HB9QQ and The daily DX]

CX, Uruguay. Anyone who needs a

contact from Uruguay on the 80 and/or 160 metre bands should keep an ear open for Geo, CX1SI and Al, CX4SS. These stations are often on 80m between 00.00 and 02.00 UTC and on 160m between 02.00 and 03.30 UTC. [TNX CX1SI and 425 DX News]

VP8, South Georgia Island (and possibly South Orkney Island as well!). A report in OPDX recently from Mike Gloistein, GM0HCQ (who was active from South Georgia Island as VP8SGK for a few days during the end of March and the beginning of April). Mike says that he will be returning to South Georgia some time in late November or early December.

He will be operating from onboard the Royal Research Ship *Ernest Shackleton* from about the 10th of October onwards. He also anticipates a trip to the Falkland Islands and if so will change his callsign to VP8CMH/MM while there and in Antarctic waters.

Mike also says that there is a slight chance of some activity from Signy Island as well, however he won't know for sure until the ship itinerary is completed. While the ship is underway Mike will try and keep us posted of any changes on his web site at http://www.hfdx.co.uk [TNX GM0HCQ, OPDX and 425 DX News]

The Old Barney Amateur Radio Club has announced a **Special Event operation** celebrating the anniversary of **"National Lighthouse Day"**. The callsign **N2OB** will be active from "Old Barney" the Barnegat Lighthouse located on **Long Beach Island** (NA-111) New Jersey on the 4th and 5th of August.

The station will be on air from 1300 till 2300 UTC daily. Listen around 7280, 14280, 21380, 28480 kHz. QSL via N2OB, P.O. Box 345, Tuckerton, NJ 08087 USA.

Send a SASE measuring 9"x12" with sufficient postage for a QSL card and certificate, alternatively an SAE and an IRC for a QSL card only.

Another operation from The Old Barney A.R.C. Special Event operation for the **'International Lighthouse Activity Weekend'. Callsign** W2T will be on air from the **'Tucker's Island Lighthouse'** in the Tuckerton Seaport, Tuckerton, New Jersey from 1300UTC the 8th of August through until 2300UTC on the 19th of August.

Listen around 7280, 14280, 21380, 28480 kHz. QSL via N2OB, P.O. Box 345, Tuckerton, NJ 08087 USA. Send a SASE measuring 9"x12" with sufficient postage for a QSL card and certificate, alternatively an SAE and an IRC for a QSL card only.

NIST Survey

I have mentioned this survey before but thought a reminder would be in order. Many amateurs use stations WWV and WWVH for the latest solar numbers, frequency calibration and as a time standard. The National Institute of Standards and Technology (NIST) is conducting a survey on the stations current activities and services.

I have been told that many amateurs from all over the world have completed the survey. WWV and WWVH are valuable resources for those amateurs who do not have access to the latest solar figures on the Internet, so perhaps we can make the NIST aware of both stations worldwide utility.

If you have Internet access go to http://www.timesurvey.nist.gov and complete the survey. The survey closes on the 30th of September 2001.

The BBC discontinued their short-wave broadcasts to North America, Australia, New Zealand and the Pacific on the 1st of July 2001. The BBC did this to save approx. 1 million pounds, money that is desperately needed for broadcasts to other audiences.

You can still hear the BBC on the Internet (byte-barf is nothing like an analogue interference mode) and on commercial FM stations that carry the BBC; but to me it will just not be the same.

I listened to the BBC when I was homebrewing equipment on the workbench and got used to the heterodynes, fading and multi-path distortion.

The BBC will continue HF broadcasting to Asia and Africa and other areas where the Internet is not so easily accessed.

Sources

Again this month we have a number of people and organisations to thank for the information that makes up DX Notes. Our thanks go to the following; VK3DYL, GM0HCQ, CX1SI, HB9QQ, OA4AHW, F5CWU, LA9VDA, VK6VZ, ES8AS, I1JQJ, GM4SUC, UA1RJ, UA1QV, RZ1AZ, WB2GAI, G3ZAY, KL7AK, DE0MST, K2FRD, IS0AGY, IV3LNQ, GW0DSJ, IZ1DSH, The Old Barney A.R.C, WIA Vic Div, Islands On The Web, OPDX, 425 DX News and The Daily DX.

ar

AR Club Notes

Adelaide Hills Amateur Radio Society

The June meeting heard all about cells and batteries. The talk was given by Geoff VK5TY, President of AHARS.

He had some very interesting statistics to present to the members, one of which confirmed most people's suspicions. If you want the most expensive energy use ordinary Leclanche cells.

If you use a standard 6-volt lantern battery you will be paying $147 per kilowatt/hour, compared with approximately 14.7 cents per kilowatt/hour from the mains.

He also explored the difference between Leclanche cells and alkaline cells and explained in depth the application of the alkaline filled nickel/iron storage batteries for use by amateurs either to replace a power supply or a lead/acid storage battery to run equipment in the shack.

There is no regular meeting in July each year as AHARS has a Mid-year Dinner instead. Despite some problems this year this will still go ahead as usual, but at a different venue.

If you are in Adelaide for the third Thursday of August, or of most months, please make your way to the Blackwood High School in Seymour Avenue, Blackwood where the regular meetings are held.

They start at 7.30 but people tend to arrive before that time.

Everyone is most welcome.

ar

AR Awards

John Kelleher VK3DP, Federal Awards Officer
4 Brook Crescent, Box Hill South Vic 3128 (03) 9889 8393

This is my final submission for the awards column. I thank you for your assistance and for your courtesy and patience over the past ten years. For me, in the beginning, it was a challenge, but it soon became a pleasure to find relevant awards for publication, and to maintain current DXCC listings.

From a recent email, I find that the ARRL is not accepting eQSL's. Possibly more on this subject in the future.

Information for those who worked EM0HQ, on the 14/15 July. The Ukranian Amateur Radio league were active from their headquarters, using the above callsign. The station location was Lisichansk City. Team leader was Vladimir, UX2MM. QSL Manager was UR5EAW.

A free award was available for working this special station, with no application to submit.

The rules were simple.

1. Work EM0HQ during the world championships.
2. For DX stations, 2 QSO's, any mode
3. For European stations, 4 QSO's, any mode.

The award application is the log of EM0HQ. All awards will be sent via the bureau. For any further information, send an email to - em0hq@qsl.net

USA—New Jersey All County Award

Sponsored by the Jersey Shore ARS for working all New Jersey Counties. A basic certificate will be awarded upon your application showing proof of working 7 NJ Counties. Seals available for 14 and the full 21 counties. The NJ counties are :- Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Passiac, Salem, Somerset, Sussex, Union, and Warren

GCR list and fee of US$1.00 or 3 Irc's to :- Jersey Shore A.R.S., P.O. Box 295, Toms River NJ 08754-0295

Indonesia - Worked All Indonesia Award

Issued for contact with stations in each of the Indonesian call-areas 0-9, as follows.

DX stations other than those in CQ Zone 28 need two stations in each area. Modes or Bands may be mixed. SWL OK. Contacts after 7 Sept 1968. GCR list and fee of US$8 Go to :-

Mr. M Maruto YB0TK, PO Box 6763-JKSRB, Jakarta 12067, Indonesia.

73, Good luck, and Goodbye

de John, VK3DP

DXCC Listings WEF July 4 2001

SSB Roll of Honour

VK3EW	334/340
VK5MS	333/387
VK4LC	333/380
VK5WO	333/365
VK6LK	333/358
VK6HD	333/358
VK3QI	333/347
VK3AKK	333/346
VK3DYL	333/339
VK2FGI	333/339
VK4UA	331/345
VK1ZL	331/337
VK4OH	330/337
VK2AVZ	329/340
VK3CSR	329/338
VK2DEJ	329/335
VK6NE	328/344
VK3YJ	326/332
VK4AAR	325/329
VK7BC	324/329
EA3AKN	323/331
VK3AMK	321/340
VK5EE	321/327
VK6VS	319/323
VK5FV	319/322

SSB Ordinary List.

VK6AJW	312/317
VK3JI	310/325
VK6APK	310/315
VK5WV	306/328
VK6PY	306/312
VK4LV	305/307
VK6RO	304/310
VK6ABS	304/
VK4ICU	303/305
VK3IR	302/308
VK4SJ	300/301
VK1TX	300/
VK6DY	294/301
VK4DP	293/305
VK2WU	291/296
VK4BG	286/302
VK3CYL	282/288
VK4EJ	275/277
VK3DP	274/277
VK7TS	270/271
VK4BAY	268/271
VK3GI	263/267
VK4AO	263/
VK3VQ	259/276
VK3UY	259/26?
VK6ANC	258/262
VK5IE	258/261
VK2HV	253/
VK2UK	252/256
VK3CIM	250/254
VK2PU	243/247
VK6YF	238/241
VK8KTC	231/233
VK6APW	228/229
VK3ETM	226/227
VK8AM	225/
VK3SM	222/242
VK5BO	217/222
VK3DD	213/217
VK4IL	212/
VK4XJ	204/216
VK3DVT	201/204
VK2CA	201/
VK3EFT	198/201
PY2DBU	195/197
VK2FHN	190/
VK7JAB	186/
G0VXX	184/
VK6WJH	183/
WA1MKS	171/
VK6APH	168/169
VK4CHB	167/168
VK2BQS	164/167
LU5DSE	161/
VK4ARB	159/160
VK4IT	154/155
VK2GSN	152/
VK4BP	148/
VK7LUV	148/
VK2SPS	141/143
VK6LC	139/140
VK3DQ	133/147
VK2LEE	130/132
TI2YLL	127/
VK4VIS	126/128
YC8EMH	126/127
TG8NE	125/
VK2EJK	124/
SM6PRX	121/126
HL4YD	118/119
VK2MH	116/118
VK7WD	115/116
VK5GZ	113/115
VK6NV	111/113
JA8XDM	111/
C21DJ	109/
VK3MRG	108/
JE9EMA	108/
VK5UO	107/110
HC2HYS	106/107
VK4UW	105/
JN6MIC	103/104
ZS6IR	102/104
KB2NEK	102/103
C21NJ	102/
VK2FZR	102/
JH3OHO	101/103
VK2EJM	101/103
VK3KTO	101/102
VK1PRG	101/
VK2IRP	100/101
ON4BCM	100/

Roll of Honour CW

VK6HD	333/354
VK3QI	333/345
VK5WO	326/342

Ordinary List CW

VK3KS	307/335
VK4LV	293/300
VK4ICU	291/
VK3JI	274/299
VK3AKK	270/275
VK4KU	251/
VK7BC	246/255
VK6MK	246/249
VK2CWS	244/246
VK3DP	244/246
VK4DA	237/239
VK3DQ	234/261
VK3CIM	228/229
VK4DP	205/216
VK7TS	204/
VK7RO	201/204
VK5GZ	197/199
VK6PY	190/194
VK6HW	179/182
VK5UO	165/166
VK5BO	159/184
VK4XJ	150/163
WA5VGI	146/148
VK4UA	143/145
VK4AAR	142/144
VK8AM	138/
VK7DQ	131/132
VK2BQS	124/126RTTY
VK2TB	123/125
VK7CO	120/122
DK6AP	120/
SP1AFU	112/113
K5QNM	110/113
VK5BWW	110/113
VK6NV	109/110
OK1FED	109/
VK2FYM	106/108
VK4CXQ	106/
UR5BSJ	103/105
VK3DG	102/
SM6PRX	101/102

Roll of Honour Open (Mixed)

VK7BC	334/343
VK4LC	333/380
VK5WO	333/369
VK6HD	333/360
VK3QI	333/348
VK4UA	331/347
VK2AVZ	329/340
VK3AKK	327/388
VK4AAR	327/331
VK3UY	324/330
VK3JI	322/351
VK6AMK	322/341
VK4LV	315/319

Ordinary List Open

VK4DV	312/317
VK4ICU	311/313
VK6RO	310/316
VK4DP	309/323
VK3DP	305/309
VK4BG	293/312
VK7TS	285/286
VK3CYL	282/288
VK3VQ	274/291
VK3CIM	274/278
VK5BO	264/302
VK6ANC	261/265
TF5BW	260/264
PY2DVU	254/259
VK6MK	253/256
VK2HV	253/
VK2CWS	250/252
VK5UO	248/250
VK3DQ	246/275
VK6APW	239/240
VK2ETM	238/240
VK4DA	237/239
VK8AM	236/
VK4XJ	233/249
WA5VGI	216/218
VK5GZ	204/206
VK2EFT	202/205
VK2FHN	193/
VK2BQS	181/184
VK4CHB	177/179
VK6APH	171/172
9A4KA	168/
SM6PRX	162/169
VK3VB	153/165
VK6LC	142/144
VK4EZ	129/138
YB8GH	127/129
VK3OZ	126/127
VK7CQ	123/125QRP
SP1AFU	114/115
VK3MRG	109/
VK2AJE	100/

AR Education Notes

Brenda Edmonds VK3KT

Waiting for results of exam structure discussions

The response to the ACA Discussion paper "Amateur and Marine Operator's Examination and Certification Requirements" has now been completed and submitted to the ACA by the extended deadline of 13th July.

A considerable amount of discussion was generated by this paper and the 26 questions that it posed. It is anticipated that the results of the discussion, when collated, will provide the ACA with direction as to how to proceed with the further devolvement of the examination process.

From conversations with ACA officers, I expect that the next step will be for the ACA to circulate a paper on the examination protocols developed as a result of this paper, and an invitation to express interest in managing the devolved examination system.

The WIA has intimated to the ACA that it does not see any way in which increasing the number of examining bodies will either increase the reliability and efficiency of the examinations or decrease the costs. In fact, we see the most effective form for the examinations to be a modification of the system currently in place, ie the WIA Exam Service. We are, however, prepared to relieve the ACA of the administration involved in the issuing of Certificates of Proficiency. We now await further moves from the ACA.

The WIA is also considering a proposal for a new entry level to amateur radio, - a level lower than the current Novice Limited - which would allow supervised or "Black Box" operation on a limited range of frequencies. It has been represented to us that an entry at this level would appeal to many of the young candidates who currently see the study required for a Novice licence as too formidable. If they can get on air easily and quickly, then the experienced operators can coach them in proper operating techniques and encourage them to achieve a higher level of licence. We do not see this entry level as exam-free. There would still need to be an examination to satisfy the national and international requirements for operators to be qualified. The examination, though, could comprise only regulations and very basic safety, interference and propagation topics.

We are aware that there are currently 5 licence levels. However, it seems very likely that this number will be reduced to two when the CW section ceases to be mandatory.

If this is what it takes to restore the amateur numbers and enthusiasm, it may be well worth while. I have long been an advocate of closer supervision of new licensees by experienced club members or similar mentors. This proposal assumes a fairly close liaison between newcomers and experienced operators.

ar

AR Contests

Contest Calendar August – October, 2001

Aug	4	Waitakere Sprint	(CW)	(June 01)
Aug	4	European HF Championship	(CW/SSB)	
Aug	4/5	Ten-Ten Summer QSO Party	(SSB)	
Aug	5	YO DX Contest	(CW/SSB)	
Aug	11/12	Worked All Europe DX Contest	(CW)	(July 01)
Aug	18/19	SEANET DX Contest	(All)	
Aug	18/19	Remembrance Day Contest	(All)	(June 01)
Aug	18/19	Keymen's Club of Japan Contest	(CW)	(July 01)
Aug	25/26	ALARA Contest	(CW/SSB)	(May 01)
Sep	1	CCCC PSK31 Contest		
Sep	1-2	All Asian DX Contest		
Sep	8/9	Worked All Europe DX Contest	(SSB)	(July 01)
Sep	15/16	Scandinavian Activity Contest	(CW)	(Aug 01)
Sep	22/23	CQ/RJ WW RTTY DX Contest		(Aug 01)
Sep	22/23	Scandinavian Activity Contest	(SSB)	(Aug 01)
Oct	6/7	Oceania DX Contest	(SSB)	
Oct	13/14	Oceania DX Contest	(CW)	
Oct	20/21	Worked All Germany DX Contest	(CW/SSB)	
Oct	20	Asia-Pacific Sprint	(CW)	
Oct	27/28	CQ WW DX Contest	(SSB)	

Greetings to all contestants and interested readers. Well , THIS IS THE MONTH when VKs take a serious interest in contests . While this limited contest activity is very sad, it is the way you are. We need you all in our contests, not just at RD time, but in all the local events!! Full details of these appear in this column each month.

This month is RD month (see Rules in June "AR") AND the revised date of the ALARA Contest (see rules in May 2001). Both of these are important Australian contests. *Please support them.* The dates are in the Calendar associated with this column. Please prepare your station now and please do not forget to *send in your log.* It is most disheartening to Contest Managers to learn that several hundreds of stations took part in a contest, but only about 30 bothered to send in a log. What is the problem? Would you like assistance with your log? Please tell me if I can help in any way.

August is not far from October when the annual OCEANIA DX CONTEST is held (formerly VK/ZL DX Contest). By now you have seen the results of last year , with sincere thanks to our Editor for his good job in the June edition and Brian Miller, the ZL Contest Manager for 2000, who did a mammoth job of receiving, checking, collating and publishing the results.

Now is the time for you to get into gear for this most important Australian event. Seriously, WE NEED YOU ALL to take part in this, even if for just a short time. Apparently you do not believe or do not care that there are other operators in the world who are happy to work us "down-unders", not only in this contest, but at any time. Please don't let them down, or the name of VK either.

73 and good contesting. Ian Godsil VK3VP vk3vp@vkham.com

Ian Godsil VK3VP re-appointed Federal Contest Co-ordinator

Ian held the post from 1998 until September last year, when he resigned after considerable criticism was levelled at him over various aspects of contesting in VK-land.

In the interim, Ian has studied modern contest logging programs and now uses one for most of his contest work. Also during this interim period, he has continued to supply notes for this column.

Ian asks that you keep him informed of all contest-related information. He may be contacted by e-mail at: ianvk3vp@telstra.easymail.com.au. His postal address is: 57 Nepean Highway, Aspendale, 3195.

Scandinavian Activity Contest

CW: 16—17 September

Phone: 23—24 September 1200z Saturday—1200z Sun

Object is for amateurs world-wide to contact as many stationsin Scandinavia as possible, on bands 80—10m (no WARC). Scandinavian prefixes are: LA/LB/LG/LJ (Norway); KW/JX; OF/OG/OH/OI (Finland); OF0/OG0/OH0 (Aland Isl); OJ0 (Market Reef); OX/OY; OZ/

5P (Denmark); SI/SJ/SK/SL/SM/7S/8S (SWEDEN); TF.

Categories (all bands only) are: single operator; single operator QRP (max 5 w o/p); multi-operator single transmitter; SWL.

Exchange: RS(T) plus serial number starting at 001. For each QSO,

Score one point on 20, 15 and 10 m, and three points on 40 and 80 m.

Multiplier is the number of call areas (0—9), not prefixes, for each Scandinavian country worked on each band. Portable stations without a district number count as area 0, eg G3XYZ/LA counts as LA0. OH0 and OJ0 are separate call areas.

Final score is total QSO points (all bands) times total multipliers (all bands).

Use standard format for logs and summary sheets. Show duplicate QSOs with 0 points.

Dupe sheets are required for 200+ QSOs.

Send separate logs for CW and phone sections. Logs on 3.5" DOS disc are welcome and must be in ASCII, one QSO per row, and labelled with the call, contest name, section/s and contest date. Include an SASE if you want your disc returned.

Summary sheet must be on paper. The mailing address alternates between SSA (Sweden), NRRL (Norway), EDR (Denmark) and SRAL (Finland) in that order. For 2000,

Send your log postmarked by 31 October to: J-E Rehn, Lisataet 18, SE-863 32, Sundsbruk, Sweden, or by e-mail to: *<sac@contesting.com>*

The winners trophy, and certificates for '1ST VK' and '1st Single Operator Phone', being presented to VK3EW (David McAulay - on the right), from the Contest Manager (Bruce Renn - VK3JWZ)

CQ/RJ WW RTTY Contest

23 - 24 September, 0000z
Sat —2400z Sun

In this contest, the object is to contact as many stations world-wide as possible using digital modes (Baudot, ASCII, AMTOR (FEC and ARC) and packet) on bands 80-10 m. No unattended operation or operation through gateways or digipeaters, etc. Stations may operate for full 48 hours.

Categories are: single operator unassisted, single and multi-band; single operator assisted, all band; multi-operator single Tx, all band ("10 minute" rule applies to this category EXCEPT that one - and only one - other band may be used during the 10 minute period if, and only if, the station worked is a new multiplier); multi-operator multi-Tx, all band. Single operator entrants can enter the low power section (up to 150 W) or high power (more than 150 W).

Stations may be contacted only once per band, regardless of the mode used.

Exchange: RST plus CQ zone; W/VE will send RST, state or area, and CQ zone.

Score: one point for each QSO with stations in your own country, two points for each QSO outside your own country but inside same WAC continent, and three points for each QSO with stations outside your own continent. On each band the multiplier equals the sum of US states (Max 48) and Canadian areas (max 13) PLUS DXCC countries (including W and VE) PLUS CQ zones (max 40). Note: KL7and KH6 are claimable as country multipliers only, not state multipliers. Canadian areas are VO1, VO2,VE1 (NB), VE1 (NS), VE1 (PEI), VE2, VE3,VE4, VE5, VE6,VE7, VE8, VY.

Final score equals total QSO points times total multipliers from all bands.

Submit a single summary sheet including scoring calculations for all bands, plus for each band a separate log, duplicate ckeck list, and multiplier check sheet.

Send low power logs postmarked by 1 December to: , CQ WW RTTY Contest Director, Box DX, Stow, MA 01775, USA. Low power logs may be sent by e-mail to: k1ry@contesting.com

Send high power logs to: Ron Stailey K5DJ, CQ/RJ RTTY Contest Co-Director, 504 Dove Haven Drive, Round Rock TX 78664-5926, USA. High power logs by e-mail to: k5dj@contesting.com

A comprehensive range of plaques and certificates is offered.

Complete Results –

(Points Scores):

2001 VK/Trans-Tasman Contest:

Division 1 (Single Operator – Phone):

1.	2158	VK3EW	16. 656	ZL1BRY
=2.	2066	VK5SR	17. 540	ZL4AR
=2.	2036	VK2AKJ	18. 534	VK3LK/QRT
3.	1869	ZL1BVK	19. 523	ZL2AWH
4.	1598	ZL1DK	20. 504	ZL1ALZ
5.	1323	VK2SWR	21 497	ZL2AUB
6.	1101	ZL1AYQ	22. 277	VK3BYY
7.	1099	ZL4IM	23. 268	ZL3TX
8.	1074	ZL1BYZ	24. 243	VK5EMI
9.	992	VK2QV	25. 150	VK6JJJ
10.	909	VK4YN	26. 79	VK5ATQ
11.	898	VK2NMO	27. 18	VK5ET
12.	894	VK6BH	28. 3	VK2JCN
13.	850	ZL1WT		
14.	792	VK7JGD		
15.	742	*VK3JWZ (ineligible)*		

Division 2 (Single Operator – QRP Phone):

1.	534	VK3LK

Division 3 (Stationary Mobile):

1.	909	VK4YN

Division 4 (Single Operator – CW):

1.	576	VK5NJ	9. 204	ZL6QH
2.	528	VK3VP	10. 193.	ZL1AJP
3.	455	ZL2RX	11. 176	ZL1ALZ
4.	450	VK3BBT	12. 135	ZL1IH/QRP
5.	359	VK3MV	13. 76	ZL1WT
6.	291	ZL1BYZ	14 33	VK4YN
7.	264	VK3EFO	15. 12	VK5ET
8.	244	ZL2AJB		

Night-Owl (Top score, last hour):

1.	317	VK2AKJ (Certificate awarded).
2.	312	ZL1DK
3.	308	VK5SR

Wooden Spoon (Lowest scoring Log):

*3 VK2JCN (Certificate awarded).

Oceania DX Contest Committee

The Oceania DX Contest (formally known as the VK/ZL Oceania DX Contest) is about to re-emerge as the premier contest in our region.The NZART and WIA Presidents appointed Brian Miller (ZL1AZE) and Martin Luther (VK5GN) to lead the formation of a joint management committee to manage and promote the Oceania DX Contest. The following committee has been formed.

The core members (with voting rights) are;

Brian Miller ZL1AZE (NZART rep, Contest Manager and chair)
Martin Luther VK5GN (WIA rep)
Tony Burt VK3TZ
Wilbert Knol ZL2BSJ.

The other (non-voting) members are;
John Cashen VK4UC
Philip Miller VK2FHN
David Pilley VK2AYD
Olaf Moon VK1JDX
Geoff Clark ZL3GA

Committee decisions and discussions are communicated on the Oceania DX Contest email reflector at OceaniaDXTest@yahoogroups.com. Anyone interested in the contest is encouraged to join this reflector and take part in discussions. Some of the immediate tasks which the committee is addressing are:

Confirmation of the 2001 rules.

- Send 2001 rules to the major contest web sites and to all of the major radio magazines.
- Lobby the major contest software program developers to include the Oceania Contest
- Look for more sponsors of awards. Decide what we would like to see as awards both in the short and long term. (QRP etc)
- Promote publicity by allocating areas of the world to individual committee members and encouraging them to develop publicity in those target areas. Send invites to past participants, known contest operators, DXers and other active VK/ZL/Oceania hams on HF.
- Planning for an Oceania DX Contest home page.
- Preparation and submission of 2001 contest budget to WIA and NZART
- Investigation and adoption of Log Checking tools (e.g., Cabrillo tools)

Watch the Oceania DX Contest reflector for further news. Please email the reflector or contact one of the committee members if you have any queries, concerns or ideas regarding our contest.

Brian Miller ZL1AZE
Chair Oceania DX Contest Committee

ar

PLAN AHEAD

JOTA Facts 2000

World wide

Total Scouts and Guides	**460848**
Total Amateurs not Scouts or guides	**8074**
Total JOTA Radio Stations	**10707**
Total JOTI locations	**1462**
Active Countries	**108.**

In Australia

Participants	**15350**
Stations	**300**
Internet	**150**
Countries contacted 25	

JOTA/JOTI 2001
October 20/21

New Contest Site

Some of you may know that John Loftus VK4EMM will shortly close his 'Radiosport' contest web site. Apparently this has been brought about by decisions on the part of the host for the site, and not of John's making. At present the site is still running (http://www.uq.net.au/radiosport/), but has not been updated for some time.

In order not to leave a gap in information about VK and ZL areas contests, it was suggested that I try to set up something. Needless to say I was a bit worried about how to tackle such a task, but after negotiations and questions, I am pleased to announce that Allan VK2CA has made available space on his VKHAM site.

I invite you all to look at the opening page at http://www.vkham.com/contests/index.html These are early days, so I am busy reading about HTML and gathering ideas how to make these pages effective for YOU, the contester or interested reader.

Please let me know of any suggestions that you may have. Also I am very pleased to say that Joihn VK4EMM has given permission for relevant material from 'Radiosport' to be used on VKHAM. Thank you most sincerely, John.

Look forward to your comments.

Ian Godsil

New Old Federal Contest Coordinator

"Ian Godsil VK3VP has been re-appointed Federal Contest Co-ordinator. Ian held the post from 1998 until September last year, when he resigned after considerable criticism was levelled at him over various aspects of contesting in VK-land.

In the interim, Ian has studied modern contest logging programs and now uses one for most of his contest work. Also during this interim period, he has continued to supply notes for this column.

Ian asks that you keep him informed of all contest-related information.

He may be contacted by e-mail ianvk3vp@telstra.easymail.com.au

His postal address is: 57 Nepean Highway, Aspendale, 3195."

Novice Notes

Peter Parker VK3YE (*)

An introduction to IRLP

The new mode that's got amateurs talking

Introduction

"Worldwide communication from your VHF/UHF handheld transceiver."

That's the promise of the Internet Radio Linking Project (IRLP), amateur radio's fastest-growing mode. There are more than one hundred IRLP-capable repeaters worldwide, and their numbers are grow daily. In Australia, amateurs in Sydney, Melbourne, Perth and Ipswich canaccess IRLP-equipped repeaters with many systems planned. Sponsors report record activity, with it being hard to get a word in edgeways during busy times.

Participation in IRLP requires only a standard two metre or seventy centimetre handheld or mobile transceiver. Amateurs of all Australian licence grades can access IRLP if there is a node in their area.

History

A key aim for many amateurs has been to communicate over long distances. For most of amateur radio's history, most long-distance communication has been on the high-frequency part of the spectrum. This began to change with the advent of amateur satellites.

However short pass times, restricted footprints and the need for specialised equipment and antennas ensured that HF, with its modest equipment and antenna demands, remains dominant for long-distance amateur communication.

The growth of packet radio from the late 1980s and the rapid spread of the Internet several years later led to amateurs linking the two networks together. The use of packet 'converse bridges' linked to 'wormholes' allowed amateurs to have keyboard-to-keyboard chats via their local bulletin board. However network congestion and low data transfer speeds often made this mode no faster than slow-speed Morse.

Amateurs soon started to experiment with using the Internet for voice communication. A system called I-Phone (Internet-phone) allowed voice repeaters to be linked via the Internet. I-Phone proved an instant hit and soon spread worldwide.

It saw greatest use in Australia during a special Australia-Day link-up on January 26 this year. Links in most state capitals allowed hundreds of amateurs to communicate across Australia in a manner reminiscent to the Aussat Jamboree of the Air satellite links in the early 1990s.

I-Phone had several disadvantages, summarised as instability and lack of security. The instability was due to it being based on the Windows operating system. Links were frequently lost and control operators had to 'babysit' the link to ensure that it remained operational.

The security of I-Phone was also poor, with it being possible for non-amateurs to break into an amateur link via the Internet. Control operators again had to supervise their system to ensure that non-licensed persons were not illegally accessing amateur repeaters.

A Canadian amateur, David Cameron VE7LTD, who had been experimenting with I-Phone, developed a new Internet-based radio linking system that was without I-Phone's problems.

Basing the software on the stable Linux operating system cured the instability observed with I-Phone. Security was strengthened by using the PGP key encryption system to prevent pirate hackers breaking into radio links via the Internet. Additional features of IRLP include user-selectable links (via the DTMF keypad provided on many transceivers) and the ability for participating link stations (or nodes) to receive automatic software updates. A further benefit (from an amateur viewpoint) is that all participants must enter via a radio link. This contrasts with I-Phone, which is less radio-based as users can log in via the web.

Many involved in I-Phone have converted their repeaters to IRLP. Canada and the US were the first to switch, and the last three months have seen phenomenal growth in Australia. IRLP is now available in some UK cities, with great interest also being shown by amateurs in other parts of Europe.

IRLP in Australia

A rudimentary Internet-radio link was established in Sydney in 1992/3 (Reference two). The experiment lasted only a short time, but raised considerable interest in the possibility of combining amateur radio voice and data communication. To put things in perspective, at the time many PC users had not switched to Windows, the World Wide Web was hardly born and e-mail was only known in academic, research and computer enthusiast circles.

A few years later, I-Phone was introduced to Sydney's VK2RBM repeater, operated by the Blue Mountains Amateur Radio Club. I-Phone was based on Internet Telephone Package software. Amateurs could plug their headset into their sound card and work through I-Phone equipped repeaters from anywhere with an Internet connection.

As mentioned before, I-Phone's popularity in Australia peaked in January, when it was successfully used for a nation-wide hook-up.

Australia's first IRLP node was VK6RNC, run by Perth's Northern Corridor Radio Group. It opened in February. VK2RBM switched from I-Phone to IRLP in April. Melbourne's VK3RGL came third when it opened in June 2001 after a week of tests on a simplex frequency.

At the time of writing (early July 2001) six Australian repeaters were equipped with IRLP. These are listed below.

- VK2RBM Blue Mountains 147.050 MHz

- VK2RMP Wollongong 146.800 MHz
- VK3RGL Geelong 147.000 MHz
- VK4RKP Ipswich 146.725 MHz
- VK6RNC Perth North 146.625 MHz
- VK6RFM Fremantle 146.950 MHz

IRLP nodes are planned for Adelaide, Darwin, Launceston, Canberra, Bendigo, Mildura, Penrith, Plumpton, Terry Hills and Antarctica. Some may be on air by the time this article appears.

How IRLP works

(by David Cameron VE7LTD)

An IRLP node consists of a radio transceiver (to provide an RF link into the node), an IRLP interface board, and a personal computer connected to broadband Internet. IRLP can be used over a telephone line Internet connection, but performance is less impressive.

The computer uses Voice-Over-IP streaming software called Speak Freely, which operates under the Linux operating system. The software digitises and compresses audio received from the radio. At the other end of the link it decompresses the audio and converts it to analogue. This audio is then fed to the radio transceiver. The process reverses when the station at the distant node responds.

Voice-Over-IP works as follows:

- Sample the audio using an analogue to digital (A/D) converter. The A/D converter used by IRLP is the input source of a standard PC sound card. This creates a continuous mono 8-bit digital stream of raw audio at 8000Hz (64000 bps).
- Compress the audio by down-sampling the stream and using an 8-bit ULAW algorithm to halve the size of the stream (32000 bps) with little degradation of the audio.
- Split the sample into small chucks (or packets).
- Transmit the packets to the remote host using a User Datagram Protocol (UDP) stream. UDP does NOT confirm the reception of packets; it uses "fire and forget".
- Receive the packets on the remote host.
- Join the split packets back into an 8-bit ULAW stream.
- Uncompress the ULAW stream back to an 8-bit raw stream of audio.
- Play the raw audio stream through a digital to analogue (D/A) converter (the output device of your sound card).

The control software controls the stream using carrier operated squelch (COS) or continuous tone coded subaudible squelch signals (CTCSS) to start and stop the stream. When COS is present, the computer detects it through the IRLP interface board.

The buffer that joins the split packets back into the audio stream controls the PTT. The IRLP interface board receives a "key" signal from the computer while there are packets in the buffer, and an "unkey" command when it is empty.

The user connects to the IRLP computer using DTMF (dual tone multi frequency or 'touchtone') signals sent over the repeater. DTMF sequences are owner programmable, and can accomplish almost any function imaginable. The DTMF signals are detected on the IRLP interface board and sent directly to the computer in binary, where they are converted into numbers. A DTMF software program then runs commands on the computer depending on the code entered.

These commands are sent to various software scripts that start and stop Speak Freely, basically establishing and breaking the link.

Operating etiquette

To get the most from IRLP, operators should be unselfish and share the link with others who have equal right to use the facility. Commonsense and good repeater operating manners will generally serve the IRLP user well. However you should be aware of the following differences between IRLP and standard repeater operation.

Large groups and high activity

As with any large on-air gathering, confusion can reign if operators are unclear as to who is next in line. Clearly identify the next station when you conclude a transmission. Before calling in, listen for a few minutes to get an idea of order. Also avoid using an IRLP-linked repeater for lengthy local chats if contact can be maintained on simplex or via other unlinked repeaters.

Presence of interstate and foreign stations

Regular users of a local repeater know each other's voices and heavily rely on this to fill gaps caused by sloppy pronunciation. Also usually only a two or three letter callsign suffix needs to be remembered. The presence of interstate and overseas stations makes clear pronunciation with standard phonetics imperative on IRLP. Foreign stations sometimes have difficulty understanding our accent. Speaking slightly slower than usual will often assist here.

Time delay

An unlinked voice repeater has almost no time delay. However as IRLP links make use of data processing and long-distance transmission, delays can be up to three seconds. Before talking, count to five, press your PTT, wait a second and then talk. The delay allows links to stabilise and reset.

Multiple time-outs

Normal repeater usage requires operators abide by the timeout of the repeater or their transmissions are cut off. A successful IRLP contact requires operators abide by the time-outs of both repeaters and that of the IRLP link itself. If one side remains inactive after a specified duration, the link between the repeaters will drop out. To prevent this, operators should 'ping-pong' transmissions between the local and distant repeater so that each end has sufficient activity to maintain the link.

Programmable links

Operating voice repeaters in Australia is a matter of selecting the correct frequency and offset and making a call. Using an IRLP-equipped repeater whose link is active requires no extra access tones or codes. On the other hand, if an IRLP link is inactive, or you wish to choose which repeater you wish to link to, you will need to enter the correct DTMF code for that link. This matter is discussed in detail later in the article.

Existence of a 'reflector'.

Normal IRLP links join two repeaters only. However, a 'reflector' can allow multiple repeaters to be linked via IRLP. The record for the number of repeaters linked currently stands at over 20! This

has great potential for special-interest groups (eg youth, ALARA or old timers on-air gatherings), special events such as JOTA or amateur news broadcasts.

IRLP codes & link selection

From the user's perspective, the largest difference between IRLP and conventional repeaters is the use of user-selectable links.

These use DTMF codes, as used by standard touch-tone telephones. **If you wish to operate through an open IRLP link, you do not** need to send DTMF tones or have DTMF equipped on your transceiver. Tones are only needed if you wish to open a link that has closed or reset the link to another repeater or node. Each node has a unique four-digit code that must be entered to allow linkage to it.

There are differing opinions over the extent to which people should be given the access codes required to activate links. Groups in small cities may opt to make codes available to everyone.

In densely populated areas (such as the eastern seaboard) sponsoring clubs may opt for codes to be available to designated control operators or members only. Another possibility, being discussed currently, is to release node codes, but add a prefix available to designated operators only.

The matter of codes is likely to be controversial, with many different views being expressed. However there is general consensus among Australian clubs that IRLP should be open to all, and members listening will enter the code for non-members wishing to be linked to a particular repeater.

Most modern amateur hand-held transceivers can transmit DTMF codes. Those without suitable equipment or who don't know the codes have several options. These include:

- Ask another station (especially a member of the club sponsoring the repeater) to key the code for you
- Homebrew a DTMF encoder or salvage one from telephone equipment
- Purchase a touch tone keypad (at the time of writing, Tandy was selling them very cheaply)

Before you enter a code check that the repeater is not in use. Wait a few seconds, identify yourself, announce that you are connecting to another node and send the DTMF code. If you are successful, you will hear a voice confirming the link connection.

IRLP's impact on amateur activity patterns

Almost every emerging mode in amateur radio has an effect on existing activities and modes.

In some cases the new mode supplants the old which is then seldom used or utilised mainly for nostalgic purposes. This was true for AM when HF SSB emerged dominant in the 1960s. Interest in the established activity may continue, but on a smaller scale. This is perhaps true for VHF SSB/AM tunable operation when FM net frequencies and repeaters spread across the country in the 1970s. IRLP influence on other amateur activities is not yet known.

Many of the concerns about IRLP are very similar to those expressed when repeaters became popular. These concerns include a centralisation of station capability (from many individual stations to a few repeater sites) and technical expertise (from many individuals to a tiny number of software developers and repeater maintainers). Those who value amateur radio's possible contribution to emergency preparedness should also be concerned that our HF equipment and antenna capability is maintained despite any swing away from HF towards IRLP.

On the credit side, IRLP offers many benefits for amateur activity. Those who establish IRLP nodes learn about data and voice communications technology and are able to spread the benefit of their knowledge throughout the amateur service. IRLP has reignited activity amongst many lapsed licensed amateurs. It offers particular benefits to the increasing number of amateurs unable to fully enjoy international HF communication due to space and interference constraints at home. IRLP is also an excellent drawcard when promoting amateur radio to the general public. If the amateur service is to remain a technological activity, it cannot afford to be bypassed by developments such as IRLP.

IRLP requires the amateur service to manage its affairs co-operatively. The growth of repeaters in the 1970s and packet radio in the 1980s provide precedents for this. There will be some testing moments as those involved seek a workable balance between central standards and local initiative and handle potentially controversial matters such as access to control codes!

The need to involve individual amateurs worldwide in IRLP development and to lessen the division between the tiny number of innovators and the broader mass of the amateur population by raising the expertise of the latter is another challenge faced by proponents of all modern communication techniques, not just IRLP.

Conclusion

There is little doubt that IRLP and allied techniques will have an influence on amateur radio activity at least as significant as the growth of FM and repeaters in the 1970s. It is hoped that radio amateurs are imaginative in their use of this technology and are able to exploit it for their collective good.

Acknowledgments

The author acknowledges the assistance of IRLP developer David Cameron VE7LTD and local pioneers Peter Illmayer VK2YX and Tony Langdon VK3JED in the preparation of this article. Much of the material was presented in abridged form by VK3JED at the Moorabbin & District Radio Club on July 6, 2001.

References

1. The Official Home of the Internet Repeater Linking Project http://www.irlp.net
2. Bell & Illmayer, Radio and Communications, July 2001
   Editor's note: This will be Peter's final Novice Notes column. Peter will continue to write other articles for Amateur Radio magazine. The Novice Notes Online website will be maintained under a different name. A new Novice Notes columnist is required to ensure that AR magazine continues to provide for the newcomer to amateur radio. Those interested should contact the Editor.

(*) 12/8 Walnut Street, Carnegie, Victoria, 3163
E-mail: parkerp@alphalink.com.au
Novice Notes Online: http://www.alphalink.com.au/~parkerp/nonline.htm

Spotlight on SWLing

Robin Harwood VK7RH

Bye bye BEEB bye bye

On the 30th of June at around 1200 UTC, the BBC World Service ceased direct short-wave broadcasts to Australasia.

At 0700 UTC on July 1st, broadcasts directed to North America also ceased. Leading up to this, hundreds of listeners wrote, phoned and pleaded with the BBC World Service to reconsider and protested to British diplomatic outposts. (The Foreign and Commonwealth Office is responsible for the funding of the BBC World Service). It was also covered in the British and International media. American Associated Press contacted me for a comment, which was carried over the wire services. They got my comments but misspelled my surname. Such is short-term fame!

The BBC did not budge in their resolve to drop short-wave broadcasts to the two regions. They kept emphasizing that local FM rebroadcasts were available but failed to mention this was at limited, inconvenient hours. They also said that programs were available via audio streaming over the Internet.

I have tried to listen often and testify that the links can be scratchy and drop out due to net congestion. They also did not mention that some programs are unavailable because they do not have the Internet Rights, especially sports commentaries. Frequently an advisory loop will state this fact, although the program is freely available on radio.

Radio Netherlands International in Hilversum quickly capitalized on the vacated BBC channels to North America and launched English programming. One listener even heard the BBC continuity announcer fade out, followed a few seconds later by Jonathan Marks of Radio Netherlands saying that the BBC may have gone but here is Dutch International Service.

Here is the schedule of the Radio Netherlands transmissions to North America as from July 1st. Note the use of the VOA site in Delano, Calif. These are in addition to their regular Bonaire relays. All programming in English.

Freq	Start	End	Site	Power	Bearing
5965	1000	1200	Sackville	250	240
9515	1200	1630	Sackville	250	268
11865	1300	1600	Delano	250	ND
15220	1400	1600	Sackville	250	285
17840	1700	1800	Sackville	250	285
6175	2200	0400	Sackville	250	268
9590	2200	2400	Sackville	250	268
9590	0000	0200	Delano	250	075
6135	0200	0400	Delano	250	ND
6175	0400	0700	Delano	250	ND

London may have ceased broadcasting directly to this region but the BBC World Service continues to be heard here but not as strongly as previously. 9410 and 12095 continue to come in from 0400 until around 0700 but 11955 from 0600 has gone as has 9580. Around my local midday I am hearing 9915 at excellent strength and 9410 is there but well down. The Thai relay sender on 17790 is there from 0001 until 0200 but has multipath propagation echoes.

In our evening, 9740 from Singapore is still there but obviously the antenna has been slewed away . Also the audio has improved. It will be interesting to see what it will be like in our summer months .

If you tune to 21680 from 0100 UTC, you will hear Australia's first international broadcasting station, "Christian Voice" and if you keep monitoring the channel, you may be surprised to hear Radio Australia from Melbourne broadcast in Indonesian for 30 minutes. Both transmissions emanate from the same sender on the Cox Peninsula site, near Darwin. It is confusing. The CV programs come via satellite from England.

HCJB has left the Pifo site, near Quito, to make way for a new international airport for Ecuador. HCJB is now near Guayaguil, on the Pacific coastline and considerably lower in altitude. HCJB will use overseas relay sites temporarily, accelerating plans to broadcast from Kununurra in WA. This is the second international broadcast station licensed by the Commonwealth Government.

These two international licenses are different to that of the semi-official Radio Australia. . The Commonwealth Government has decided to reactivate the Australian International television program, following the pullout of the Seven Network. It will be under the aegis of the ABC and will show advertising.

Our nearest neighbours are unstable politically. Recent events in PNG are covered in Radio Australia's *tok pidgin* service, the region's lingua franca. This is on at 0900 on 6020 kHz. Also Vanuatu can be heard on 7260 around 0730 in English, French and the local language Bislama. Vanuatu has been rocked by recent political turmoil.

Next door, the Solomon Islands has also been beset by ethnic warfare. A shaky truce is just holding. You can hear Honiara on 5020 best around 1000, just prior to sign-off.

Port Moresby can be heard on either 9675 in our late afternoon yet is stronger on 4890 in our evening. Also various district or provincial stations are in the 90 metre tropical allocation between 3.2 and 3.4 MHz. These are somewhat irregular, due to funding shortfalls or frequent equipment breakdowns.

A evangelical Christian Broadcasting Network was planned for short-wave but has been placed on hold due to a financing and equiipment.

I noticed that the Australian Radio DX Club members now have the option of having their monthly bulletin sent in PDF format via email. The annual fees come down if you opt for this delivery method, compared to having these bulletins printed and posted. Maybe it is not too far away from this worthy journal being also despatched in a similar manner. Who knows?

Is there sufficient interest in organising an online chat for those interested in short wave monitoring and listening? I am aware that several groups do exist in other regions yet I am unaware of any groups within Australia who would like to participate.

I do have several clients such as IRC, Yahoo chat and MSN plus Paltalk, a voice chat program. It just requires agreement to settle on a suitable program to make this a reality. If you are interested e-mail me at rharwood@primus.com.au.

Well that is all for this month. Until next time 73 from Robin VK7RH

AR VHF/UHF AN EXPANDING WORLD

David K Minchin VK5KK
Postal PO Box 789 Salisbury South Australia 5108
E-mail: tecknolt@arcom.com.au Web page: http://members.ozemail.com.au/~tecknolt
Fax +61 8 8292 4501 NEW FAX NUMBER Phone 0403 368 066 AH ONLY
All times are in UTC.

Mid Winter Slumber

Mid Winter Tropo on 144 MHz and above

1296 MHz contacts over 800km's in the middle of winter are unusual, especially over an inland path. Such were the conditions of the 23/24th of June, 2001!

Colin VK5DK reports ...

"Here are the details of the opening on the 23rd of June to VK2 from this QTH. I first worked Mark VK2EMA at 1220 UTC on 144 MHz with signals at S7, and then at 1240 worked Daryl VK3XDQ at S4. Daryl is in Central Victoria.

Again worked VK2EMA on 144 MHz at 1320 with signals now at S9, we QSYed to 432 and contact was made with signals at S3 with QSB. We returned to 144 MHz and it was decided to try 1296 MHz, where Mark is running 120 watts. I was able to hear his CW signal at S2, but at this stage, Mark could not hear my 15watts. I kept monitoring the signal on 1296 and we were able to complete a 2 way contact at 1341 UTC with Mark receiving my signals at 5 x 1 and my report was 5 x 2 to Mark, but he was peaking to S3. This is a distance of 860km over all land in winter time.

Sunday morning (2200 UTC 23 June) I was able to work Reg VK2MP on 144 MHz with signals peaking to S6, but no other VK2 signals heard at this QTH." ...Colin VK5DK.

Of interest, Colin was using his new Yaesu FT817 to drive his 1296 MHz transverter.

Ron Cook VK3AFW reports...

On Sunday 17th June at about 3:30 PM EAST Rod, VK2TWR, rang me to report he was hearing 2 metre beacons from Mt Gambier, On Monday night, 18 June, at around 11:00 PM EAST, VK3DDU (?) in Melbourne, worked into Adelaide and North West Victoria on 2 metres. It is interesting to note that the Hepburn predictor does not suggest good conditions for these periods, yet the propagation was there. ..Ron Cook VK3AFW

Steve VK2KFJ reports ...

Dave VK2JDS phoned me Sunday (24/6/01) morning to see if I could get on air, as he found plenty of repeaters accessible, but all my gear is off air. Dave has a mountain in his backyard, so he has to drive to the top (900mASL), its all cleared of trees, but we have not been up there to put some masts & antennas up for serious DXing.

We have collected various bits, i.e. masts, 6 & 2m yagi's, coax, shed, alsynite sheets to build a "portable" station, for visiting amateurs to camp & DX from the top... Steve VK2KFJ

From my own observations...

Barry VK5KCX (PF95ik) worked VK1ZQA 23/6/01 on 144.1 MHz SSB (950km).

A number of VK5's worked into VK3 on SSB with Geelong beacon quite strong on 144.530 MHz.

23/6/01 Joe VK5UJ (PF95jf) reported hearing VK2RTM repeater on 438.475MHz from Tamworth as well as working VK2JDS/P on 2M FM from on top of a mountain about 50km north of Bathurst (+1000km).

On 144 MHz VK5UJ heard both VK1ZQA (working 5KCX) & VK2EMA (calling CQ) on 144 MHz SSB but couldn't get his transmit gear going in time! Propagation to mid NSW & VK1 seemed to drop out suddenly around 1330Z 23/6/01.

DX-pedition to the Flinders Ranges!

Barry VK3BJM went on another of his DX-peditions in June, this time to the Northern Flinders Ranges in SA. Here is an abridged version of his report due to space limitations!

"Friday 22/6. Made a couple of 2m contacts with Geoff, VK3FIQ, and Jim, VK3AEF; the most notable being with Geoff whilst I was heading into the Adelaide Hills (PF94lw) at 51-41.

Distance was 410km. We had dinner in Gawler before heading further north. When 10km north of Tarlee I worked Steve, VK5ZBK, at RS up to 58. We stopped 10km north of Craddock, having rolled out the swags, and watched the night sky for two and a half hours. We counted 28 visual meteors during that time.

Saturday 23/6 Having refueled at Hawker, we set off up the bitumen road towards Parachilna. Whilst mobile I was able to hear the VK5VF 2m beacon until I was within 10km of Parachilna. By this stage, it was nearly midday. Just after dark, we found a flat near Wirrealpa station, and set up there (PF98ku-366m ASL). First thing I did was get dinner under way. Due to the lateness of the hour, I decided not to set up the yagi, and rely on the halo. I figured, if someone came up on the 80m-liaison frequency, I could have the beam up in 20 minutes.

BIG MISTAKE! It was cold, very cold, after the sun left us. When, at 1210Z, Steve, VK5RU/ZBK, came up on 80m and started telling me about the contact a VK5 had had across to VK1 a bit earlier, all I could do was curse softly to myself- by then it was too late and I was too cold to be fiddling with bits of metal in the dark.

Shortly after, we were joined by VK5AIM, VK5AVQ, and VK5KK. I stuck the beacon on air into the halo, and David, VK5KK heard it initially at 52. We went to voice, and David was quite clear at 41 during his call. But then the signal dropped and the propagation vanished.

Nothing more was heard during the next half hour, after which we gave it

away. Just prior to shutting down, I checked the Mt Gambier 2m beacon - it was there at 419. Then it also dropped.

Sunday 24/6 About 3km from Mooloolo station at PF99ha-510m ASL. At 1040Z-ish, contact was made with VK5KK on 80m, from where we QSYed to 2m. On 2m, I gave David a 55, and received a 51-2. I then worked Joe, VK5UJ, (who was running 25w) at 55 both ways-Joe got up to a 58 at times and Steve, VK5AIM, who was 56, and gave me a 31. A new Maidenhead locator for all three? (YES!! VK5KK)

I also tried raising interested stations on the Port Augusta 2m repeater (which was 56), but there was no response to my call. The beacon was fired up and left running towards Melbourne, and later towards Coffs Harbour (VK2BRG), but apart from a couple of meteor pings nothing was heard

Monday 25/6 Fifteen minutes prior to the appointed time, I chipped my way out of the swag (there had been ice on it from 1230Z) and huddled in the car. Ron was there, as was Ian, VK3AXH. During the next hour, 36 burns were heard by me, but none were of any significant length.

The best produced a "VK3AF", a "3BJM", and a few individual letters. They were often up to 56 in strength, but by 2130 they had started to become less frequent. Ron recorded similar results, though he did copy both callsigns fully...Barry, VK3BJM.

Gippstech 2001

Peter Freeman VK3KAI reports . "We had 61 registered amateurs at the event, plus 10 partners who participated in the activities organized by Pauline Corrigan (partner of VK3XBG). The talks were all very well received - a special thanks to all speakers for their efforts in preparing and delivering their contributions.

Discussion was often vigorous, both during question times and during the coffee and meal breaks. Saturday evening (1830) saw approximately 45 people at the Conference Dinner - a low-key event with a spit roast. Catering was by a local firm. The crowd started to thin out at about 2230.

Sunday morning saw the talks continuing, with about 40 attending (I neglected to count heads on Sunday). Again, lots of lively discussion. Several amateurs displayed their microwave transverters and some had equipment or components for sale.

VK3XPD had his collection of hard-line cables, connectors and other bits for sale. VK3ZQB was selling various kits, including a new one (for me)-a frequency counter usable to 1GHz, programmed with a mode to display actual frequency of an IC202. VK3BJM displayed his 2.4GHz and 5.7GHz transverters, VK2EI his 24GHz system. Mark, VK3TLW, displayed his DSP-10 rig.

We had amateurs from VK3, VK7, VK5, VK1, VK2 and VK4. Also a VE who is working in Sydney (I think). One of the great things about the event, from my viewpoint, is the ability to catch up face-to-face with those voices at the other end of the contacts we have on VHF, UHF & microwaves.

The other important thing is the stimulation of thoughts and plans from the technical presentations and the various discussions. The organizers and the last of the participants finally made the start of the trip home at about 1530 Sunday.

For those wishing to plan ahead, GippsTech 2002 will be held on the weekend of Saturday July 6 and Sunday July 7, 2002. I look forward to seeing you all there!...73's Peter VK3KAI.

Next month I will have a full section on the Gippstech convention with photographs!

Microwave Primer Part Fifteen: Putting a portable Microwave Station together.

The series, so far, has concentrated more on the technical aspects of Microwave operation. The next two parts will look at putting it all together to make a station that can be taken portable. For something completely different we will talk about DC supplies!

Hindsight has 20:20 vision is a well-worn cliché but is appropriate. If a list was made of serious or fatal field failures then I'd put DC power related ones right up there!

In 1994 when, along with Roger VK5NY, we were both able to copy Wally VK6KZ on 10 GHz SSB over +1900km path. While both of us were initially heard, in the time it took for Roger to work Wally (over 30 minutes) my 12volt 7Ah AGM Cell terminal voltage had dropped below 12 volts and probably lower on Tx load.

When it was my turn, I could still hear Wally 51 but he could no longer hear me! For the next hour, we tried unsuccessfully.

What I didn't realise until months later was that on the bench with 13.8 Volts I had 200mW's output on 10 GHz but at 11.6 Volts only about 10mW!

The problem was a single MMIC LO buffer that ran directly from the supply rail with a bias resistor that was calculated for 13.8 Volts. At 11.6 Volts the MMIC's output was about 2/3 power, the 10 GHz TX Mixer however being starved of LO drive as a multiplier stage just fell over just under the 12 volt point. Changing one resistor fixed the fault! The result was, however, that the world record wasn't extended by VK5KK, another 11km that night!

Firstly, let's look at the battery. A common power source, when portable, is the car battery. It is also potentially the worst one to use, as you will eventually need it to start your vehicle! A car battery is good for only one job, starting an engine. It can be a long walk otherwise. Small to medium 12V sealed lead acid batteries are the most popular for portable work, with sizes ranging from 7 Ah to over 80Ah.

Terminal voltages vary from 13.8 volts on float charge, 12.7 volts at no load to 10.5 volts at the 95% discharged point. Any system connected to the battery has to be able to cope with this variation (as from our example above!)

Many of these batteries are erroneously referred to as "Gel" types. Few manufacturers actually use a Gel electrolyte as it is expensive to implement properly and can fail prematurely with excessive vibration. Most of the common sealed batteries sold are AGM recombination types (Absorbed Glass Mat) that simply have sulphuric acid (SG 1320 g/l) soaked Glass Fibre matting between the positive and negative plates.

13.6a-13.8 volt is nominal float charge voltage. Over voltage or boost, charging will quickly destroy the battery as the recombination process can only convert excess gas back into acid at a finite rate. Always regularly float charge them, say ever three months. If you leave them permanently connected to float charging, SLA batteries will not last as long as the float charging process slowly

wear the battery. Always recharge the battery immediately after use. If a battery is left semi discharged for more than 48 hours its performance will be permanently affected.

What size you use will depend on what you are going to run. All SLA battery ratings are based on current supply over ten hours,. i.e. a 7 Ah will supply 700mA over 10 hours. If you were to supply 2 amps, the same battery only has a 4 Ah capacity.

Calculate the average DC load and then put a figure on the peak DC load, you will be surprised! Go back to the IF section of this primer and you will see why I have listed the current drain of popular radios as an important factor! Remember that you often do transmit nearly half the time on "beacon" mode when you are out as well as running two transceivers and a portable light. I use 2 Amps as my average load and a peak of 10 amps (running 2 metres).

Rule of thumb

I assume dusk to dawn operation and then to have only discharged the battery to 50%. Suddenly the 7Ah battery looks a bit inadequate! 2x12=24Ah so a 40 Ah Battery is used.

I believe in redundancy so I take two 40 Ah batteries out. 40 Ah batteries will also cope with the peak load, 10 amps on a 7Ah Battery will drop the terminal voltage below 11 volts on a full charged battery!

To cope with the expected 13.8–10.5 volt DC swing all equipment must run some form of voltage regulation. I use Low Voltage drop regulators on ALL microwave transverter stages. As all devices actually work on 10 Volts or less, I use the LT1084/85/86 series of regulators that work down to 0.5 volts differential.

A 78series or LM317T regulators are useless on rails above 8 Volts as they need better than 2 volts differential to regulate. Don't use Zener diode regulation or MMIC's running directly from the voltage rail!

Another way of stabilizing the DC rail in the field is to use a 24 volt battery system and regulate down to 13.8 Volts. A number of Microwaver's use this successfully by connecting two 12V batteries in series and using a series pass to 13.8 volts.

This is the same regulator circuitry you would use in a conventional AC supply. You will effectively get 13.8 Volts on most DC loads right up to the point where the batteries are 95% discharged.

Switchmode regulation is more efficient however; a few design challenges exist to keep the EMI levels under control. I have experimented with various "buck boost" regulators but have found reliability to be a bit erratic in uncontrolled environments. A number of devices will provide 12.0–13.8 volts at 1A or so from a 6–24 volt rail.

Finally, DC distribution. Settle on a standard for power interconnection that is compatible with others in your area. I use Utilux polarized connectors on everything. Buy a box of the male and female connectors and make up patch leads, flying leads. Male to male types and spares for everything.

Remove any tip ring power connectors from equipment back panels (especially IC202/FT290 a common failure) and replace with you standard male connector on a flying lead.

Always fuse individual lines to equipment with the correct size fuse. Remember you have a power source that can arc weld anything we are using! Carry lots of spare fuses of the correct sizes, you have no excuse as they are the cheapest part of the whole station.

I have panel mounted all fuses with LED indicators so when something goes wrong you can instantly see what it is without getting a multimeter out. In addition, always fuse the battery, for a 40Ah I use a 35 Amp fuse, just incase the main lead is shorted.

At risk of upsetting, one or two people DON'T use alligator clip leads in the field, I still have the burn marks on one hand from one incident in the field!

Next month packaging a portable microwave station

In closing

I'll leave you with this thought..."Avenge yourself-live long enough to be a problem to your children!"

73's David VK5KK AR

ar

How are we? **Editor Colwyn VK5UE**

We don't cooperate—with anyone!

First, we don't cooperate with each other. Ten radio clubs may exist in a metropolitan area, each with a limited membership. Half of these clubs may offer an introductory licensing class These same clubs will do a poor job of instruction and follow through. Why? Because they have a limited pool of talent.

How would one describe an Amateur Radio class? It will likely have poor learning facilities. An elementary school Classroom or High school cafeteria is a typical location for a licensing class. The acoustics are likely to be poor, the seats uncomfortable, and the lighting terrible.

The audio visual aids will likely be poor. A home projector screen, a chalkboard, or a small TV set for the occasional video is the best one can hope for.

The instructors are uninspiring. Let us face it; a radio club consisting of 50 members is not likely to have access to a variety of inspiring and effective instructors.

Personal prejudices will abound, particularly with respect to learning CW.

from WORLDRADIO April 2001

Are any of the clubs in Australia like this?

ar

HF Predictions

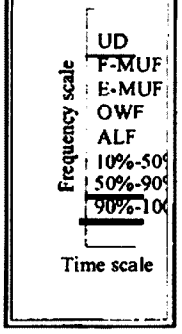
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation ot key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

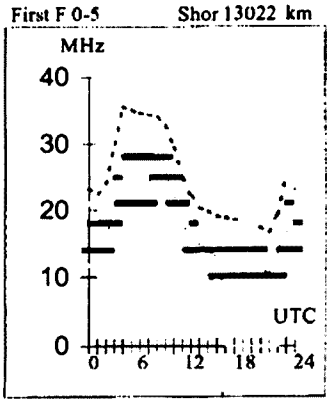
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

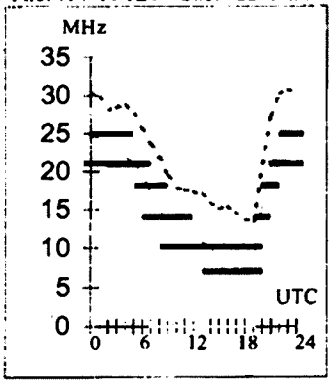
August 2001
T index: 111



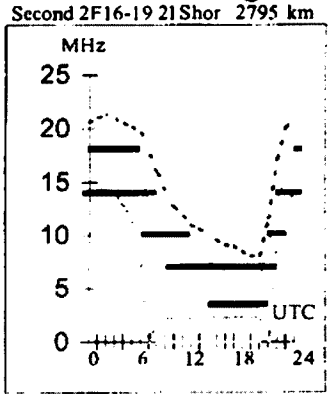
Adelaide-Amman ##
First F 0-5 Shor 13022 km



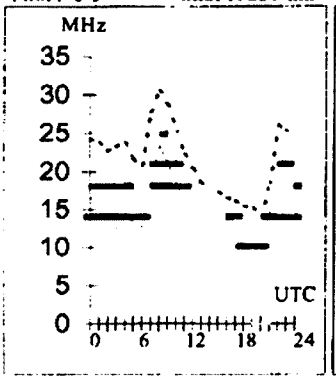
Brisbane-Auckland ##
First 1F7-10 1E0 Shor 2289 km



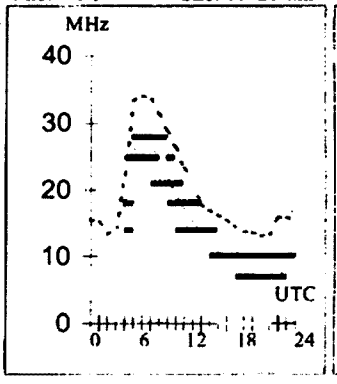
Adelaide-Invercargil ##
Second 2F16-19 21 Shor 2795 km



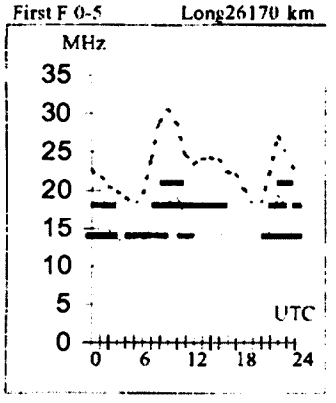
Brisbane-Dakar ##
First F 0-5 Shor 18280 km



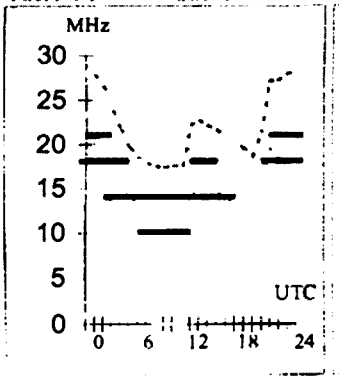
Canberra-Lusaka ##
First F 0-5 Shor 11620 km



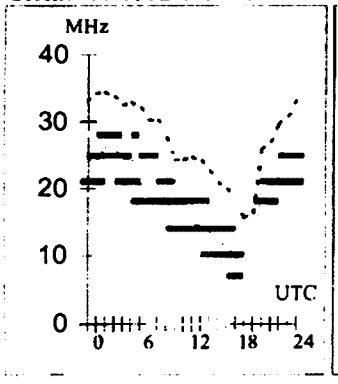
Darwin-London ##
First F 0-5 Long 26170 km



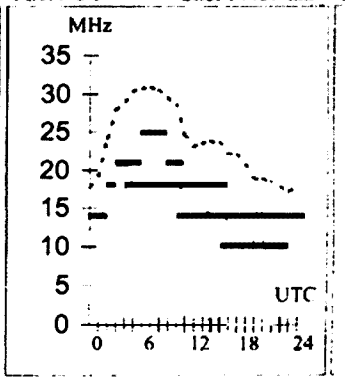
Adelaide-New York 67
First F 0-5 Shor 17092 km



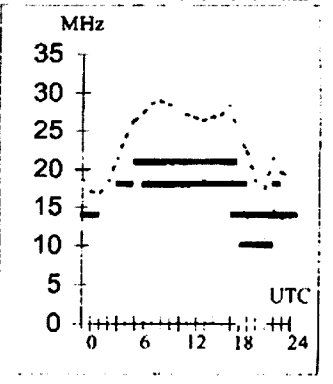
Brisbane-Honolulu 49
Second 3F5-11 3E Shor 7569 km



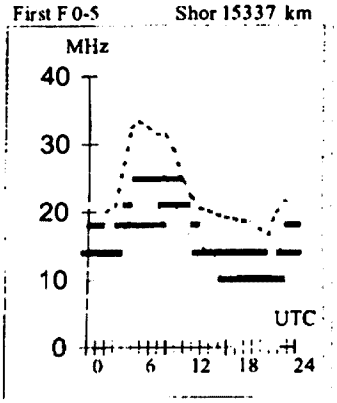
Canberra-Moscow ##
First F 0-5 Shor 14481 km



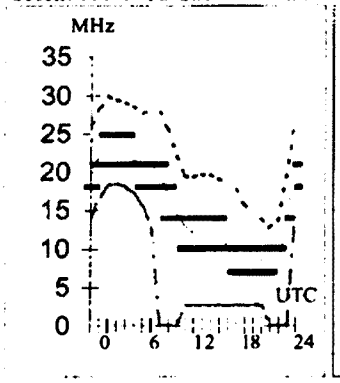
Darwin-London ##
First F 0-5 Shor 13854 km



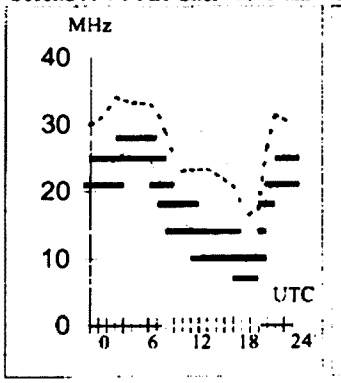
Adelaide-Rome ##
First F 0-5 Shor 15337 km



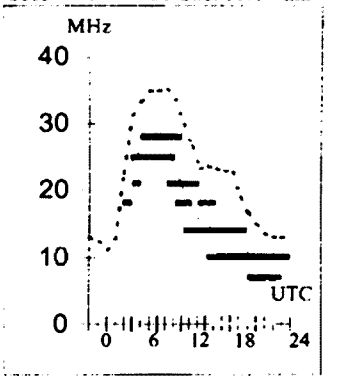
Brisbane-Singapore ##
Second 3F9-14 3E Shor 6147 km



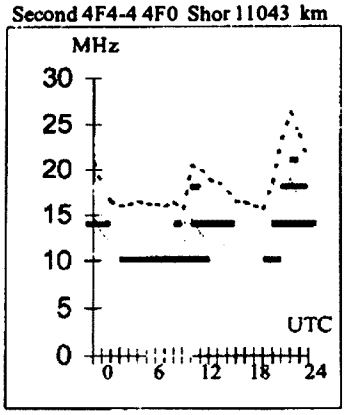
Canberra-Tokyo ##
Second 3F4-9 3E0 Shor 7648 km



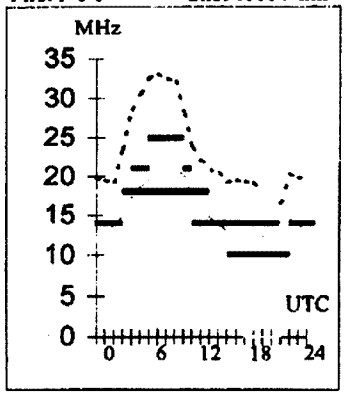
Darwin-Pretoria ##
Second 4F4-6 4E0 Shor 10639 km



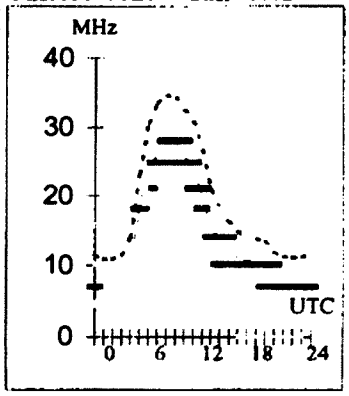
Hobart-Montevideo ##
Second 4F4-4 4F0 Shor 11043 km



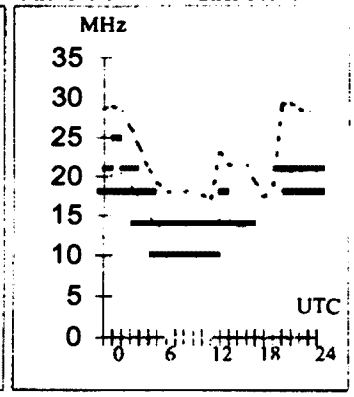
Melbourne-Budapest ##
First F 0-5 Shor 15557 km



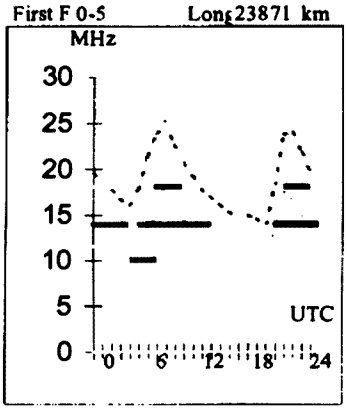
Perth-Capetown ##
First 3F3-4 3E0 Shor 8702 km



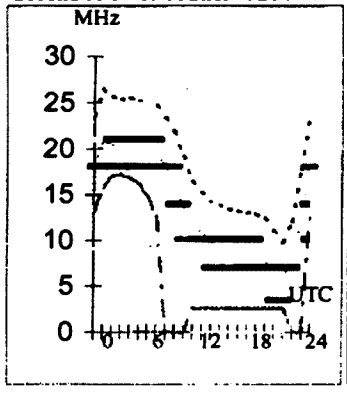
Sydney-Chicago 62
First F 0-5 Shor 14876 km



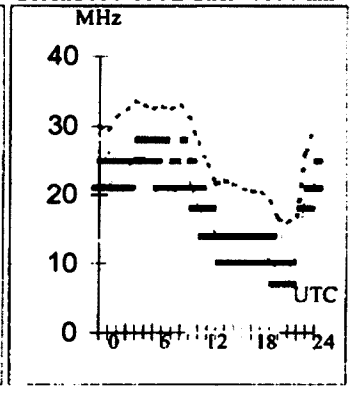
Hobart-Stockholm ##
First F 0-5 Long 23871 km



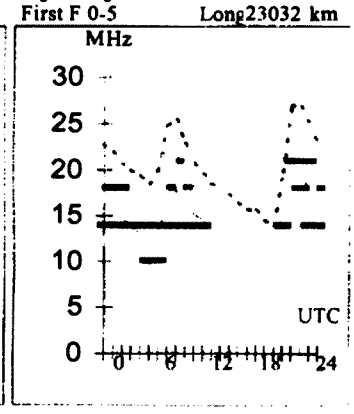
Melbourne-Jakarta ##
Second 3F12-15 3I Shor 5214 km



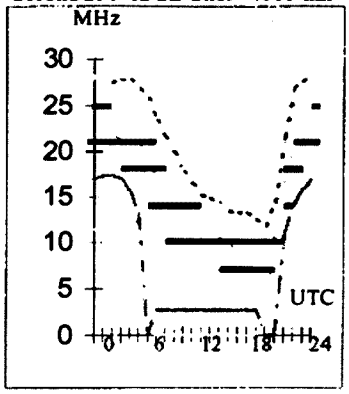
Perth-Osaka 17
Second 3F5-11 3E Shor 7684 km



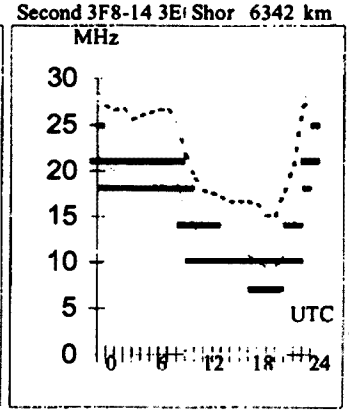
Sydney-London ##
First F 0-5 Long 23032 km



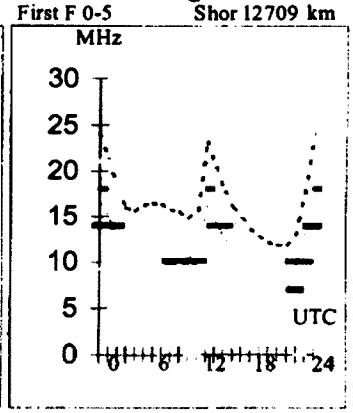
Hobart-Suva 56
Second 2F9-12 2E Shor 4011 km



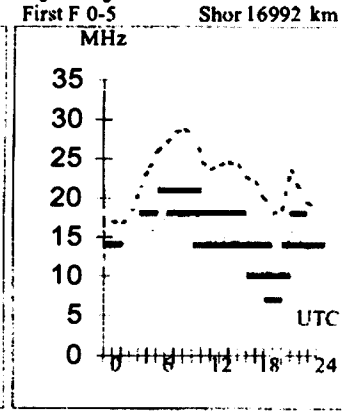
Melbourne-Manila ##
Second 3F8-14 3E Shor 6342 km



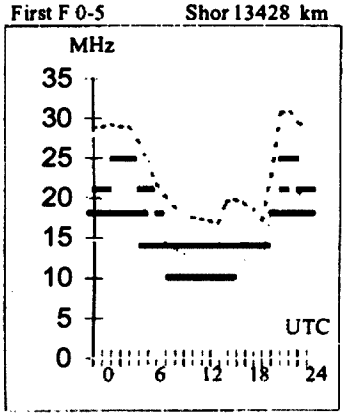
Perth-Santiago ##
First F 0-5 Shor 12709 km



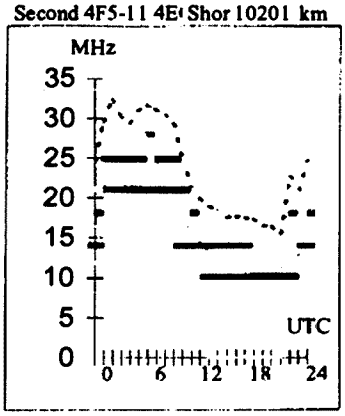
Sydney-Seattle ##
First F 0-5 Shor 16992 km



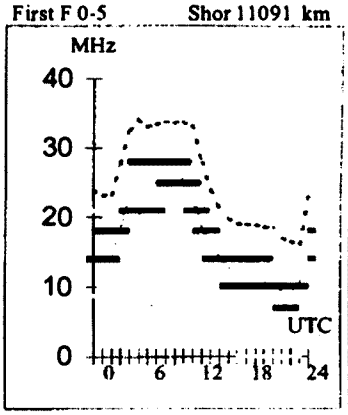
Hobart-Vancouver 49
First F 0-5 Shor 13428 km



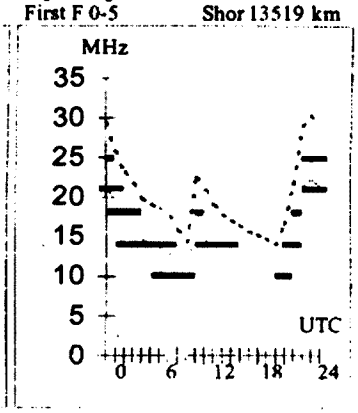
Melbourne-New Delh ##
Second 4F5-11 4E Shor 10201 km



Perth-Tel Aviv ##
First F 0-5 Shor 11091 km



Sydney-Rio de Janeir ##
First F 0-5 Shor 13519 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE NSW

• GELOSO: tuning dial, lens and escutcheon showing 10 through 80m frequencies, bandspread. As new. $40 ono. Brian, VK2GCE, Phone 02 9545 2650 or [preferred] brianclarke@telstra.easymail.com.au

COMMAND SCR-274N: Rx's, Tx's, modulators, racks, mounts, remotes, some complete setups as used in WWII operations. Brian, VK2GCE, Phone 02 9545 2650 or [preferred] brianclarke@telstra.easymail.com.au

WANTED NSW

• FT200 going or otherwise or chassis. Ben VK2AJE. Phone 02 4457 3220

FOR SALE VIC

• YAESU FT102 #070941 one owner manuals $450 OBO. FV102DM Ext,VFO $220 OBO MD1 Desk mike $60 or $700 the lot. YAESU FT 757GX # 133092 G.C. manuals $650 OBO TRIO 9R-59DS Comm's rcvr $100 Kevin VK3CKL QTHR 03 9792 9503

• YAESU FT-1500M. 2M. MOBILE TRANSCEIVER. Super-rugged die cast case and efficient transmitter design provides 50W RF output without the need for a cooling fan. This radio is in brand new condition in original packaging and with full operating instructions. Price: $299. John VK3CJA. Tel: 03 5866 2551. Email: vk3cja@cnl.com.au".

• Signal generator 80 kHz to 1 GHz MARCONI MODEL 2019 with manual. Synthesised keypad entry, crystal oven, reverse power protected. Perfect working order, $1100. John, working hours Phone 03 9963 6884 or email Johnrickard@telstra.com

• 10m handheld transceiver MUNDARA SY201, SSB/AM plus optional accessories, speaker mic, long range antenna, spare battery case VGC $270. Phone 03 9879 8804

• REALISTIC HTC-100 10 metre 28-29 MHz, SSB/CW transceiver EC $170. Phone 03 9879 8804

• ICOM IC706 s/n1529 all HF, 6m 2m. All modes VGC in carton $850. REVEX POWER SWR METER 1.6/525 MHz, 2/20/200w $175. HUSTLER 5BTV TRAP VERT. ant. 5 band 80/10m made in USA $230 (half price). DAIWA COAX SWITCH 2 way, 2 $15 each. Andy VK3UJ QTHR, Phone 03 9723 8380

• YAESU FT-726R tri-band transceiver $800. ICOM IC 741AF transceiver and IC PS-30 power supply $990. YAESU FT101 transceiver $300. Icom IC 502 6 metre portable transceiver $90. LEADER LDM 810 GRID-DIP METER $90. DAIWA 144/148 LINEAR AMP and PSU $220. CVS UHF 450 LINEAR AMP $90. HI-MOUND • • MORSE KEY $40. Instruction books for transceivers. Apply VK3DFE QTHR, Phone 03 9807 3995.

• YAESU *ATU's* FC-902 exc $225. FC-102 rated 1kW, good, $250. OSKER SWR200 $30. OSKER SWR145 VHF power meter $50. ICOM IC-505 6 metre, all mode, good. $150. YAESU FT-480R 2 metre all mode $200. SWAN 350HF Xcvr with h/brew AC & DC P/supplies. All fair condition $100 the lot. Ron VK3OM QTHR, Phone 03 5944 3019

WANTED VIC

• POWER SUPPLY BOXES in any condition for WIRELESS SET NO.11 and any plugs/leads to suit these. Clem VK3CYD, Phone (03) 5126 2064 or clem@dcsi.net.au

WANTED QLD

• CIRCUIT for scanning receiver JIL SX-200 made by NISSAN DENSHI. L Schmidt, 62 Laguna St, Boreen Point 4565, Phone 07 5485 3324

FOR SALE SA

• SONY SW7600S FM STEREO SW/MW/LW PLL synthesized receiver AM/FM/SSB 150 kHz to 30 MHz 7 5/8 x4 3/4 x 11 5/16 inches, mint, with accessories $200. VK5AVR Phone 08 8762 2034

WANTED SA

• KENWOOD MODEL HS5 HEADPHONES. VK5ASN QTHR, Phone 08 8725 2526

• BATTERY FOR MOTOROLA HT-220 HANDHELD. Hank, VK5JAZ, Phone 0403 285 940 or vk5jaz@hotmail.com

• INFORMATION on MARCONI transmitter and receiver output TESTSET MODEL TF1065A. Circuit/Instruction Book. Mine works on every function but deviation. Steve VK5AIM QTHR, Phone 08 8255 7397.

WANTED WA

• Power transformer for YAESU YO-901 MULTISCOPE or an old unit with a good transformer in it. Also someone with a copy of HAM RADIO MAGAZINE FOR FEBRUARY 1980. VK6ABS QTHR, Phone 08 9075 4136

FOR SALE BY TENDER

CFA'S HF RADIO SYSTEM

The CFA is disposing of its surplus HF (2 -12 MHz) radio equipment. This mainly consists of a quantity of 85 solid state PCM HAWK XTAL CONTROLLED 12V DC 100W MOBILE RADIOS (no mics or other accessories available) and 4 CODAN (1kW) HF SSB BASE TRANSMITTERS comprising of Xtal controlled exciter and valve PA.

The FIXED INSTALLATION HF ANTENNA SYSTEM and remote operating equipment for the Codans is also available for sale. The Hawk radios are held in store and the Codans are installed at CFA's training college.

It will be the purchaser's responsibility to remove the equipment from site, as the equipment will be sold on site as seen basis'. Limited spares are available together with handbooks and service manuals.

The Xtals must be replaced for local use, as CFA will retain the frequency licenses. HF frequency operating licences are available from the ACA. CFA wishes to dispose the surplus equipment at the earliest opportunity, ideally as a complete package. CFA reserve the right not to accept the highest bid.

Tenders can be mailed to:

Nick Yoannidis.
Project Manager, Communications Department,
P.O. Box 701 Mt. Waverly, Vic 3149.

Tenders close: 1 November 2001 Enquiries: Phone 03 9262 8535 or n.yoannidis@cfa.vic.gov.au

New email address for hamads:

newsletters@ozemail.com.au

If you have sent a hamad to the old email address since 22/6/01, please resend. We apologise for the inconvenience .

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

FOR SALE ELECTRONIC VALVES

If you are looking for valves you can contact, Gamini Liyadipitiya at email: gamini@ee.unsw.edu.au Small negotiated fee — first come first served.

• **AMIDON FERROMAGNETIC CORES:**

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please. 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports.

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura: Tower Communications, Perth: Haven Electronics, Nowra

http://www.hamsearch.com

a not-for-profit site that is a search engine for hams

"Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the

Radio Amateurs Old Timers Club Australia

or if you have been licensed for **less than 25 but more than ten years**, you are invited to become an **Associate Member** of the RAOTC.

In either case a $2.50 joining fee plus $8.00 for one year or $15.00 for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to

RAOTC,
3/237 Bluff Road
Sandringham VIC 3191

or call Arthur VK3VQ on **03 9598 4262** or Allan VK3AMD on **03 9570 4610**, for an application form.

ADVERTISERS INDEX

AR Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

WIA -Reform or No Reform?

The question is a difficult one to answer. What is best for the WIA? An institution as old as the WIA certainly needs to keep pace with the times and we all know that times do change. But in my opinion, the hierarchy of the Institute is capable enough to guide us through the changing times. Our managers, the various presidents and directors are capable people, who have the best interests of the Institute at heart.

There are cries for reform from some of our colleagues but all are trying to knot the same rope in a different way so that it will fit through an ever smaller hole and the answer to the Institute's woes is not a complete rehash of the administrative set-up—The answer is an increase in revenue which will solve all problems and give our administrators the room to move and to deal with necessary Institute matters and cost increases as any healthy business does.

To achieve the necessary increase in revenue there is only one way and it has been mentioned before *compulsory membership of the WIA for every Australian licensed radio amateur.* If it appears legally impossible to implement this from say the first following renewal date of license by the ACA, then the assistance of the ACA should be sought to implement it for every new radio amateur who gets his/her licence from a set date.

Implementation can, in my opinion, only be done through amendment of the amateur radio license regulations by the ACA. In the case of a total compliance from day of renewal of license of every radio amateur the possibility of reduced membership fees could be investigated.

Ron Vette VK4AJV

RE: AM Transmision

I received the April AR and as I read through I came to the WIA quiz, I would like to draw readers attention to Question 4 "AM is prohibited by law on which amateur frequency segment?" It is not the question that bothers me but the answer.

Using AM on any of the frequency ranges would be very silly and contravene amateur band plans, but only on a section of 6 metre (in some states) is it prohibited."

I take part in many AM nets from 160 metres to 20 metres,

I use rigs ranging from IC 706 Mk2 to a home brew 807 transmitter (Plate and Screen Modulated) running 2x807s in Push Pull Class C, and the modulator runs 2x807s Zero bias class B with special triode connection. (See AR August 1948, page 5).

I have worked into VK1,2,4,5,6,7 all using AM, I even have a certificate on my wall awarded to me by the VK 6 AM group for a trans Australian contact on 80 metres, so there is still plenty of AM sets in use today.

So why not dust that old AM rig off and join the many AM nets on the bands. Two nets come to mind 160 metres 1.825 MHz 11 am local VK3 time and 80 metres 3.566 MHz 9 pm local VK3 time Friday night.

I hope to hear more AM signals

Antony Rogers VK3JIA.

Address Letters to:

The Editor,
Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

AR Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

Contests

I enjoyed reading Bernd's (DJ7YE) comments on contests in May AR and it captures my limited experience with contests. Soon after I obtained my callsign in 1977 I eagerly anticipated participation in the annual Remembrance Day contest. I became disillusioned very quickly. Bad manners were quite prevalent, particularly amongst those who were content on getting a good score rather than just participating.

I was inexperienced at contests so adopted normal operating practice of looking for a quiet spot, putting out several "CQ Contest" calls and then waiting for responses. The number of times I had "my spot" taken over by others was most annoying and it was primarily by an aggressive local few. If I searched around and heard somebody new I would call them, exchange pleasantries and move off leaving them to their spot. In the end I gave it all away because there was no real communications taking place, only quick exchanges of numbers and a lot of discourteous operating practice. When the contest results were eventually published it brought a wry smile to my face to see those up around the winners circle. I knew how they got there and how they discouraged many others. I participated in two RD Contests and gave it away after that.

Ian Barton VK5AIB

Computers?

I am a keen reader of AR and appreciate the articles that appear in the magazine, especially the technical articles. I have only recently embraced the computer and would like to see articles about the computer itself and use of the computer. We have had some recent articles on building up a computer, using PC power supplies and PK31 for communication. Amateur radio seems to be in a bit of a decline at present with a serious reduction in the total number of radio amateurs (down a couple of thousand over last 2 or 3 years) and a drastic reduction in the number of amateurs using CW. I am a CW operator, but that is probably only due to the fact that I am amongst the older CW operators. It is mainly the 'old blokes' using it-the newcomers are never heard. I don't use SSB, but I would suggest that SSB is also well down. Maybe computers are partly to blame, but let's face it, they are here to stay. So, if it were possible to get contributions from members and others on computers, then I for one would be grateful. I don't know enough about PCs to write articles on them, but there are plenty of knowledgeable people who do. I would like to see something on using the PC for station logging, how to set up keyboard CW keying and perhaps listing interesting web sites that can be visited. Colin MacKinnon VK2DYM runs a military radio site at http://www.qsl.net/vk2dym/ . There is, or was, an excellent telegraphic instrument site at http://www.cris.com/~Gsraven/fons_images/fons_museum.html There are many sites devoted to Morse telegraphy, collecting old radios and the operation of amateur radio.

Ric Havyatt VK2PH.

We are currently running a column, Ham Shack Computers *and I am sure*

Reform

Once again we see a reluctance at the Federal AGM to reform the WIA and numerous reasons why this shouldn't happen, no guarantees of success, too expensive etc. Their solution is to improve membership communication. This is, in my view, similar to the Captain of the Titanic saying all is well while the ship sinks.

The problem is the present divisional structure does not work. The divisions have their priorities and agendas and, as a consequence, wish to advance them. I live in far north Queensland and I, and others, do not feel any degree of ownership of the WIA. Brisbane based amateurs would feel the same if the WIAQ was run from Thursday Island or Atherton or Melbourne (a similar distance).

A WIA of which we were all members would engender pride and focus on national issues. The adage "United we stand divided we fall" is indicated in the falling membership and disunity engendered by the divisional system.

The real strength in Amateur Radio are the clubs, groups, nets, experimenters etc who are out there achieving and enjoying their hobby they require help to prevent Federal Government bureaucracy from reducing our hobbies many facets by unwarranted regulation. It is these who should be interfacing with the WIA to highlight problems and concerns as well as recommendations. Hence the State based divisions should be disbanded and priorities put right.

73s

Mike Patterson VK4MIK

Amplifier information

I have recently purchased a FT 817. Its output on internal battery is 2.5 watt and on a 12 volt Gel Cell 5 watt. I find this a bit low for HF SSB.

I am looking for an amplifier to give between 25 and 60 watt output. I was wondering if there is a circuit using 2N5590 or 2N5591 or an amplifier module to work from 1.8MHz to 30 MHz. I am also looking for suggestions for an aerial and ATU.

David Downie, VK2EZD ,02 4257 2289

Post this

I wish to comment on the new postal rates that came in on 5th March 2001.

If domestic stamps are used on overseas mail GST of 10% is imposed. Thus a letter requiring $1.50 will cost $1.65 if domestic stamps are attached. However if you buy international stamps you only need buy $1.50.

Malcolm Sinclair VK2BMS

More letters on P 55

YAESU'S DONE IT AGAIN

YAESU

FT-817 HF/6m/2m/70cm Transportable

The world's first self-contained complete battery powered multimode transceiver covering all the Amateur bands from 160m to 70cm. Provides up to 5W PEP output, with SSB, CW, FM, and AM modes, plus reception of the 100kHz-56MHz, 76-108MHz (wideband FM only), 108-154MHz, and 420-470MHz ranges. Operates from 8 x 'AA' size batteries (not supplied) and Alkaline or NiCad batteries may be used. An external 13.8V DC power source can be easily connected to the transceiver, and a Menu function will allow charging of the optional FNB-72 NiCad pack from the 13.8V DC source. Includes 'big rig' features such as IF Shift for reduced adjacent channel interference, IPO to allow by-passing of the RF pre-amp on HF/6m for improved strong signal performance, an IF Noise Blanker for reduction of impulse noise, and a front-end Attenuator for more pleasant reception of extremely strong signals. Includes 2 antenna sockets - a top panel BNC socket plus a rear panel SO-239 socket and the menu system allows you to define which socket will be used on the HF, 6m, 2m, and 70cm bands. Includes: 200 memory channels with Alpha tagging, VFO and Memory scanning, Dual Watch and Priority Channel operation, as well as Smart Search. CTCSS and DCS encode/decode circuitry is built-in as standard. Supports 1200 and 9600 baud VHF/UHF Packet operation, and the Menu system allows custom setups for RTTY and PSK31 (USB & LSB), as well as two User Defined models (eg. for SSTV use). Supplied with the following accessories: MH-31 handheld microphone, FBA-28 internal battery holder, YHA-63 Whip antenna for 6m/2m/70cm operation, E-DC-6 DC cable, and a shoulder strap.

D 3680

$1495

2 Year Warranty

DICK SMITH

That's where you go!

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information. Offers expire 30/9/2001

MORE GREAT GEAR FROM ICOM

IC-T81A

A remarkably compact tri bander.

- VHF/UHF Multiband FM transceiver
- 2M, 6M, 70CM, 23CM
- 124 alphanumeric memory channels
- Ni-MH battery
- Tone squelch, "joy stick" operation

IC-910H LATEST!

The new dimension in the VHF/UHF World!

Tri band multimode transceiver • 2M - 100W, 70CM - 75W, (optional 23CM,10W) • 9600GPS packet operation • Satelite communication • Reverse/normal tracking doppler shift compensation • CIV capability for PC control

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional AF DSP capabilities, including noise reduction and auto notch function. It's versatile, compact and loaded with features.

IC-756PRO The HF & 6mm multimode professional performer.

100 watts of power, newly designed 32 bit floating DSP for noise reduction and auto notch function, and AGC loop operation for wider dynamic range. Plus digital IF filter, built-in RTTY Demodulator/Dual Peak APF, and a whole lot more.

IC-706MKIIG HF·VHF·UHF

The amazing evolution of the legendary 706.

Now includes the 70cm - 20W and output power has been increased to 50W on 2m. You get base station performance and features in a mobile rig-sized package.

ICOM

Clearly Ahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

2 YR WARRANTY

September 2001
Volume 69 No 9

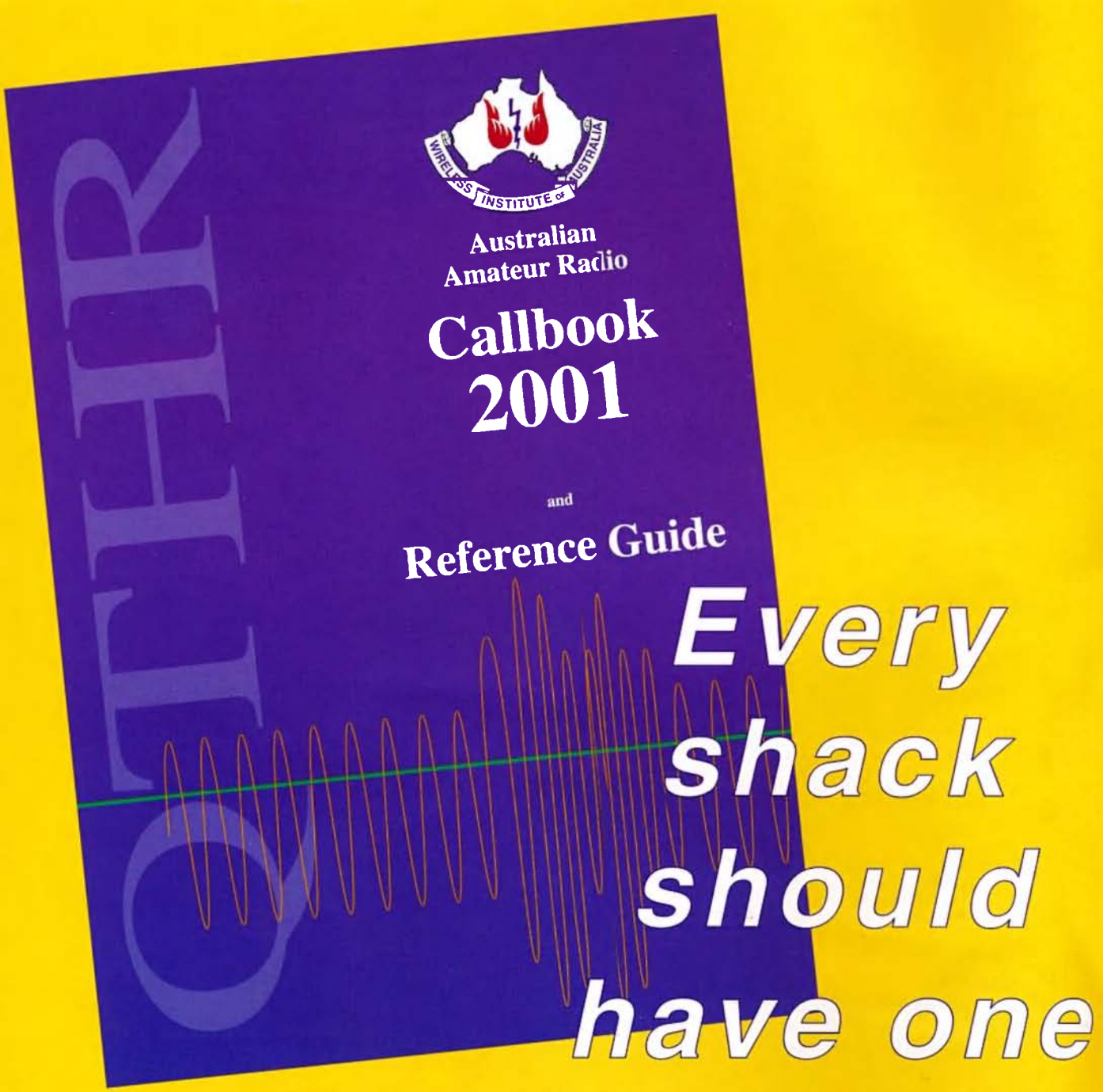
Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

Three aspects of amateur radio

Ross Hull Trophy

- A Morse Code ID for home station or repeater
- Hints and tips for using Surface Mount Technology (SMT)
- An antenna coupler for the FT-817



Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies ***and more!***

The "WIA Call Book 2001" is available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 9
September 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members
Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI
Bill Roper VK3BR

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031

e-mail: *newsletters@ozemail.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191

Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Our cover this month

Three aspects of Amateur Radio.
The Individual in a Contest, Rob Ashlin VK3EK; the Club and its social, swap and community awareness activity, SARCFest August 2001; and the WICEN support of a community event Coopers Rally SA. July 2001

General

Technical

Columns

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Federal Secretary

Peter Naish VK2BPN

Federal Office staff

June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

Council

President	Ernest Hocking	VK1LK
VK1 Federal Councillor	Gilbert Hughes	VK1GH
VK2 Federal Councillor	Barry White	VK2AAB
VK3 Federal Councillor	Jim Linton	VK3PC
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6UU
VK7 Federal Councillor	Phil Corby	VK7ZAX

Executive

Brenda Edmonds	VK3KT
David Pilley	VK2AYD
Don Wilschefski	VK4BY

Federal Coordinators

AMSAT	Graham Ratcliff	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	t.b.a.	
Contests	Ian Godsil	VK3VP
Education	Brenda Edmonds	VK3KT
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Grant Willis	VK5ZWI
Intruder Watch	t.b.a.	
International Travel Host	John Miller	VK3DJM
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (VK9, VK0)	Neil Penfold	VK6NE
Videotapes	VK2 Division	
Web	Joe Burford	VK5UJ

ACA Liaison Team

Ernie Hocking VK1LK
Gilbert Hughes VK1GH
Keith Malcolm VK1ZKM
Peter Naish VK2BPN
Canberrra Liaison Officer Richard Jenkins VK1RJ

Editorial Comment

Colwyn Low VK5UE

Well the RD has come and gone...

I hope every one who took part had an enjoyable time and the contest was a suitable act of remembrance to those who died in WWII. I did get a few hours to participate on Saturday night most of it on VHF. We even have a comment on the 2001 RD in this issue. Please send in your log.

This month we bring you an article on Surface Mounted Technology. I hope it will remove a little of the trepidation some of you may have in crossing another frontier. As I told you some months ago I got thrown in at the deep end, to first modify a FM95 for 70cm and then to build an 1152MHz local oscillator and the transverter to get 10mW at 1296MHz. It all worked first time and was just about all SMT. I have now been given an amplifier circuit and a board to build it on and I could have 200mW !!!! With a multi element Yagi I should be able to work over 100km. Not much to those who use these frequencies but to one who started on 1.8MHz at 10watt it's a marvel. Well I'm now in my 60s and only learnt electronics through Amateur Radio so don't let age and lack of formal knowledge stop you experimenting.

Following from this I feel the debate on the effect on the Internet on Amateur Radio is too negative. Amateur Radio is all about communication using Radio Waves. Those who joined our ranks just to be able to talk to their mates now have to choose between Amateur Radio, the telephone and the Internet. That really means that we are back to the core of Amateur Radio, experimenting. The people who join our ranks from now on will be interested in the challenge of doing it your self. Using a station they have put together themselves, part of it they may have built. The challenge is making a particular station setup work to the best efficiency. It is overcoming the problems of no visible aerials, small blocks, no towers. It is making QRP stations to work the world. It is just contacts with people in other countries by chance and exchanging more than an RST report. It is looking at LF or UHF or SHF as a challenge to be met. It is the great satisfaction of saying I DID IT.

I put a picture of WICEN helping a local event on the cover. Now tell me does it tell the sightseer that this is Amateur radio in action. People recognise Amateur Radio before they recognise the meaning of WICEN so how about some advertising on the vehicles that tells people that this is Amateur Radio in action? In this case "I was gonna" but did not get there.

It is sad to note the passing of Capt Roger Alston on Friday 17th August. See Comment on 2001 RD.

Final notes.

1. Mike VK4DX tells me he has revamped his contest site www.vk4dx.net so if you're into contesting have a look.
2. I have had a few favourable comments on August AR cover. This is what can be done if we have a good photographer and a 10x8 print. So please remember I have to work with what I get sent, either intentionally or in the course of other information, to make the cover. Note 600dpi is the minimum resolution to get a cover that is presentable. If you have used film I would prefer a print to scan rather than a scanned copy.
3. Spring is here, JOTA is 20/21st October, the Spring –Summer VHF/UHF Field Days are coming. Thinking of holidays? Why not take the gear and work from a new location with portable gear? You might have to negotiate a deal with your partner. I would !

73 Colwyn

WIA Comment

Ernest Hocking VK1LK

Amateur Radio in the eWorld

Since my last notes written for the August edition of AR I have been struck by the omnipresence of the Internet in just about everything that I seem to do these days. Putting aside the fact that I work in the field of IT, it does seem that wherever I turn I am faced with the "e" prefix. I am beginning to wonder just where amateur radio fits into this new eWorld that we live in. I now expect to be able to access a computer from just about everywhere. From this computer I now prepare all of my letters, perform research on a whole host of areas of interest, and even use it for the majority of my communications. Even when I don't have access to the computer I can still fall back to a range of facilities provided by the mobile phone company including simple messaging with SMS and even Internet access albeit at the time being for a small number of sites.

It does therefore seem to be that eRadio is here to stay in one form or another. What is it then that makes amateur radio unique and something more that simple telephone or Internet access. Where does consumer electronics in its various guises stop and amateur radio start? It is no good simply being critical of the Internet and seeing it as an impediment to our hobby. Businesses across the world have recognised and now embrace the benefits of eCommerce. What then are the benefits to amateur radio? Is it the eQSL card? Is it IRLP? Or is it something similar such as shared transmitter and antenna sites available over the Internet to amateurs who can no longer operate from home.

This sort of issue has occupied me for some time over the last month namely connecting amateur radio to the Internet. This has had a national and an international theme. Locally I have been involved in efforts to clarify the position of how we should operate IRLP stations here in Australia. IRLP was originally developed in Canada where the rules of the Canadian administration are very different from those that prevail here in Australia. Further afield, in conjunction with FTAC and the ACA liaison committee, I have been dealing with inquiries from the USA on the factors preventing adoption of WinLink here in Australia.

These discussion have raised two questions the answers to which that I believe we need to better understand:

1. To what extent do we need to achieve harmonisation between Australian and overseas administrations?
2. Where in Australia does the line that we can draw between consumer style communications and amateur radio lie?

I for one do not claim to understand the full range of amateur radio activities that today embrace the Internet. I do know that the relationship between amateur radio and the Internet represents a key aspect of the future of our hobby and I would be delighted to hear from anyone who has specific views on this issue.

Where does consumer electronics in its various guises stop and amateur radio start? ...Is it the eQSL card? Is it IRLP? Or is it something similar such as shared transmitter and antenna sites available over the Internet to amateurs who can no longer operate from home?

On the recent news front I would suspect that most of you have by now learnt that the Department of Communications, Information Technology and the Arts (DCITA) have now released the final report on the RadioCommunications Review. This is an important document to all amateurs in that it addresses the ways in which the RadioCommunications Act might change in the future. The release of this paper by no means represents the end of the process. I have already been made aware of the new public inquiry that has been launched by the Commonwealth Government that will be run by the Productivity Commission.

Obviously the WIA is keen to participate in this inquiry in order to ensure that the interests of amateurs are fully represented. Currently it is WIA policy to seek increased self-regulation wherever possible and this is the view that we will be describing to the Productivity Commission in any response. For more information you should visit the DCITA web page and the Productivity Commission at www.pc.gov.au/inquiry/radiocomms/index.html

In last months article I referred to the VK2 motion in respect of the introduction of a new foundation class licence. The motion proposed that the WIA investigate the feasibility of a license class aimed directly at attracting individuals to the hobby by means of a short introductory course over say a weekend. So far it appears that there is general agreement with this approach amongst the Divisions. It is just this sort of issue that we need to be prepared to comment on when it comes time to provide input to the Productivity Commission's inquiry.

Many of the letters that I have received have noted the benefits that arise to all of us through the WIA's web page. For this we have to thank Joe Burford for the time and effort that he puts into the management and maintenance of the site. Of late Joe has been investigating other services that can be hosted. Hopefully by the time you read this you will be able to visit the site to see some of the changes that Joe has made to improve the site and enhance the service that it provides to all amateurs. However please be patient – we are all volunteers and some of these things do take a while to set up.

Ernest Hocking
Email ernest.hocking@computer.org

Rewinding Power Transformers for 13.8V Power Supplies

Drew Diamond, VK3XU,
45 Gatters Rd.,
Wonga Park, 3115

Increasingly, radio equipment is designed to run from a nominal 12 or 13.8 Vdc supply, and may demand perhaps 10, 20 or more amps dc on transmit. Because many amateurs like to build (and save money), various journals have published plans for 240 Vac : 13.8 Vdc power supplies, and these have entered the mainstream of popular projects (Refs 1-7). We now have the choice of building a conventional (50 Hz-transformer type), or a switch-mode supply.

Switchers are rapidly replacing conventional supplies in new domestic and industrial applications, mainly because they are cheaper, more efficient, cooler, lighter and smaller than an equivalent 50 Hz-transformer device. However, if not properly designed, screened and filtered, switchers can also emit a lot more electrical noise. In amateur radio work, to have a 20 or 50 or 100 kHz, 500 W, square-wave power-oscillator running right there in the shack (or even in the same house) can have disastrous effects on weak-signal reception. So, in our case, it may be that a conventional power supply is more appropriate. Moreover, a conventional supply can generally be more easily built by the amateur using parts gathered from here and there.

Having chosen to make a conventional supply, the builder soon finds that a new power transformer is a very costly and/or hard-to-get item. Adequately power-rated transformers may be rescued from defunct TV sets and other appliances. But their secondary winding voltages are nearly always unsatisfactory. Fortunately, in most instances, it is quite possible for a handy person to rewind a transformer secondary to requirements.

Transformer size, and hence power (VA) rating is dictated by the dc load. For example, a transceiver which requires a supply of 13.8 Vdc (14 V in round figures) at up to 10 A is a full load of 140 W. To regulate properly, the popular LM723/2N3055 pattern generally requires a full-load transformer secondary winding r.m.s. voltage of about 1.4 times the dc output voltage: 1.4 X 14 = 19.6 rounded to 20 Vac. In practice, due to the reservoir capacitor, about 10 % more alternating current than dc load current will flow from the secondary. Therefore, at maximum output current demand the secondary load is 20 (volts) X 11 (amps) = 220 W (strictly VA). Power dissipated in the series pass transistor(s), diodes and other resistances being 220 - 140 = 80 W. So in this example we require a transformer rating of at least 220 W, and preferably a bit more for safety margin (Refs 1and 8).

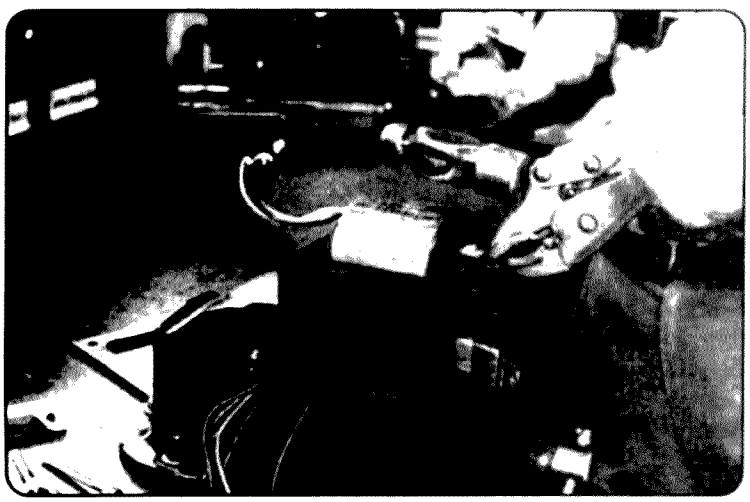


Photo 1. Extracting the first lamination

VA power rating in W may be calculated W = (5.58 X A) squared, where A is the core cross-sectional area in square inches, or W = (0.00865 X A) squared where A is in square mm (see Fig. 1). In this example, the core is 1.94" X 1.38" = 223 W- probably just large enough for an 8 A power supply (Refs. 10, 11). If you have a choice of types, select one which has a bobbin/former with end cheeks (like Fig. 1), as these are generally much easier to work with. Those with a separate section ("double-bobbin") for primary and secondary are even better. Transformers which are covered with a thick layer of shellac or varnish, or have a 'C' type core are usually too difficult to take apart, and are not suited to amateur rework.

It would be prudent to check the serviceability of the transformer before any work is done on it. As a preliminary test, use your multimeter on ohms to measure the primary winding resistance- should read about 3 ohms for a 500 VA, to about 6 ohms for a 200 VA. Reverse the meter connections- observe a more sluggish needle deflection to settle at previous reading (due to the inductance of a good primary winding and residual magnetism in the core). On highest ohms range, test for open circuit between core and primary. Using a mains cord and plug, connect a 60 or 100 W 240 V lamp in series with the primary winding (Ref. 8). Tape over the connections to prevent accidental contact (and interpose a 1:1 mains isolation transformer if available). Ensure that no external shorts exist. Keep hands away from the set-up. Apply mains power. For a good transformer, the lamp should only glow dull red to

orange, indicating just a small 'magnetising' current (typically about 100 mA). If the lamp glows bright, there is probably some fault, perhaps a 'shorted turn', either in the primary or secondary. The core should only be slightly warm after some hours of operation.

Disconnect the lamp and power the primary direct from mains. If the primary has taps, (often 210, 220, 230, 240, 250 V), select the correct tap for your local supply voltage. Measure and record the secondary winding voltages- take great care, one winding may well be 100 V or more. Often, one of the windings will be low voltage, perhaps 6 V or so. Take particular note of this winding.

Remove the two or four retaining bolts and mounting hardware, noting the position of any fibre/plastic washers. Some transformers have a copper slug band fitted (to reduce flux leakage)- we won't need that- cut off with tin-snips. The core will be comprised of interleaved E and I shaped laminations. Now we come to the tricky part- getting that first lamination out of the core. Fix the core in your vice. Using a reasonably sharp knife, insert the blade (may need a tap with small hammer) under the first I lamination, which should snap away. Run the knife blade around under the E lamination and free it as much as possible. Now lever up the E where it enters the bobbin sufficient for a pair of vice-grip pliers to be applied. Using a small hammer, strike the pliers as depicted in Photo 1, and carefully drive out the lamination (which may be deformed beyond repair - never mind). Thereafter, it should be possible to remove the alternate E's and I's without damaging them.

With the core extracted from the bobbin, cut off the outer layer of insulation to expose the winding(s), then unwind each layer. When the known voltage winding (e.g. 6 V) is removed, carefully count and record the number of turns. A HT winding will take a bit of time to strip, and there may be a temptation to get stuck into it with a hacksaw. Don't do it, as there is the danger of going too far and cutting the primary. The primary is the winding closest to the core, so leave the insulating covering for that winding intact.

Most transformers of my experience have a volts/turn of between 0.3 and 0.5. The one in this example had 15 turns for the 6 V winding; 6 divided by 15 = 0.4 volts /turn. Another way of expressing it is turns/volt, which in this instance is 15 divided by 6 = 2.5 turns/volt. That is, for every 2.5 turns around the bobbin we get one volt. For a 20 V winding, I will therefore need to wind on 2.5 X 20 = 50 turns.

Ordinary copper wire tables sometimes give current carrying capacity- but these are generally for 'open' applications. In a transformer, the wire is closely packed, and so the copper-loss heating effect is greatly increased. The generally accepted figure is between 1500 and 1800 A per sq. inch cross-section of copper (Refs. 8, 10), which results in the figures given in Table 1.

Current A	B&S	S.W.G.	mm	inch
20	8	10	3.25	.128
15	10	12	2.64	.104
10	12	14	2.03	.080
5	14	16	1.63	.064
3	16	18	1.22	.048

Table 1

Select the appropriate wire gauge for your application. If in doubt, err on the larger size (but see next para.). Enamelled copper wire of the kind used in electric motors, alternators and so on is quite well-suited to transformer work. Some auto-electricians, armature/ electric motor re-winders and transformer makers/repairers will sell wire of various gauges. In addition, Melbournians have O.H. O'Brien Pty Ltd (ph 039699 8122), who are magnet-wire wholesalers. Electronic World (ph 039723 3860) can also supply some popular sizes on request.

A 20 V winding can usually be fitted in the space vacated by the old winding(s). However, it is a good plan to check: insert an E lamination into the bobbin and measure the winding window available, then, knowing the wire gauge, work out the total cross-sectional area required by your winding. Remember that in practice it will always be a little larger, by perhaps 10 %, than the area calculated. Also, for a plain bobbin/ former without cheeks, it is not possible to bring the winding right up to the former's edge without the wire slipping over the side.

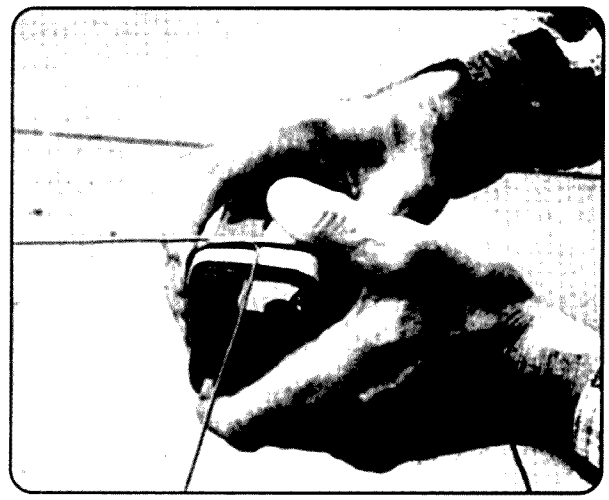


Photo 2. Winding the new secondary

Estimate the length of wire required (probably about 12 m for a 20 V), then un-spool that amount. Do not scratch or nick the enamel. Fix one end firmly (perhaps by clamping the spool in your vice), then grip the free end with bullnose pliers and give the wire just sufficient pull to straighten out any small wrinkles. To begin the winding, place a 90 degree bend in the wire, leaving sufficient for terminating. To keep the winding start in place (for a plain bobbin- without cheeks), wrap a flag of insulating tape around the wire

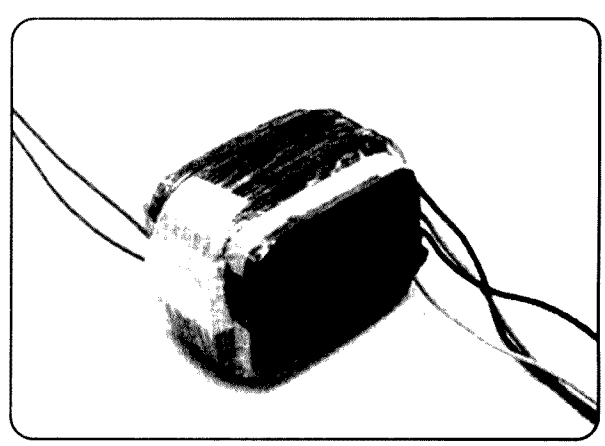


Photo 3. Winding complete

at the beginning of the first turn, then lay the flag upon the bobbin so that successive turns pass over the tape, as shown in Photo 2. Have tape and cutters in your pocket. Whilst maintaining tension on the wire, walk towards the spool, winding the turns on and counting as you go. With the winding done, perhaps a helper could hold the bobbin as the wire is cut (maintain that tension) leaving sufficient length for terminating, then put a bend in the wire similar to the start. Apply two or three layers of tape over the finished winding (Photo 3). Ordinary wide sticking tape (in my experience) stands up quite well in transformer work, although fibreglass tape is best if available.

Reassemble the core by interleaving the E's and I's. Take note of the colour of the laminations; some rely on an oxide layer for insulation (between laminations), and may be light on one side, darker on the other. They must therefore be replaced with same colour facing up each time. Fully lacquered laminations are not 'polarized'. When the core is nearly complete, it will be possible to knock the core into proper shape upon your bench-top. The last one or two laminations will probably need to be carefully tapped home. A squeeze in the vice sometimes helps in getting the stack to compress down sufficient to admit the last lamination. Don't worry about that mangled E.

Replace the external hardware and the two or four fixing bolts, being careful to refit any fibre/plastic washers correctly. Power-up the transformer with series lamp as described above, and check that the primary magnetising current is still a low value (dim red-orange glow). All being well, apply full mains voltage and carefully measure the secondary voltage, which should be pretty close to your calculated value. Should some error occur- voltage a little low or high, it is possible to 'fudge' a bit by using (say) the 230 or 250 V primary tap if available. However, we should be very wary of using anything lower than the 230 V tap for a 240 V mains supply.

If some high-wattage wire-wound resistors, or a rheostat are available, apply a suitably rated dummy load to the secondary to test that the transformer will indeed deliver the power required. For example, a nominal 20 V, 8 A winding, when loaded with 2.5 ohms may (typically) fall from 20.5 V no-load to 19.5 V full-load.

References and Further Reading

1. "13.8 V Power Units- An Amateur's Approach"; E. Hatch, G3ISD, *Rad Com* July '83.
2. "The Foolproof Power Supply"; M. Eunson, VK4SO, *ARA* Vol. 8 No. 10.
3. "A 12 V, 15 A Power Supply"; E. Oscarson, WA1TWX, *QST*, Nov. '92.
4. "VK Powermaster" Electronics Australia, Mar. '84 (DSE Kit # K-3448).
5. "Home-Brew Regulated Power Supply"; D. Greenham, VK3CO, *AR* July '85.
6. "A Power Supply for a 100 Watt Transceiver"; B. Edwards, G3WCE, *Rad Com* June '98.
7. "Miser's 13.8 V, 10 or 20 A Power Supply"; R. Dean, VK3RD, and D. Diamond, VK3XU, *AR* Dec. '96.
8. "Power Supplies on a Shoestring"; J. Case, GW4HWR, *Rad Com* July '86.
9. "Power Supply Transformers"; G. Switzer, VK2SR, *AR* Apr. '87.
10. Radio(tron) Designer's Handbook; F. Langford-Smith; *AWA/RCA*, Sect. 5.5- Power Transformers.
11. Coil Design and Construction Manual; Bernard Babini, Ch. 4- Babini Publishing.

ar

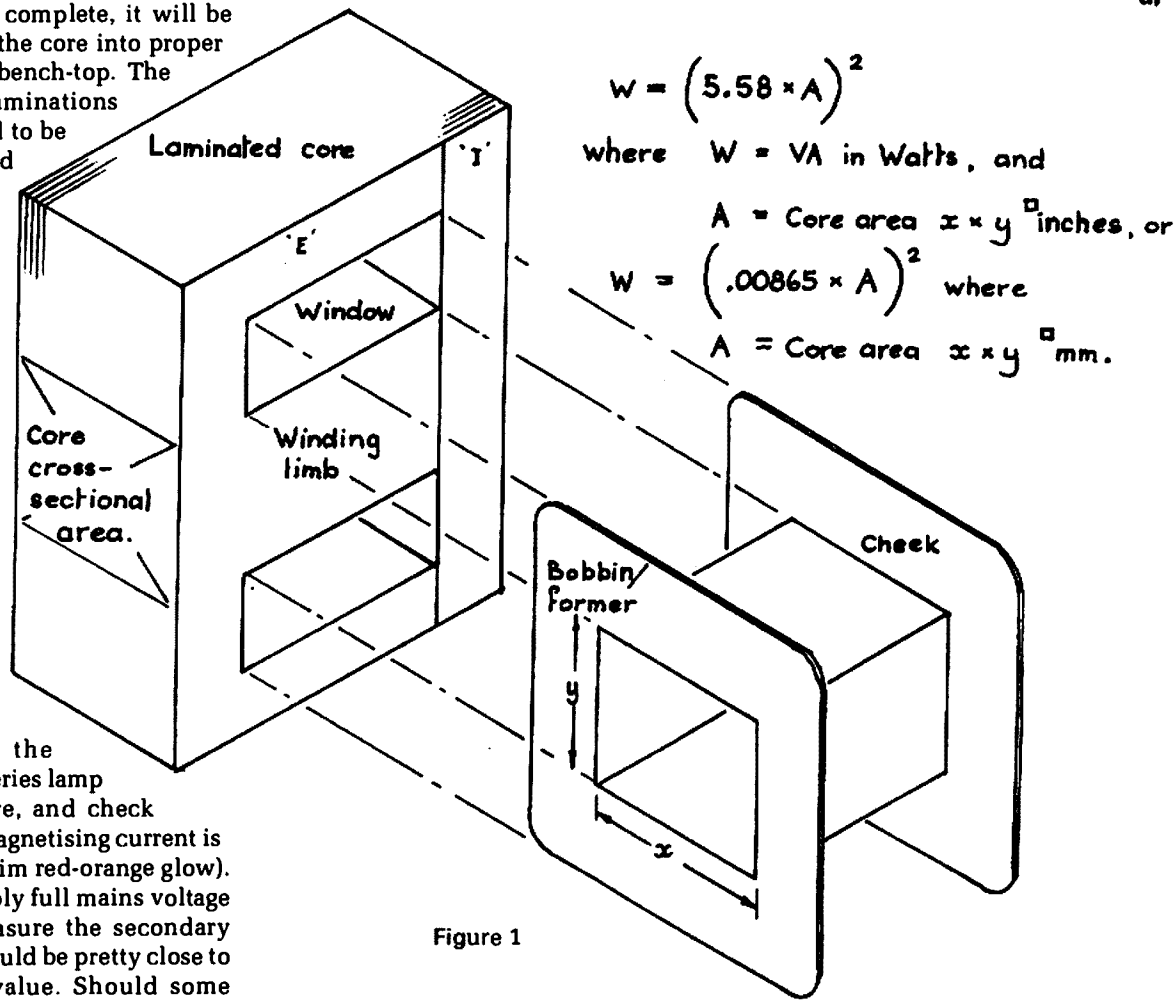


Figure 1

An Antenna Coupler for the FT-817

Petar Parker VK3YE
12/8 Walnut Street, Carnegie, Vic, 3163
E-mail: *parkerp@alphalink.com.au*

Today's miniature transceivers are making portable operation a breeze. With up to twelve bands in the one radio, the limits to station size and weight are increasingly being set by the battery and antenna system rather than the transceiver itself.

A recent example is the Yaesu FT-817. This compact all-mode rig provides QRP operation on all bands between 160 metres and 70 centimetres. It comes with whip antennas for the three higher bands, but leaves HF antennas to the ingenuity of the operator.

This article describes an antenna coupler designed to be used with the FT-817. The design criteria included 160 to 10 metre operation, compactness and ability to handle a wide range of antenna impedances. The unit described would work equally well with any other HF transceiver, provided care is taken to keep output power low or it is modified to handle higher power. The coupler can also be used as is by short-wave listeners wishing to obtain more efficient power transfer from wire antennas.

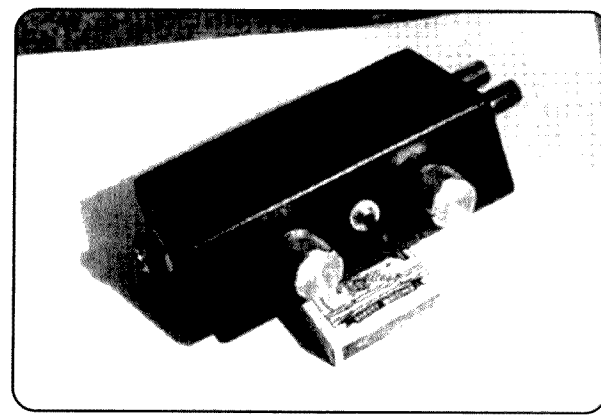


Photo 1 - The completed antenna coupler compared to a matchbox

Description

The coupler uses a simple L-match circuit. It consists of a tapped inductance and a variable capacitor (Figure 1). The capacitor is switched to allow both low and high impedance antennas to be matched. With the values and antennas specified, the unit allows operation on all amateur bands between 1.8 and 54 MHz.

To save space toroidal inductors were used. These are mounted on the rear of the rotary switch to minimise stray inductance. Two are required to provide sufficient inductance for 1.8 MHz. If 160 metres is not needed, the second toroid can be omitted.

Because the FT-817 has an inbuilt SWR indicator, no matching indicator was included. However, if one is desired, the simple resistive bridge as described in Reference 1 will prove suitable.

Components

The unit pictured uses a high-quality air-spaced variable capacitor and large rotary switch. These were salvaged items not available from usual parts suppliers. However, modern switches and plastic dielectric variable capacitors can be substituted at the risk of increased loss, a narrower impedance matching range and a loss of 50 MHz coverage. If using a plastic variable capacitor, use the 160 pF section and set the trimmers on the back of the capacitor to minimum capacitance (no overlap of the plates). The 100 pF maximum capacitance specified proved adequate in the prototype, but a value of 200 pF may be better if you intend to do a lot of work on 160 metres. To keep size small, such a unit was not used in the prototype.

The T50-2 and T50-6 toroids may also be hard to locate. Those used in the prototype came from Truscotts Electronic World in Croydon South (Melbourne). See the *Trade Hamads* for names of other Amidon suppliers. If small size is not required, conventional air-wound coils could be used instead of the toroids specified.

The capacitor changeover switch (S1) can be a standard single pole double throw switch as stocked by the regular parts suppliers. If a double pole double throw switch is used, connect both sections in parallel to reduce contact resistance.

Enamelled copper wire should be used for the toroid windings. The gauge should be as thick as possible to reduce

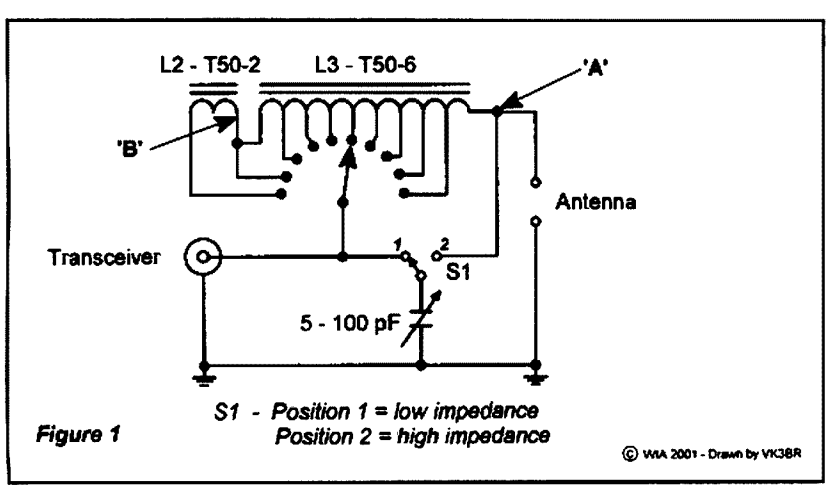


Fig 1 - Schematic diagram of antenna coupler

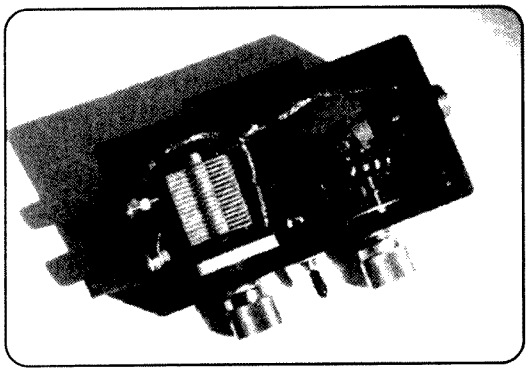


Photo 2 - Inside the antenna coupler

resistive losses but as thin as possible to accommodate all windings on the small toroids used. A gauge of approximately 0.3 mm was used in the prototype.

The antenna connectors are matters for personal taste. The unit pictured used an SO239 for the connection to the transceiver and binding posts for the antenna and earth connections. These accept either banana plugs or bare wire ends.

Construction

Choose a box large enough to fit the components but small enough to fit in your station's carry case. A 40 x 68 x 130 mm zippy box was used in the prototype (Photo 1).

Next start winding the two toroids. Both have the same number of turns but are wound on different cores and vary widely in the number of taps. L2, which allows operation on 160 metres, is easiest to wind and should be done first if you have little experience of winding toroids.

To wind L2, take approximately 1.5 metres of wire and loop through the red T50-2 toroid. After each turn pull the wire firmly so that the windings are reasonably tight. However, take care not to snap the wire. Count the number of turns as you go, noting that when winding toroids the turn count is the number of times the wire passes through the inside of the core. If necessary, space the windings so that wire covers about 90-95 percent of the toroid, but try to avoid overlapping loops. Trim excess wire so that there is only about 3 cm remaining on each side of the winding. When done, your toroid should look like L2 of Figure 2.

L1 is for use between 3.5 and 50 MHz and contains many taps. It is wound on the yellow T50-6 toroid to allow coverage of higher HF and lower VHF frequencies. Winding is similar to L2, but you will need to make a tapping point every few turns. Figure 2 shows the cumulative number of windings from point 'A' at each tapping point. This means that, for example, once you have made a tap at turn 20, you need 15 more loops until the next tap at 35 turns.

Tapping points are made by making a hairpin loop in the toroid winding (approx 10 mm long) and twisting the loop. With a hobby knife scrape off the enamel insulation and tin the tap with solder. Recommence winding and making taps until point 'B' is reached.

The next step is to mount the toroids on the back of the rotary switch. This must be done with care, as it's extremely easy to get it wrong. At best, the unit will be inconvenient to use; at worst, it won't operate at all! The aim should be to have maximum inductance inline when the rotary switch is set anticlockwise (see Figure 1).

Point 'A' on L1 should go to the antenna socket via the rear of the toggle switch. Solder point 'B' of L1 and L2 to the switch contact one notch clockwise from the most anticlockwise setting. The free end of L2 is wired to the most anticlockwise contact. The other taps should be soldered to the remaining rotary switch contacts. Use short lengths of tinned copper wire (e.g. cut resistor ends) if L1's taps need to be extended. Keep leads short and trim any excess before soldering.

Mount the variable capacitor next. The rotor plates (shaft side) are earthed while the stator plates connect to the common point of the toggle switch. Use pieces of tinned coaxial cable braid to form the earth strap linking the rotor to the transceiver and antenna connections.

The other connections between the variable capacitor, switches and panel sockets were all of enamelled copper wire approximately 1 mm diameter (not visible in photo). Use Figure 1 as a wiring guide. Be particularly careful not to omit the short links between the rotary switch and the toggle switch and point 'B' to the toggle switch.

Testing

Test for continuity between the transceiver and antenna connection (non-earthed side) with a multimeter. It should indicate approximately 0.4 ohms when both L1 and L2 are connected in circuit (switch anticlockwise) and fall to near 0 ohms when the switch is fully clockwise. At no setting of the switches should there be a connection across the two binding posts used for the antenna connection. If you fail to get these results, check your wiring against Figure 1 and correct the fault.

To test on air, connect a random wire (10 or 20 metres) and set the transceiver to a band such as 7 or 14 MHz. Attach a short counterpoise wire to the earth terminal on the coupler. Set the toggle switch to high impedance and the variable capacitor to about half mesh. Adjust the rotary switch for a peak in received noise. Then twiddle the variable capacitor for a further noise peak. Repeat the test on several bands and note the settings.

On a clear frequency transmit a short,

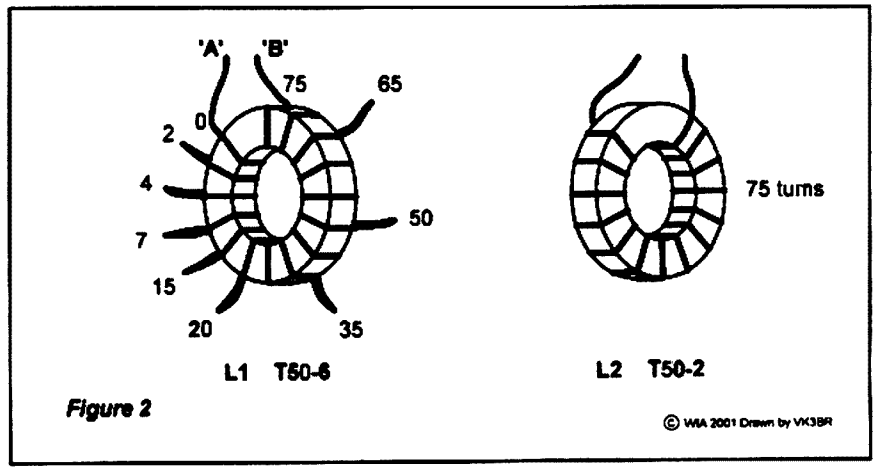


Fig 2 - Winding details for toroids

low power carrier. Adjust the antenna coupler for lowest SWR, starting from the settings previously noted. If a match is not possible, switch to the low impedance setting and experiment with L and C settings. Try different bands and different lengths of wire to see what can be matched where.

Antennas and Operation

Many factors influence antenna selection. These include distance and spread of desired contacts, bands required, antenna size and site factors (e.g. availability of trees, outlook over water and vehicular access). For the author, the need to be able to hand-carry the station to treeless locations requires the use of thin wire antennas supported by a lightweight telescoping mast.

The author finds 40 and 20 metres an excellent combination for portable QRP operation at the current sunspot phase. 40 metres provides good coverage between 0 and 3000 km, while 20 metres is better for distances over 1500 km. Longer distances are possible on 40 metres, but attention needs to be paid to the 'grey line', the antenna's angle of radiation and station location, for such contacts to occur. It was decided that any portable antenna system should be particularly efficient on these two bands while still allowing operation on all HF bands.

The main antenna used has been a 20 metre end-fed wire. This is normally used inverted-vee style, with a nine-metre telescoping squid pole as a centre support. A few metres of wire serve as a counterpoise. This arrangement has provided excellent contacts on 40 metres (including New Zealand with five watts SSB and South Australia with 1.5 watts AM). Performance on 80 metres is fair, but improves dramatically when the counterpoise is extended to 20 metres. Good results were not expected on 160 metres; however, QRP contacts have been made to Newcastle and Mt Gambier with this antenna.

For DX operation on 20 metres a full wave delta loop is more effective than the end-fed wire described above. This can be formed from the squid pole and 20 metre wire described above, but with the free end of the wire connected to the antenna coupler's earth terminal and the counterpoise wire removed. Fence posts or similar provide the low supports required to open the loop out. QRP SSB and CW contacts into both Europe and USA have been made with the loop on 20 metres, with the best result achieved when a mobile station in Canada was worked. By adjusting the antenna coupler, the loop can be made to operate on bands apart from 14 MHz.

Apart from a few contacts on 18 and 21 MHz, use of this antenna on the higher frequency bands has been limited. However, local FM repeaters on six and ten metres have been accessed with the system described.

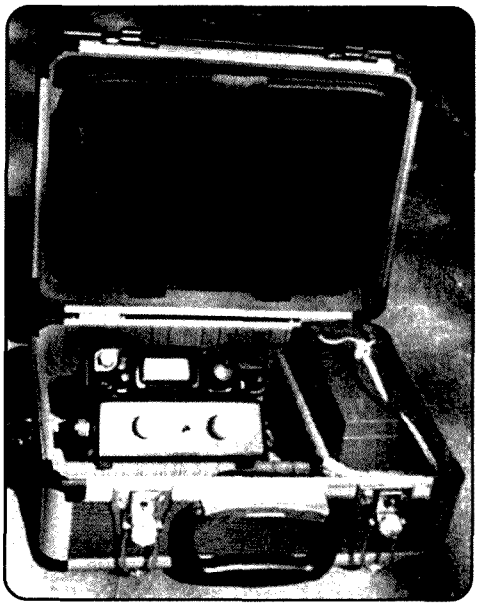


Photo 3 - The antenna coupler used with the Yaesu FT-817 QRP transceiver

Conclusion

The station pictured in Photo 3 has been used portable several times this year, including during the John Moyle Field Day. Good reports from local and DX stations have been received on bands between 160 and 10 metres. While the system described is a compromise on some frequencies, it meets a need for a compact antenna system that operates on all HF bands.

Reference

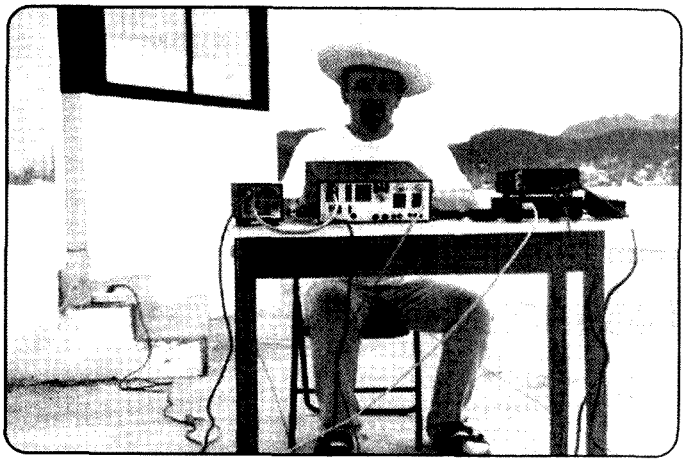
1. 'Novice Notes' *AR* June 1998

ar

Have you worked them?

Photos courtesy of Henryk Kotowsky SMØJHF

Two operators, D44CF and D44BS in the Cape Verde Islands off Africa



A Morse Code ID for Home Station or Repeater

Peter Cossins VK3BFG

Over recent years small microcontrollers have been introduced into the electronics market. These have their own instruction set which is often different to the industry standards of Motorola and Intel based units.

I have had a look at these over the last little while, but was not that keen to learn yet another set of instructions after mastering the Motorola 68XX series and having being forced into the Intel 8051 by virtue of my teaching program at a TAFE College.

In recent times, Atmel has introduced a series of small processors, all running the full Intel 8051 Instruction Set. The internal programmer's model is identical to the normal 8051 and it has an added bonus there is 4k of flash ROM available for user programs. The one off price is about $8.00—$10.00 and they are available in a 20 pin DIL package. The data sheet is available from the Atmel website at http://www.atmel.com/ and it provides all the necessary information about the Ports and how to program the flash ROM. This chip should be very successful as Technicians and Engineers already familiar with the 8051 will be up and running immediately. Features include an on-board comparator and a serial port.

With student projects in Microprocessor Applications utilising this chip, a programmer design has been made available to me based on downloaded software and hardware suggestions from the 'Atmel Users Group'. (If you are interested in rolling your own then just get on the Internet and all the info is there.)

All of this is background to a request from the Melbourne 'Peninsular Radio Club' for me to build them a Morse code ID for their new repeater. The last time I built one of these was for VK3RTV about twenty odd years ago !! Having a look at the 3RTV circuit, it consisted of TTL logic and a 'program once only' small ROM. (Fuseable Link) These ROMs are no longer available and the PCB would be too big to fit into a relatively modern Phillips Transceiver that was to be used for the purpose anyway. The programming of these ROMs was sudden death as well, no second goes if it didn't work.

I decided to use one of the Atmel 89C4051 microcontrollers for the task. This device could really completely control the repeater and provide a number of other bells and whistles as

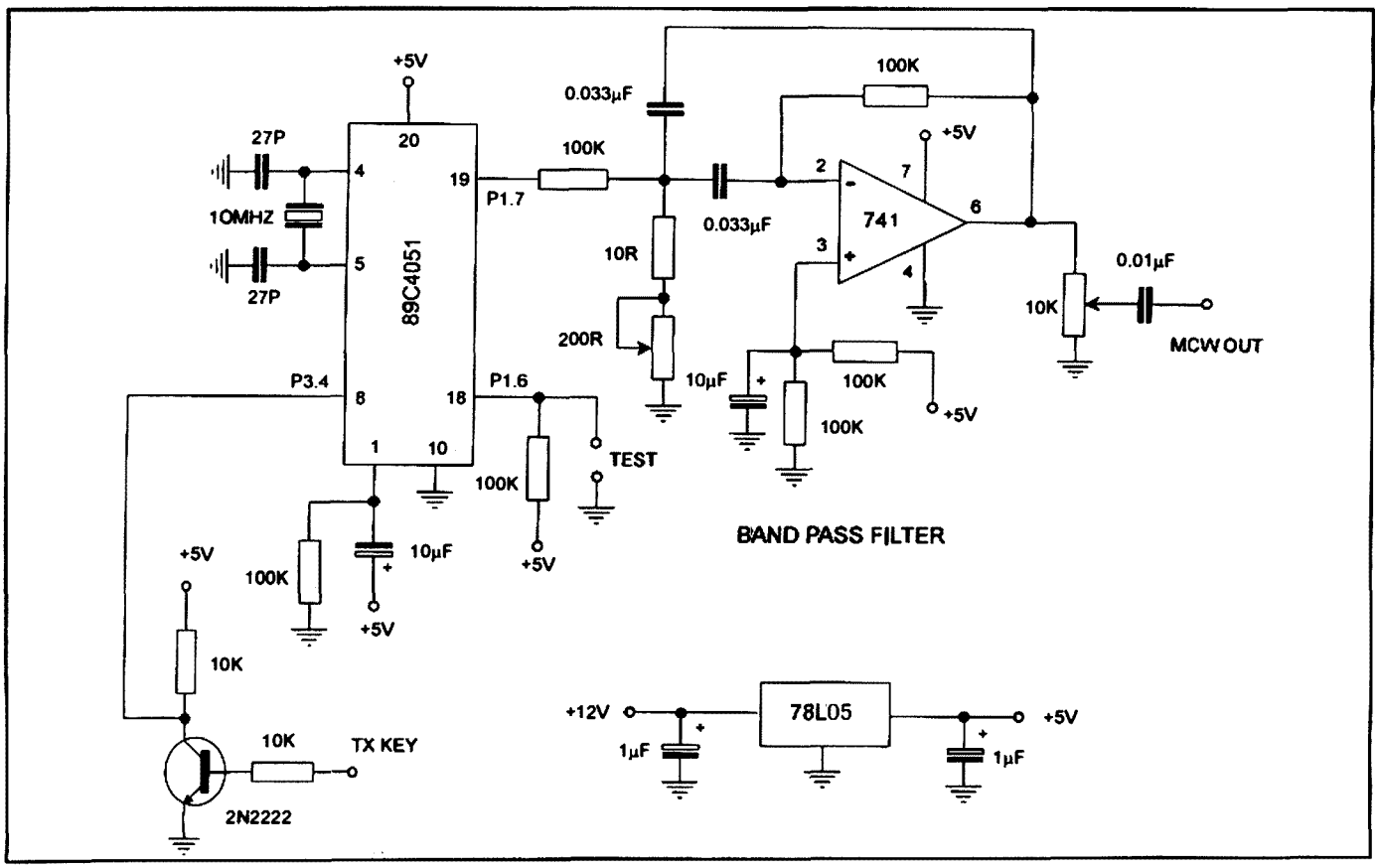


Figure 1. Circuit diagram

well. As my spare time is limited, I decided to just implement the request as is and if there was a subsequent request for other services in the future, those could be accommodated. The PCB layout provided is just for the morse code device, additional pinouts would be necessary if you are considering an expanded option.

As there is absolutely bags of program memory for the task, I did not write anything particularly smart, just kept to the KISS principle. The Morse Code comes out quite nicely if you use a 10 MHz crystal, although a crystal frequency a bit lower or a bit higher would still be OK. (I originally set up the design using a 11 MHz crystal.) The operation of the device is quite simple. If you wish to use it for local ID, shorting P 1.6 (the Test Pin) to earth momentarily will result in an ID. Hold the pin to earth and the ID will repeat continually until the earth is removed.

In the repeater mode, the requirement from the Peninsular Radio Club was for an ID every five minutes. The program waits for five minutes and then looks at the status of P3.4. This Port monitors either the transmitter key line or the receiver mute line. (In the Phillips Transceiver, this is one and the same). If the Repeater is not transmitting, then the ID will be put on the back burner until the next activation of the system. With a whisker more software, another port could be brought into play providing the customary repeater 'tail'. This would be an 'OR' function on the main TX key line or alternatively it could BE the TX key line. Currently, the TX key line (or RX mute line) is high for no signals. This will produce a logic low on P3.4 and the software is written accordingly. If you are familiar with 8051 Assembler and your system has a mute line low for no signals, the required change is in line 38 to JNB P3.4, TXON. An additional transistor stage to invert the mute logic would also do the job with no software changes.

The microcontroller is a logic device and hence the output is bursts of square waves with a frequency of about 1 kHz. The 741 circuit is a simple bandpass filter which will produce a close to sinusoidal output for a pure tone. There is an on board 5V regulator and the supply needs to be more than say 9V DC. (12V is A OK)

Programming the Code

The assembly listing is provided for those who can program their own micros or you can just use the PCB layout or bandpass filter and develop a more elegant program or use another micro. The bandpass filter design dates back to my RTTY days but it works well. The PCB layout is not critical and you could use a resist pen to make a homebrew board if photographic techniques are beyond your resources. A matrix board would be OK as well, just keep the crystal and the related caps close to the IC. The GOMORSE subroutine can be changed to suit any callsign by the substitution of the relevant dit and dah sequences. Note at the end of each character there is a character time delay. With 4k of ROM available you could make a fairly long message, although I think you would need to change the program to auto loading for this. For a six letter callsign, more sophisticated programming really was not necessary, particularly when VK is universal.

Programming Service

I am prepared to program the micros for anyone provided I am not out of pocket. The requirement would be to send me a package already self addressed and appropriately stamped, including the 89C4051, and the details of the required callsign or message.

I purchased a few samples of the 89C4051 from Semtronics in Melbourne, but I am sure they would be readily available at other similar outlets. Currently Jaycar and Dick Smith do not stock, but they may be forced to in the future as these micros are becoming very popular for obvious reasons.

Continued on page 19

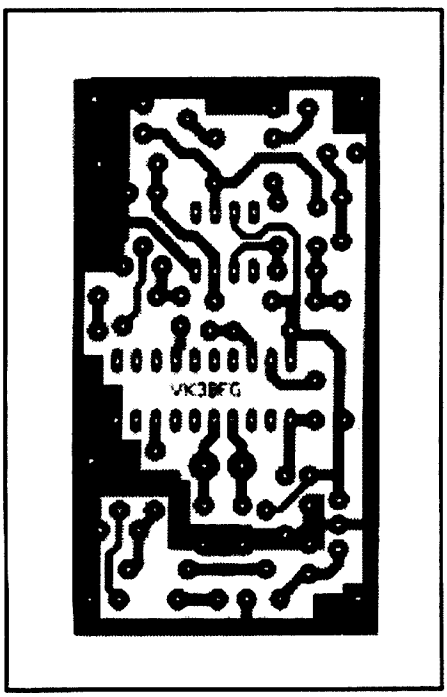


Figure 2a. Circuit board wiring

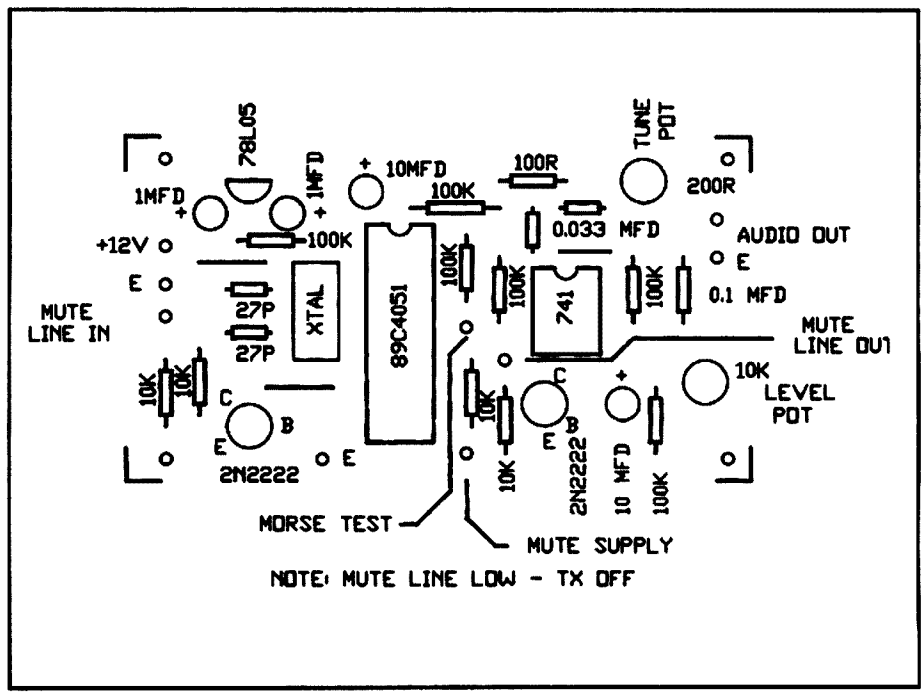


Figure 2b. Circuit board component positioning

Hints and Tips for using Surface Mount Technology (SMT)

Luke Enriquez VK3EM
PO Box 98, Kerrimuir, Vic. 3129.

A lot of people avoid dealing with surface mount technology (SMT) because of a lack of good information about it. While there are several good references for commercial assembly, very little is written about hand soldering and prototyping with SMT. This article has been written to introduce the amateur radio operator and experimenter to this interesting technology.

What is Surface Mount Technology? Put simply, it is a type of electronic component package. Most electronic components can be divided into two categories — through hole (TH) and surface mount (SM). Through-hole components have been used for many years and are designed to be loaded on one side of a printed circuit board (PCB) and soldered on the other. SM components are designed to be loaded and soldered on the same side of the PCB.

Why is SMT used in industry? SMT has several important benefits over through-hole technology. They are:

- Faster for automatic machines to place
- Have a smaller physical size for the same electrical function
- Less parasitic (unwanted) effects
- Cheaper in terms of raw material cost

Why should you care about Surface Mount Technology?

"Black Box Operators" aside, SMT is increasingly effecting people involved in the repair, modification or development of electronics. Through hole components are being replaced by their SMT equivalents at a rapid rate as manufacturers increase their investment in SMT production equipment to cash in on the benefits.

While there are exceptions, it is rare to see the use of leaded resistors, capacitors, transistors or integrated circuits in modern consumer electronics. Since the demand for these types of leaded parts is low and decreasing, their cost will rise over the next few years and sourcing them will become difficult. Eventually, supplies will dry up and leaded components will join the domain of valves.

Those of you who doubt these warnings should spend some time and have a look at a modern mobile phone, computer motherboard or amateur radio. An alert observer will note that connectors and electrolytic capacitors are usually among the only leaded parts used. This is mainly because connectors often rely on their leads for mechanical strength and electrolytic capacitors have a shape that does not lend itself towards easy implementation as a surface mount device (SMD). Eventually the solutions to these problems will become cheaper and they too will disappear from electronic equipment in their leaded form.

SMT Myths

Many new facets of amateur radio and experimentation with electronics in general are hampered by the myths that surround them. Some of these myths are:

- SMT needs special and expensive equipment
- SMT components are hard to find
- SMT requires professional PCBs
- SMT requires special training and skills

To use SMT and not get too stressed about it does require the following:

- To have a steady hand
- To practice your technique
- To be invest in a good pair of tweezers
- To have reasonable eyesight or use magnification

Unfortunately, there is not much you can do about the steadiness of your hand, but all the other obstacles can be easily overcome. The main emphasis of this article is to explain how you can work with SMT with the smallest possible investment of special equipment.

Common SMT Packages

There are three popular package styles used for most passive components. Their names refer to their size (in thousands of an inch or just thou). They are:

- 0603 (60 thou long, 30 thou wide)
- 0805 (80 thou long, 50 thou wide)
- 1206 (120 thou long, 60 thou wide)

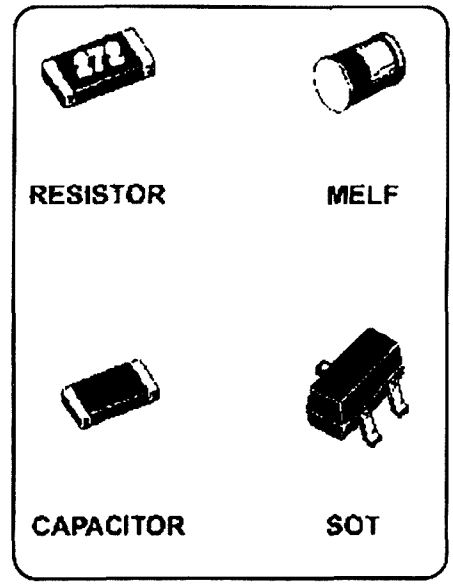


Fig 1 - Common discrete SMT components

Fig 1 details the common discrete SMT packages. Diodes, Transistors and IC's all use the SOT package and often measurement with a multi-meter and the

two or three character marking on the top of the package is the only way to guess what the component is. Some IC's use larger packages as shown in Fig 2. Several good web sites exist for determining SMT parts from their markings and these are detailed on the VK3EM website.

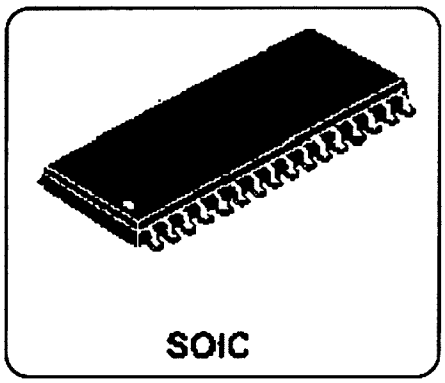


Fig 2 - Common SOIC package

For the purposes of illustration, only a very small selection of SMT packages has been shown in this article. A more detailed listing including colour pictures can be found on the VK3EM website (See end of article). This may be useful for those who you who recycle parts from junk equipment that uses SMT.

How can SMT help you?

SMT has many benefits over leaded components. These are:

- Where component value tweaking (ie. small changes) are needed. SMT capacitors and resistors are easy to parallel together, and quick to solder and de-solder. The chances of "lifting" circuit board tracks are reduced and so is the frustration of trying to work on both sides of a PCB at the same time.
- Where RF signals are being used. Unwanted (ie parasitic) effects in SMT parts are smaller when compared to leaded parts, which results in better predictability of component characteristics. Leaded packages do no lend themselves to microwave use. However, there are exceptions.
- A significant number of modern components are only available in SMT form. If you want to play with them, then you have no choice but to use SMT!
- Where space is limited. This is dependent on the circuit type and layout, but SMT parts like decoupling capacitors and pull up resistors can be used to reduce the space required on the PCB. SMT parts fit neatly across the gaps on VERO board and can be mixed with designs using leaded parts.
- Where drilling holes is a problem. Anyone who has made a PCB understands the frustration of trying to work on two sides at once. SMT simplifies this because you load and solder all on the same side. Components can be used on both sides of the PCB without interference, or a solid ground plane can be used on one side with holes drilled only for ground connections.
- Where a pre existing circuit needs modification. Forgot to add that series capacitor, diode or resistor. Cut the track and insert a SMT. The solution is simple, small and tidy (no holes)!

Tips for soldering SMT Parts

Good soldering technique will come with practice, but these tips will guide you in the right direction. If you need to practice use SMT resistors, as they are not damaged easily.

- Keep the circuit board clean. Isopropanol or wood alcohol is suitable for removing light oils and grease. PCBs should always be washed under warm water, then oven dried at 60 degrees Celsius for 10 to 15 minutes. Handle the PCB by the edge only and avoid touching copper with your bare hands.
- Use the right soldering iron for the job. You don't need to purchase a temperature controlled iron, special SMT tip or SMT hot gas reflow station. These tools might be used in industry, but only to save time and increase reliability.
- All sorts of SMT soldering jobs can be done with the common Weller workstation. The important point is select the right tip (ie. have several tips on hand). As with any soldering job, the general idea is to have the joint up to temperature and soldered in a few seconds. Think about how much of a "heat sink" the joint will be and choose the tip based on that. Use of larger tips should be limited to areas of large solid copper plane (ie. ground plane). For all jobs, except very very small parts, I use the common Weller PT-8 7 tip as shown in Fig 3. With practice, you will learn what tip suits you best.
- Use L.M.P (Low Melting Point Solder) if you are experimenting. LMP solder is very similar to 60/40 solder, except that it contains 2% Silver. This Silver "loading" has two effects. It lowers the melting point (a few degrees) and it reduces the rate at which component metallisation leeches into the solder itself.

SMT resistors, capacitors, ferrite beads, etc. all make there electrical connections via metallised pads deposited on a substrate (Alumina, ceramic, ferrite, etc). The metal used is often Nickel or a related alloy. One problem with soldering the same joint several times, is that each time the joint is heated, some of the Nickel leaves the component and joins the solder. This is called "leeching". Leeching is only a problem when the solder joint of a metallised component is heated several

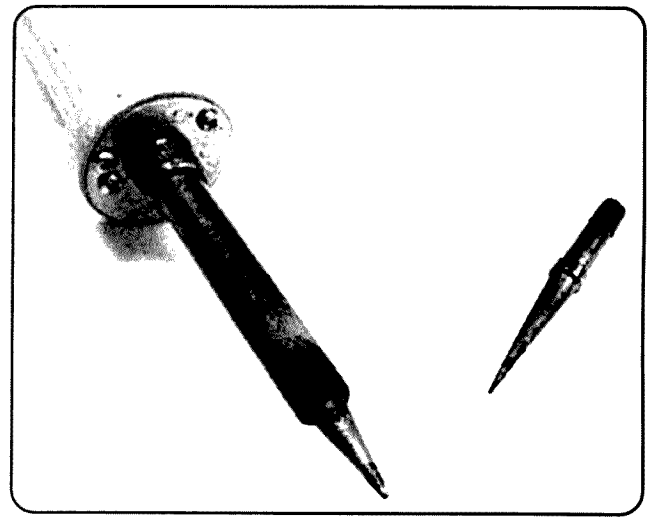


Fig 3 - Soldering Iron and Tip suitable for SMT

times. Leeching occurs at a faster rate with standard 60/40 solder than what it does with LMP solder.

The downside of LMP solder is that it is about 3 times the price of 60/40 solder and harder to obtain, although sources of supply have been quoted at the back of this article.

If a kit was being built, where the component values are known, then 60/40 solder will be fine. If component changes are often and likely, then LMP would be more advantages for a long term reliable solder connection.

- Some people use "solder cream" sold by various shops. The advantage of solder cream is that it has more flux than regular solder. The solder cream is made up of very fine balls of solder mixed with a water based flux.

Unfortunately, solder cream was never intended to be used with a soldering iron. In fact, because the solder sits in a water based flux solution, the cream needs to be "dried" out (ie. the water has been driven off) before the solder can be melted. This can be done by moving the iron tip close to the joint for a few seconds prior to moving onto the joint.

In experimentation quantities, solder cream is only available as 60/40 mix. In my opinion, the SMT experimenter would be better off to use LMP solder and extra flux (from a tube or a pen) rather than solder paste. It is a matter of personal preference. If you like using the paste, then go for it!

- Use solder flux where possible. One of the biggest problems with soldering SMT parts is that the amount of flux within the solder core is not sufficient for the joint. Professional SMT manufacturers use "solder cream" and controlled temperature ovens. However, soldering iron temperatures are far less controlled and often the flux has evaporated before the joint has solidified, leading to dry joint that is often dull in complexion.

Solder flux has other advantages. Because of its liquid nature, it increases the conduction of heat from the iron tip to the joint. It also increases the surface tension of the molten solder which helps to achieve a reliable joint and minimises the chance of bridging finely spaced pins.

Flux has the disadvantage that it is generally sticky, and can require special flux removers to remove. Soapy water and ultrasonic baths are one solution, but this requires a second wash in fresh water and a bake in the oven. Flux can also carry contaminants that may effect circuits operating in the microwave region or circuits with very high impedance's, especially in VCOs. Some fluxes contain lead-based chemicals, and it is wise to use gloves to avoid direct skin contact.

Flux is available from several hobby shops and other outlets in syringe (see Fig 4) and pen application form. In general, the use of extra flux makes SMT soldering much easier and increases solder joint reliability. However, you may not need it at all.

- Use a good magnifying lamp or other magnification source. SMT parts are very small. SMT solder joints are at least four times smaller again. Since it's the solder joint that should concern you most (especially if you want to build something reliable) it is useful to have a source of magnification. Some examples are shown in Fig 5.
- Most people with reasonable eyesight should be able to solder without magnification and check the joint under magnification later For those who have relatively poor eyesight (like myself), special "jeweller's eyes" that sit on the head can help. Good lighting is essential.
- Don't work in a cluttered space. Give yourself room to move around,

Fig 4 - Solder Flux is sold in syringes for easy application.

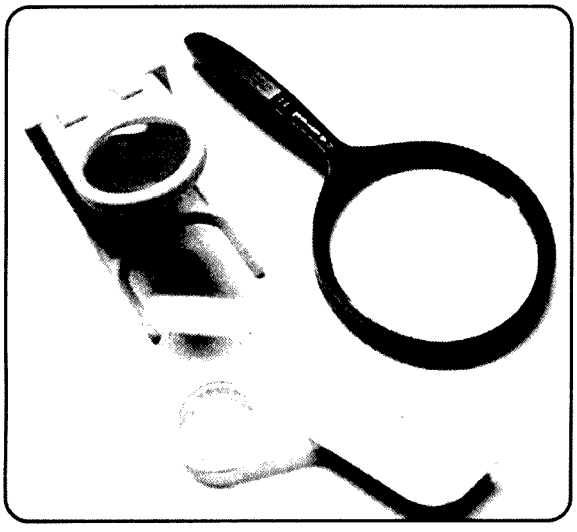


Fig 5 - Cheap and useful magnification sources

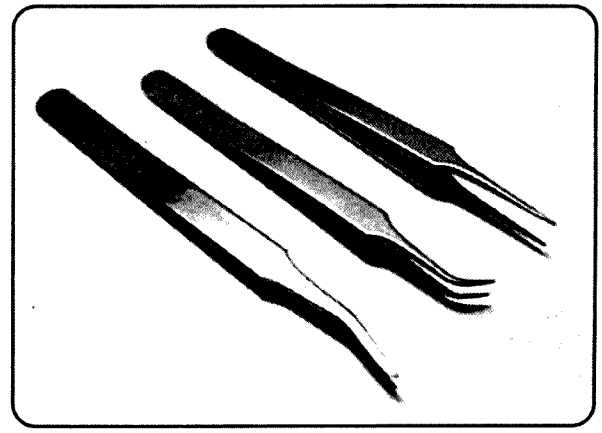


Fig 6 - Tweezers come in various shapes and sizes.

and orientate the PCB so it's easy to reach the joint your trying to solder.

- Buy a good pair of tweezers. You will be amazed how much easier SMT soldering becomes. In fact, out of all the equipment I have suggested, I feel this is the most important. Both soldering and de soldering will involve your tweezers, so they are a worthwhile investment. If possible, get a quality set where the two ends meet together accurately. Examples in Fig 6.

Soldering small SMT Parts

The following technique should be used for soldering small SMT parts such as resistors, capacitors, inductors, transistors, etc, with a soldering iron.

1.) Add a small amount of flux to the area (if required) and add a small amount of solder to one pad.
2.) Pick up component in tweezers making sure component is horizontal. Alternatively, just move the component until it is close to the final position.
3.) While holding the component with your tweezers, melt the solder on the pad and move the component into position.
4.) Remove your iron but continue holding the component until the solder has solidified. Check to see that the component is sitting flat on the PCB. If not, re-melt solder while pushing gently on top of the component with tweezers.
5.) Solder the other side of the component.
6.) Re-melt the first solder joint and let solidify. This ensures both joints are stable during solidification.
7.) Check your work under magnification.
8.) The joint should be shiny and concave. If you added too much solder, wick up with small solder wick and try again. See Fig 7 for joint quality.

Soldering Integrated Circuits

ICs require a similar but slightly different technique.

1.) Add flux to the pads where the IC is to be soldered.
2.) Add a small amount of solder to one of the corner pin pads.
3.) Line up the IC with the pads on the PCB. Double check the IC orientation.
4.) Melt the solder with your iron and move the IC into position with your tweezers. Let the solder solidify.
5.) Solder the diagonally opposite pin. Check under magnification that all pins line up with their respective pads.
6.) Solder the rest of the pins and check work under magnification.
7.) Special techniques may be needed for some packages (see below).

De-soldering Small SMT Components

1.) Add excess solder to one side of the component.
2.) While the side with excess solder remains molten, move your iron to the other joint and gently push the component off the pads.
3.) Clean up pads with solder wick.

Note: The trick here is make one side of the component a larger thermal mass and heat that side first. This may not work for all parts, especially those sitting on large ground planes.

De-Soldering Small Outline Integrated Circuits

This technique only works for SO-IC (50 thou spaced devices). Smaller devices may require hot air for removal.

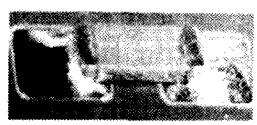
1.) Apply flux to the IC pins.
2.) Use solder wick to remove as much solder as possible from each pin.
3.) Thread fine enamelled wire under one row of pins.
4.) Secure one end of the wire on a nearby component (ie. Large Electrolytic).
5.) Starting at the loose end, heat each pin and pull wire simultaneously. Pull the wire as close to the PCB as practical. As the solder between the pin and pad melts, the wire will pop out and leave the pin standing free of the pad (and bent up slightly).
6.) Repeat steps 3 to 5 for the other side.

What parts can you recycle?

Some SMT parts can be quite expensive when purchased in small quantities. All sorts of SMT parts can be recovered from surplus and junk equipment (providing it uses SMT parts of course!). It will not only save you money, but also give you good practice at de-soldering. The VK3EM web site contains colour pictures of many SMT components so you can identify them.

If you use recycled components, perform an electrical check on them. Ceramic capacitors cause the most problems (they crack easily). Inductors, transistors and resistors can all be verified for correct operation. However, excessive heat may damage but not destroy the device.


1206 - Insufficient Solder


1206 - Adequate Solder


1206 - Excessive Solder


SOT - Insufficient Solder


SOT - Adequate Solder


SOT - Excessive Solder

Fig 7 - 1206 and SOT Solder Joints. Insufficient, Adequate and Excessive Joints.

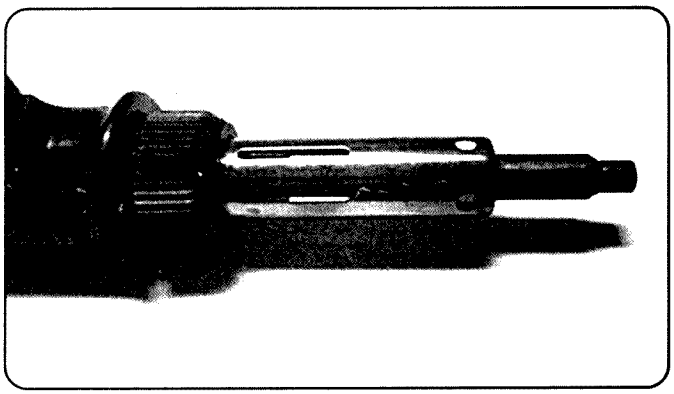


Fig 8 - Hot air tip on a Pyropen

Special Techniques

While the purpose of this article is to detail the use of SMT with equipment most amateurs already have, there are a few exceptions. One of these is the use of hot air instead of a soldering iron. Hot air SMD rework stations are very expensive, but a much cheaper source of hot air is a Weller Pyropen with a hot air tip (Fig 8). Usually used for heat shrink, the hot air tip makes removing SMT parts a breeze (albeit a very hot one!). Use of flux around the component to be removed will help the heat conduction into the part and the PCB.

One of the drawbacks with this technique is that surrounding components may also become molten and may possibly be blown off their pads. This is more of a problem in high density PCBs with very small components when you're trying to remove a large component, such as an IC. This can be overcome by folding up a small piece of brass sheet to fit over the component in question. The brass provides a heat shield, and ensures surrounding components remain on their pads.

Surface Tension — Your best friend?

SMT is shrinking the size of component packaging at an alarming rate. How does one possibly avoid shorting pins with spacings like 0.3mm or even less? The answer is simple. You don't! What do I mean by this! With such small pin spacings, you would go crazy trying to solder each pin individually. With the aid of flux, you can increase the surface tension of solder to such a point that it difficult to bridge the gap between pins and cause a short.

Several techniques exist, but an easy one is apply flux and make sure each pin is soldered without caring about shorts. Then, return to the pins with solder wick and soak up the excess solder. This will leave solder between the pin and the pad, but not between the pins.

Alternatively, you can simulate a wave soldering action by starting with a ball of molten solder and massaging it down a row of pins. This is the method I use to solder 100 pin TQFP packages onto prototype boards. It helps to have the PCB a slight angle so that the molten solder ball does not need to work against gravity. You must use lots of flux to keep that surface tension up.

The ball of solder quite literally rolls along the fine pins, leaving a nicely formed joint between the PCB pad and the pin, but without shorts between pins. No air or special solder paste needed. I did tell you surface tension was your best friend!

Some soldering iron manufacturers now make special soldering iron tips that are hollow, specifically designed for use with this process. They are called wave tips. As always, a bit of practice helps. Find a dead mobile phone (full of very finely pitched SMT), and practice yourself.

Conclusion

This article has described some methods that may simplify the use of SMT for the amateur experimenter. It is by no means complete and further information can be obtained from the VK3EM web site http://www.geocities.com/vk3em.

Sources of Parts:

Quality Tweezers, Low Melting Point Solder and Flux can be purchased (small quantities) from:

Mextronics Co Pty Ltd
Factory B, 84 Industrial Drive
Braeside Vic 3195
Telephone: 03 9587 3888
Facsimile: 03 9587 3836

Acknowledgments

The author would like to thank Steve Merrifield VK3ESM and Bryan Ackerly VK3YNG for their help and advice in preparing this article. Some pictures for this article were extracted from the Tait T2000 Series II radio manual (with permission). Comments regarding this article or any questions may be sent to VK3EM@hotmail.com or see http://www.geocities.com/vk3em

ar

Attention AR contributors!

Don't forget...

when submitting electronic photographs, they MUST be 300 d.p.i.

Please double check before sending. They may look fine on the screen, but in print the result will be disappointing

JOTA survival guide

Stephen Watson VK4SGW
National Co-ordinator JOTA/JOTI
Scouts Australia

Jamboree On The Air...

...is a World activity enabling Scouts to experience the International dimension and the bigger picture of Scouting while making friends and having new experiences. It can be a rewarding and fun time for the Amateur and is a chance to showcase our hobby to young people. All Sections of Scouts Australia can participate for all or part of the 48 hour period from 0001 Saturday 20th until 2359 Sunday 21st October 2001. All members of Guides Australia are very welcome to participate.

Calling Frequencies

JOTA contacts can be made on any band, with the calling frequencies acting simply as meeting places. Richard Middelkoop, World JOTA Organiser, was surprised to learn that we have our own calling frequencies in Australia, a situation that probably came about due to our separation in time and distance from Europe and the US, and the sheer level of JOTA activity in Australia. A DX station would have some difficulty breaking through the volume of local traffic.

The procedure for making contact with another station is to call 'CQ Jamboree' or 'CQ JOTA' on one of the calling frequencies. Having established communication, find a frequency that is not in use somewhere else on the band and move to it without delay. It's easy having made contact to forget to change frequency.

JOTA Calling Frequencies QSY after establishing communication

80 m	3.590 (CW)	3.590 (VK LSB)	
40 m	7.030 (CW)	7.090 (DX LSB)	7.090 (VK LSB)
20 m	14.070 (CW)	14.290 (DX USB)	14.190 (VK USB)
17 m	18.080 (CW)	18.140 (DX USB)	
15 m	21.140 (CW)	21.360 (DX USB)	21.190 (VK USB)
12 m	24.910 (CW)	24.960 (DX USB)	
10 m	28.190 (CW)	28.390 (DX USB)	28.590 (VK USB)

National JOTA/JOTI Address

Many Countries invite their Head of State to take part in an opening broadcast for JOTA and Australia is no exception. An Address by the new Chief Scout (Governor General), the Patron of Guides Australia, and Chief Commissioners of Scouts Australia and Guides Australia will be broadcast on Amateur Radio and the Internet. It will be broadcast on Saturday 21st of October for approximately 10 minutes on the following times and frequencies:

Callsign	Broadcaster	Frequency
VK1BP	ACT Branch, Canberra	7.090, 14.290, 21.190
VK6SH	WA Scout HQ, Perth	14.190
VK6GGN	WA Guides, Perth	14.125
VK7SAA	TAS Scout HQ, Hobart	3.590

The time of the broadcast is 0300 UTC, which is 1300 hrs Australian Eastern Standard Time (adjust for state and daylight savings variations). Test transmissions will commence 10 minutes prior to the broadcast.

The National JOTA/JOTI Address can also be heard from various other broadcasters and repeaters throughout Australia who may commence broadcasts at this or at a later time. Your may be able to obtain details of local broadcasts through your amateur news broadcast.

The Address will be available in the week before JOTA in Real Audio at http://www.wia.org.au/vk4

Joining in

Contact the Group Leader of your local Scout Group and offer your services. There is no requirement for a JOTA station to register but Scout Groups can claim a free Scout callsign for you through their Branch (state) JOTA/JOTI Co-ordinator. All amateurs, regardless of call, may be issued a JOTA callsign to be used in accordance with the operator's own restrictions.

Overs

Many Youth Members have never used a microphone before. It is usual, especially for the younger ones, for the PTT to be pressed and released with the speed of a mouse click accompanied by a faint 'yes' with very little, if anything actually transmitted. A great way to overcome this clumsiness is to do what we Amateurs do best-lots of talking.

Scouts should be delivered to you as a small group of about five or six. When

Continued on page 21

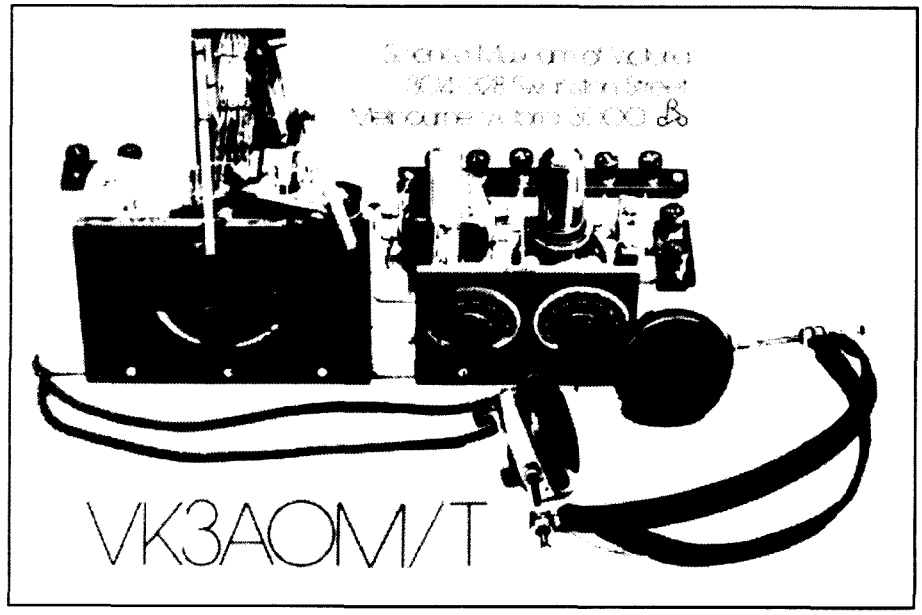
QSLs from the WIA QSL Collection

Radio Museums

Ken Matchett VK3TL
Honorary Curator
4 Sunrise Hill Road
Montrose 3765

Even before World War Two, private firms, schools and private operators frequently were allocated call signs whose suffixes bore the initials of the operator or licensee. However, with few exceptions, it was only after the war that we saw the allocation of both call-sign prefixes and suffixes for special events, private operators and institutions.

The National Museum of History and Technology of the Smithsonian Institute in Washington, for example, has been issued with the call sign NN3SI. The Goddard Space Flight Centre has the call WS3SKY, London's Science Museum the call GB2SA4, Edmonton Space and Science Centre, the call VE6SSC and the *Deutsches Rundfunk Museum* in Berlin, DKODR- Many have no special call sign but are well publicised on QSL cards such as VU2VM the Vismuseum in Bangalore, India and the State Museum of the History of Cosmonautics at Kaluga, Russia UK3XMC.



VK3AOM

In 1973 the call sign VK3AOM was granted to the amateur radio station situated in the Science Museum, Melbourne. Working in conjunction with the official WIA. station, VK3BWI, weekly broadcasts were given on a whole range of HF and VHF frequencies until the closure of VK3AOM in the 1980s. On the front of the QSL is a photograph of a receiver from the Museum's collection that represents amateur technology of an earlier period.

GB2SM

This special issue call sign is one of the earliest of the GB prefixes and dates back to the early 1950s. Old timers will remember it as one of the forerunners of the pictorial QSLs that gained popularity after the war. The call sign is of the National Museum of Science and Industry, commonly known as the 'Science Museum', an institution that attracts approximately a quarter of a million visitors a year. Its origins lie in the scientific and educational collections of the South Kensington Museum that opened in 1857.

Telegraphy, telephony and the history of radio are extensively covered in the

Communications Gallery. Adjacent to this gallery is the demonstration radio station GB2SM used to illustrate the practice of radio communication to students and other visitors.

VE6SSC

This attractive multi-coloured QSL was sent from the Edmonton Space and Science Centre, Edmonton, Canada. The Centre opened on July 1, 1984, the large radio tower in the photograph being added in 1993-4. This tower was specially built for the volunteer-operated amateur radio station VE6SSC. The Centre boasts various attractions such as an IAM film centre, a multi-media planetarium and a public observatory. As well as flying a simulated space mission, visitors can drop in to the multi-mode, state of-the-art, amateur radio station to try their hand at HF, VHF, UHF, satellite and packet. The QSL is sponsored by the Amateur Radio League of Alberta.

Thanks

The Federal WIA would like to thank the following for their QSL donations:

Bill VK2WS, Bill VK2XT, Geoff VK2OI, Lindsay VK5GZ, Mike VK6HD, Lionel VK6LA, Neil VK6NE, Jim VK9NS, Hans WIA L40370.

And the friends and relatives of the following SKs:

Ken Seddon VK3ACS

Malcolm Crew VK3BBU
Courtesy Dave Freeman VK3ZXU

Reg Ross VK3YD
Courtesy Mr John Park

Kevin Lawrie VK5AK
Courtesy Mrs M. Pierson

Staunton McNamara VK5ZH
Courtesy Christine VK5CTY

S.A. Embling A3DC
Courtesy Alan Doble VK3AMD

ar

A Morse Code ID for Home Station or Repeater

Continued from page 11

Set up

If you have an oscilloscope and an audio signal generator available, insert the 741 and feed a 1 kHz signal into the filter without the micro in place. Apply power to the circuit and adjust the pot for a sinusoidal output. Switch off the power and insert the 89C4051. Short the test pin to earth and apply power again. You should observe a continual stream of morse code ID's separated by a short time delay.

If you have no instruments then the tune pot can be adjusted by listening to the TX on a receiver. This is a good idea to do anyway to ensure that the tone is as pure as possible.

ar

Postscript

Well the inevitable happened, the Peninsular Radio Club contacted me and asked if I could add a courtesy beep from the Repeater when a station ceases transmission, and control for break-in and TX keyup.

I modified the PCB to include an output transistor driver with the option of an open collector output or for connection to a suitable powersupply line. This transistor driver is connected to P1.2 (Pin 14) of the micro. How this is configured will be dependent on what it is required to drive.

The software is still set up for a mute line that is low with signals present, however either software or hardware changes/additions can accommodate an opposite arrangement.

The principle of the control is that the line from the receiver to the transmitter key circuitry is broken and fed into and out of the micro.

Software modifications include use of one of the internal timers for the 5 minute event operating an internal interrupt and setting a flag. If the system is quiet for more than 5 minutes, the ID will occur shortly after receiving a transmission.

The new PCB can be used for Morse ID or as a Repeater Controller, the only difference being one transistor and two resistors !

NOTE Space precludes printing of the programme listings, but a SAE will get you copies from the Editor. You can also get a copy by email request.

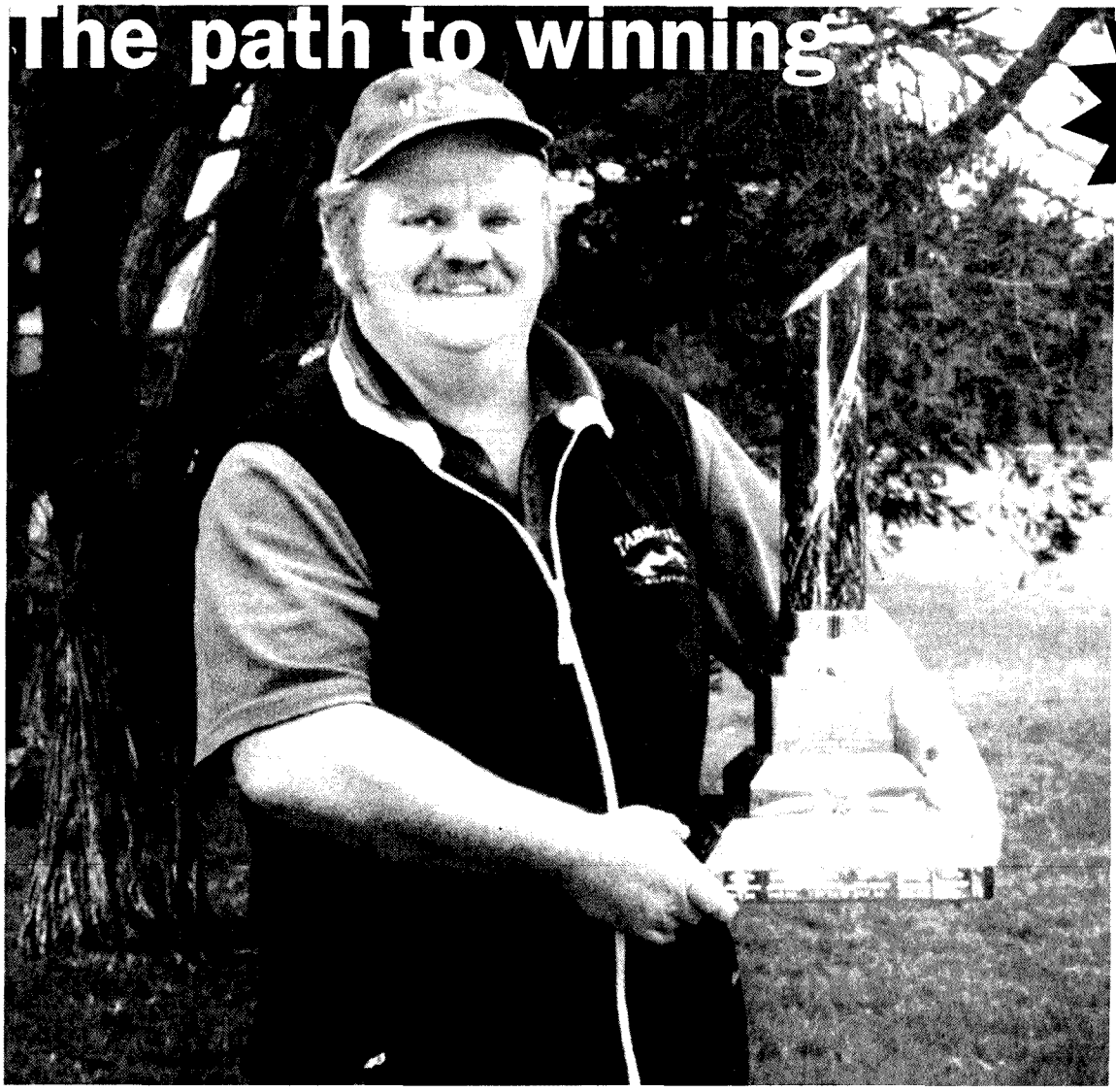
Colwyn VK5UE

ar

The path to winning

Cover Story

By
Jim Linton VK3PC



Rob VK3EK and Ross Hull Trophy. The photographer is Pauline Zahra

The pinnacle of a decade of personal achievements by Rob Ashlin VK3EK was winning the Ross Hull Contest, which has been running for 50 years. The win is also a credit to the spirit of knowledge and skill sharing among VHF/UHF/SHF experimenters.

Rob is naturally very proud at being the winner and readily acknowledges the support his fellow radio amateurs have played in him gaining top spot in this premier WIA contest. He said, "The feeling I have about my name on the trophy along with all the other winners of the past 50 years is very hard to explain. It's just great and I only hope we can keep it all going and keep experimenting along the way."

The VK3EK story began when Rob passed his Novice licence in 1990 with the callsign VK3VRA, followed by 10 months of study to upgade under the expert guidance of Kevin McGrath VK3EQM. Like many of today's radio amateurs, he had no prior experience in electronics and used the Novice licence as a stepping stone to the full qualification, and then seeking the best way to enjoy the hobby. By September 1991 the upgrade was achieved, and as Rob explains, he stopped, and thought "what is the next challenge?" That is where Roger Steedman VK3XRS, a very keen VHF and Microwave enthusiast entered his life.

Visiting the VK3XRS shack at Sarsfield in Gippsland early on a Sunday morning he listened to the Aircraft Enhancement Net on 144.200 and was immediately bitten by the bug. SSB contacts were being made over long distances. These included an over the mountains path to Canberra, 320 km away, and into Sydney around a distance of 500 to 600 km. Rob said, "I found this very exciting, having previously believed such contacts had to be done on HF. This was something new, exciting, and very enticing." A string of questions fired at Roger VK3XRS by an enthusiastic Rob resulted in the formation of a relationship by the pair that is still going strong 10 years later.

In fact Rob's win in the Ross Hull Contest is in no short measure attributable to the guidance he has received from a multiple winner of that contest, Roger VK3XRS. Virtually everyone involved in weak signal working, and microwave communications generally shares their knowledge and encourage those interested in joining this aspect of the hobby, which is now going strongly. A skill to acquire for those on the higher bands is an understanding of propagation, which on

2 metres and above is almost exclusively tropospheric or reflective. It means knowing when there is likely to be a lift in signal due to enhanced propogation, and the path possibilities.

Rob VK3EK said, "I guess it's with this type of experimenting that back in 1922 our great pioneer, Ross Hull, at the age of 20, set the ground work for today's bunch of experimenters. It is important for us to look back and take note of how our early pioneers did things and we can learn from them and hopefully add to their experiments."

Propagation includes the use of amateur beacons, paging systems and television station carriers, and of course the tropospheric duct prediction tool, the Hepburn Index produced by Canadian, William Hepburn.

Rob VK3EK having been bitten by the bug of the higher frequencies, faced the reality that his home at WyYung just north of Bairnsdale, was in a low area and did not provide a good VHF take off. So it was necessary for him to go portable on a "perfect" hilltop. For the WIA VHF Field Day Contest in January 1993, the journey was made with a van of gear and provisions to Mt Nowa Nowa, Grid Locator QF42.

Equipment for 6m, 2m, 70cm and 23cm resulted in a few contacts into Melbourne and also some local contacts. Also on the trip were a couple of mates, a Melbourne taxi driver and a sheet metal worker from Bairnsdale –neither interested in radio. The camping trip was most enjoyable, said Rob, but then he was surprised to find it achieved a win in the 24 hour section of the VHF Field Day.

It was back up the mountain next year to do it all again with a few minor adjustments. Under his original full-call VK3DEM, he won the 24 hours portable section in 1994, the 24 hours home section in 1995. Almost each year Rob has returned to Mt Nowa, trying out new frequencies with good results. In January 2002 the equipment supply list will hopefully include 6m, 2m, 70cm, 23cm, 13cm, 9cm, 6cm and 3cm.

In relation to distance records, on 16 January, 1997, contacts between VK3DEM and VK6KDC took out both the Victorian state record on 2m over 2862.2km, and the national 70cm record over the same distance. Voyaging to north-east Tasmania, VK3EK portable on 3 January, 2001 gained Tasmanian state records for 10GHz and 3.4GHz with a distance of 667km in contacts with VK5NC south of Mount Gambier.

The 1296MHz national mobile record was set at 565.5km on 17 February, 2001 between VK3EK mobile and Rex Moncur VK7MO, portable on Mt Wellington near Hobart.

At the other end of the spectrum, Bob VK3EK has been taking advantage of the winter months to chase DX on the HF bands and top up his quota for the DXCC.

He is a classic example of a person who has been able to achieve a great deal on the air, just by realising what is possible and deciding to go ahead and do it.

ar

JOTA. A survival guide *Continued from page 17*

they arrive try facing them while you are speaking into the microphone and start to speak to them as well as to the other station, for instance 'well, four Scouts have just come in, have a seat. I'm speaking to Matt who is a Scout at the Lower Scarcity Scout Group in Melbourne, and he's been telling me about what happened on their last camp'. (Continue on to introduce the Scouts that have just come in and develop a common interest). Keep charge of the microphone and only surrender it if a Scout shows a good aptitude with speaking on the radio and conducting a conversation. Otherwise hold the microphone in front of the Scout that is speaking and operate the PTT yourself.

Conversation

It can be frustrating when you have just finished an over of a couple of minutes describing things off the top of your head about what has been happening, the weather etc and a little voice answers 'Would you please repeat that, over'. Of course, it cannot be repeated and it is probably not a message where every word is vital and has to be copied down. Conversation and listening is very difficult to develop especially with young children. Yes and no answers kill conversation. Once again it may be best to keep possession of the microphone, and with a Scout next to you, press the PTT and discuss the content of the last over, be it a question, item of information, or observation.

Supervision

You are not a Scout Leader and under no circumstances should you have to be responsible for a group of Scouts without an Adult Leader being present. The job of maintaining communication is big enough without having to worry about what the clown behind you is doing. If you find yourself left alone with Scouts jump up and down, yell and scream, and go QRT until you are either offered money or a Leader shows up to supervise them.

Before JOTA it is essential that you come to an arrangement with the Group Leader covering topics such as unloading your car, setting up, packing up equipment afterwards, security, refreshments, meals, and supervision of Scouts while on air. It is also important to mention that there may be times when you may not be able to get a workable contact for a variety of reasons. Leaders put together a timetable for Scout activities and you should have input into this, with considerations about how much time each Scout will get on air and if this is sufficient, and the times of day and duration that you will be required.

Thankyou

You might be shocked at the state of Scouts today, as I was when I showed up to sign on as a Leader. Gone are the sheath knives, the long hair, the initiations, the fights, and there are girls. The Scout today is much more mature, far better behaved and better presented than I was back in the 70's, thank heavens. But the poor old Leaders haven't had a payrise in 94 years!

JOTA could not happen without the fine support of amateurs over many years. To those involved this year, thankyou very much in advance for your help, and to those that get the weekend off, thanks for your tolerance and the use of the third weekend in October each year.

JOTA/JOTI 2000 will be held on the 20th and 21st of October 2001. More information can be found under JOTA/JOTI in the International section at www.scouts.com.au

73, Stephen Watson VK4SGW

The Water Tower:

Home of the SA VHF Group and the Elizabeth Amateur Radio Club

Christine Taylor VK5CTY and Colwyn Low VK5UE

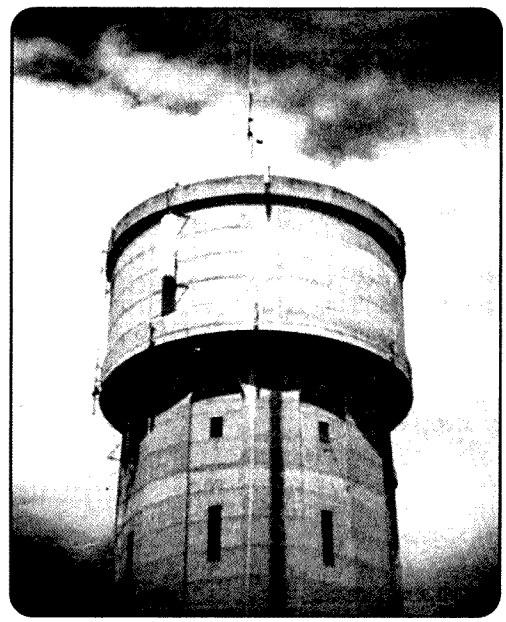


Photo 2 Some of the Aerials

Since 1981 the Elizabeth Amateur Radio Clubrooms have been in a water tower which was built during WW2 to serve the munitions works at Salisbury. It continued in service till the early 70's, for the WRE (Weapons Research Establishment) - now DSTO and the growing housing development at Elizabeth. It stands 145 feet high (44.2 metres) and the tank has a capacity of 250,000 gallons

Photos 1, 2 and 3 show the tower location and the view from the bottom. The tower is constructed from two concentric cylinders of diameters 4.5 and 12 metres. There are 5 levels plus the tank with approximately 6 metre (20ft) separation of the levels, each level has a usable area of approx 100 sq metres. The useable space is the annulus between the cylinders. The concrete was mixed on site with two bagger mixers i.e. two bags of cement per mix. For the height of the tower the base excavation was surprising shallow, only 2.4 metres (8 feet) deep. The method of construction gives the tower its strength. 6 metres above the top (fifth) level is the actual floor of the water tank.

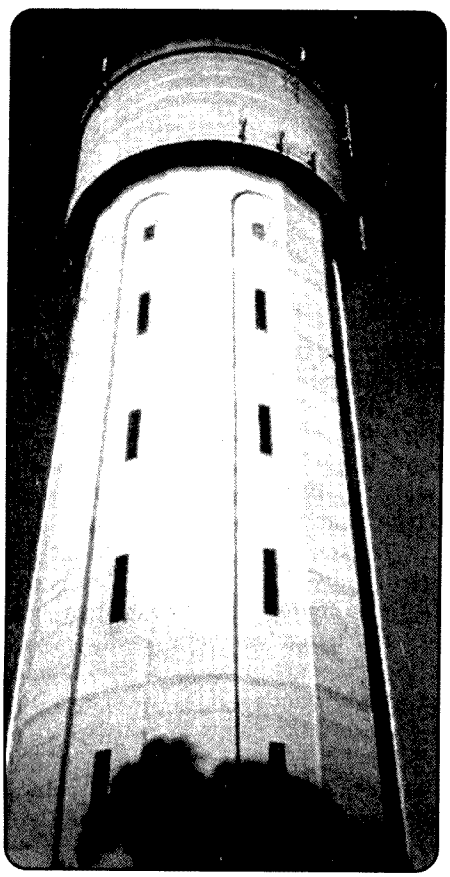


Photo 3 Looking up

Access to the very top of the water tank, which is also annular, is via a central cylinder about 3ft across. There are vertical ladders between each floor and through the centre of the tank. To access the outside of the tank, which supports most of the aerials, there is a 25 feet ladder down to the bottom of the tank and another 25 foot one to reach the outside rim. There is ONE steep steel ladder between each level of the outer cylinder. Photo 4. You use the top edge of the tank to move around the perimeter!!

Access to the centre space is only available at the ground and fifth level floor. Anything to be taken up to the top is carried into the bottom space and lifted by pulley 100 feet to a trap door in centre of the top floor. From there it is carried on the shoulder or by another pulley system up through the three foot diameter tube to the very top. It is then lowered 25 feet, carried to the outer edge and lifted to the top or the rim and maybe higher if it is to be on top of a mast. Nothing is easy in the water tower!

The construction does not provide the most conveniently shaped meeting rooms. However the tower has all the facilities needed for the SA VHF Group/ Elizabeth Amateur Radio Club and has been used almost every week since the club tenanted the tower. The ground level has comfortable chairs for informal meetings and it houses the kitchen and the VK5LZ station. Commercial equipment for TV relays for the ABC and SBS is on this floor with the antennae mounted round the rim of the tank. Mobile phone companies also use the tower for cell hubs.

The library is on the second level, including the VK5 Division library that was at the Burley Griffin Building. This

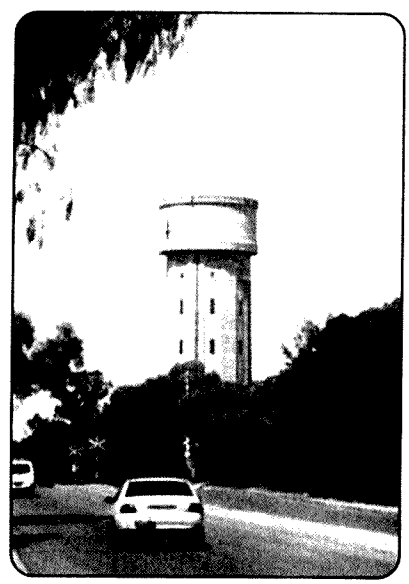


Photo 1 The approach

means that all the radio books and magazines that have been gathered over the years by the VK5 Division have not been lost along with the headquarters. There is space on this level for lectures and a workshop and it has become the home for the VK5WI Sunday broadcasts. Photo 5. The second level is currently being refurbished and the third and fourth levels are empty, though the fourth level does get used for ATV links, particularly during JOTA

The fifth level (100 feet up) has all the hardware for the VK5RLZ repeaters, beacons, ATV repeater and the VK5RLZ packet station and an enormous duct filled with cables that feed the phone company antennas. Photo 6, 7 and 8.

The Elizabeth Club has had many clever people among its membership who have built and maintained repeaters on 2 metres and 70cm for phone, ATV, and packet. At the time of writing there are 22 antennas at the top of the tower and five or six at the lower levels where they protrude from the windows. An added bonus of the shape of the tower and its reinforced concrete is that most of the interference between aerials is avoided or overcome by moving to another spot around the circumference.

The first aerial was put in place almost as soon as the EARC was given a home in the tower and by the end of that year (1981) there were 15 in place. Throughout the occupancy of the tower although most of the aerials have been for VHF/UHF or SHF there have been a number of HF aerials including a full sized, rotatable, 13-30 metre log periodic. Currently there are 5 HF antennas and plans are in place for another rotatable HF beam. However, as experience has shown, a beam will probably only last 3 or 4 years at that height, it is a debatable point whether it is worth the effort.

The height of the tower means that all the aerials are subject to a fair amount of wind damage so the repair and replacement rate has been constant at five or six a year throughout the tenure of the tower. The aerials have a marvellous coverage area either from the 100 foot takeoff or from the top of the 145 foot tower (which with a mast can be as high as 180 feet for even greater the coverage). Photo 9

There are some weight restrictions to what can be housed

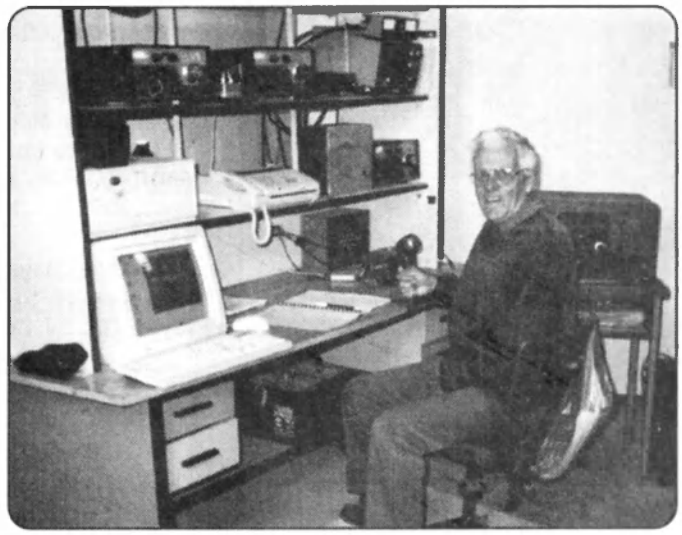


Photo 5 VK5WI Station with VK5AIM

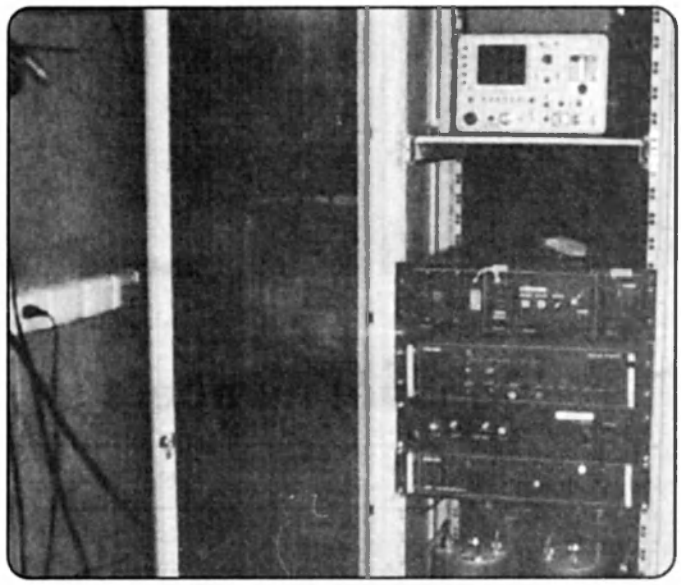


Photo 6 Equipment on Level 5

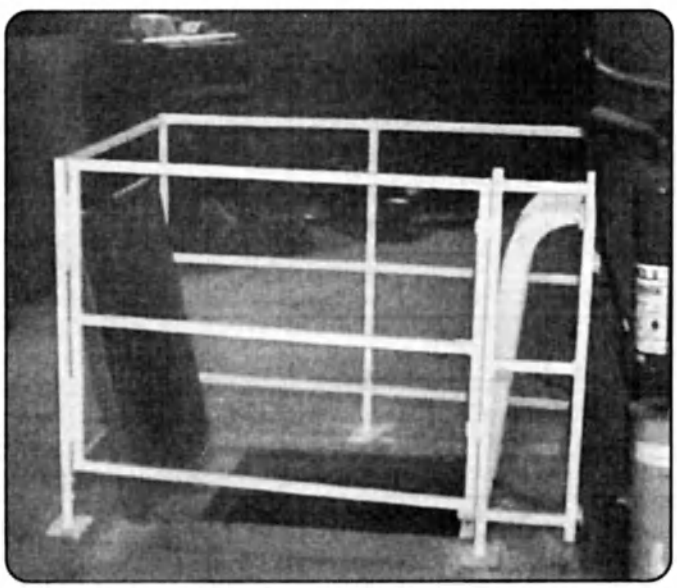


Photo 4 Top of one of the access ladders.

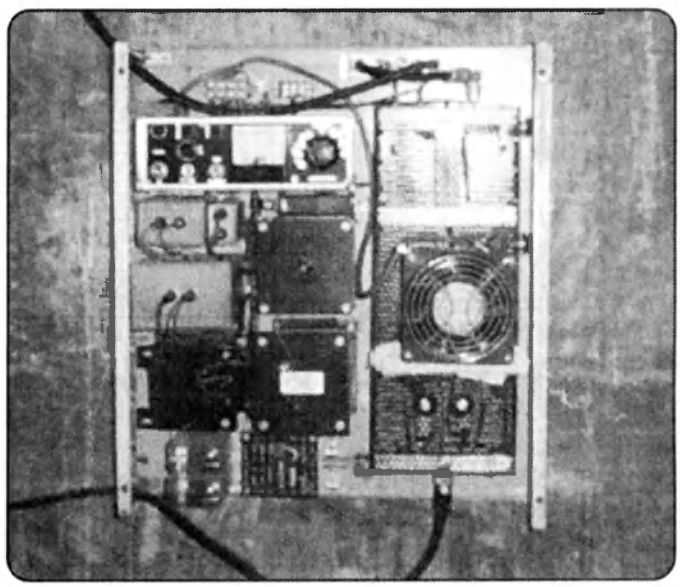


Photo 7 Equipment on Level 5

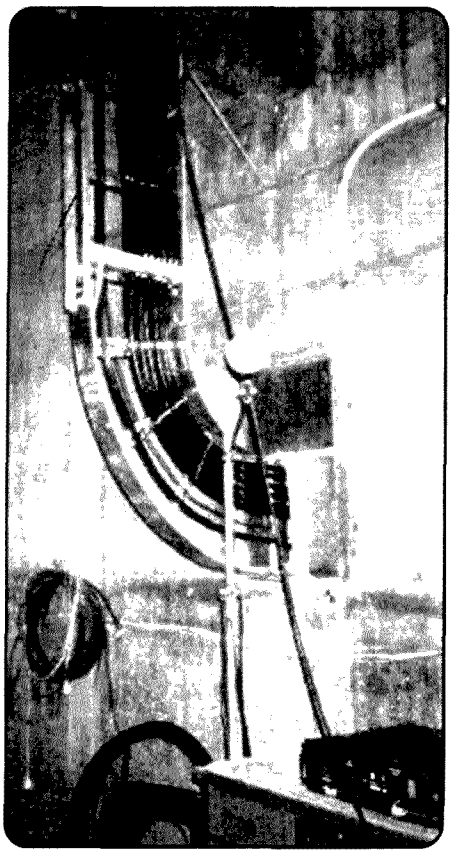


Photo 8 TV Company feeders

on each floor. After all the "floors" were really only designed to keep the inner and outer wall apart!! There is both 12 volt and 240 lighting on all the floors and the entire building is covered by a security system that sends it's alarm message out on the VK5RLZ repeater - IN CW!

When the custodianship of the water tower passed to the Elizabeth (now Playford) City Council it was on the undertaking that the Elizabeth Amateur Radio Club remain the tenant and have prime tenancy rights as long as they remain a functioning club. This is a great incentive to continue operations, I cannot think of a better one. Long may they continue to send out their many signals.

Photographs from VK5CTY and VK5UE

ar

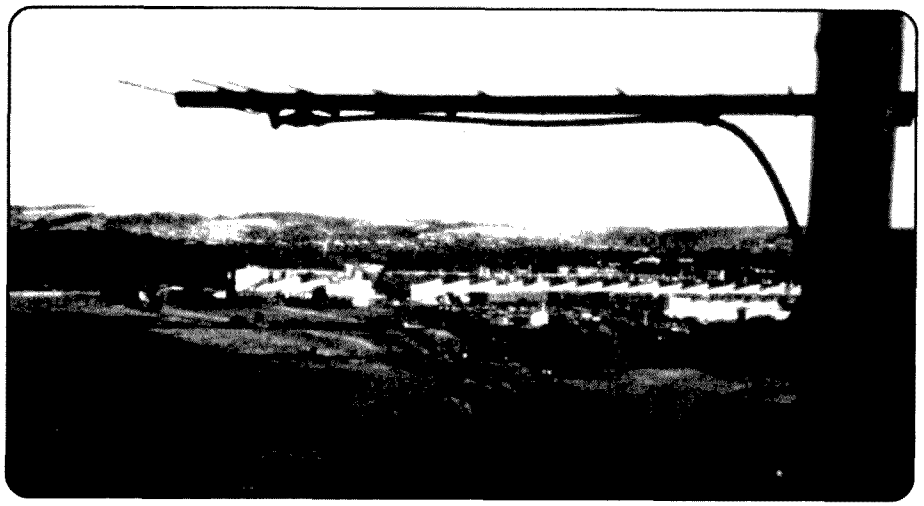
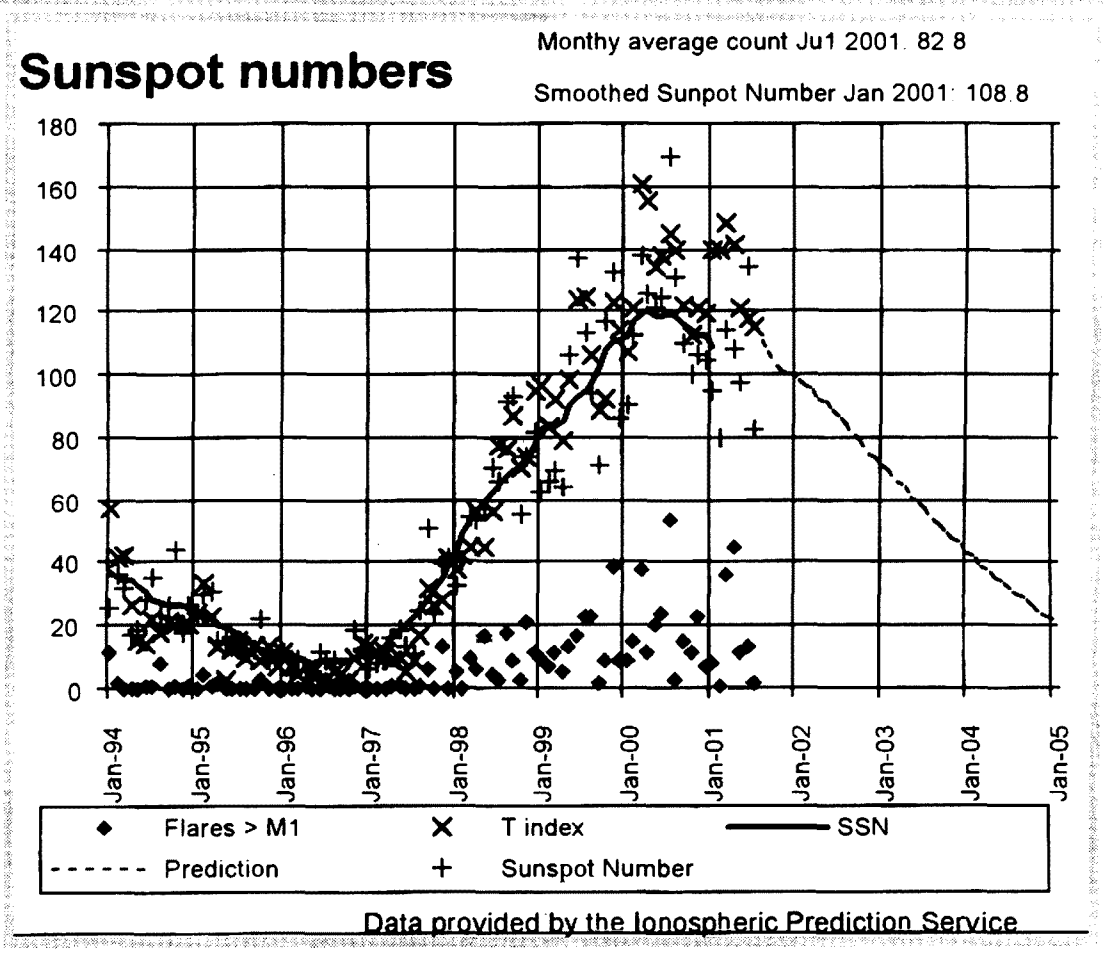
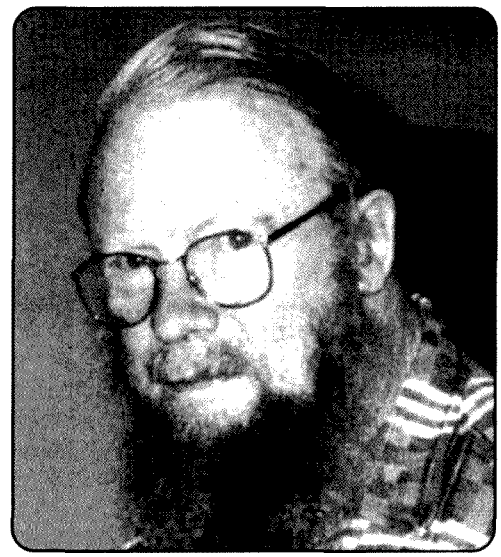


Photo 9 View from the top.



Bill Rice: Honorary Member WIA

Stalwart inducted as Honorary WIA Life Member



The WIA Federal Council has honoured Bill Rice VK3ABP with a much deserved WIA Life Membership in recognition of his three decades of continuous service.

He joins a small number who have provided meritorious service to WIA Federal, and under a long established tradition receives Life Membership, with the WIA Federal body paying the annual membership subscription of their home WIA Division.

On receiving news of the honour, a quietly spoken Bill was most humble, and typical of this gentleman provided a succinct, honest heart-felt response, "The possibilities that I could achieve such an award was something that had never occurred to me." He had earlier been genuinely surprised on learning initially that he was to be considered for WIA Life Membership.

While serving the WIA continuously in various roles since being invited to become AR magazine's Technical Editor in 1972, it is clear that the motivation driving Bill VK3ABP has been personal enjoyment, a sense of sharing, learning, contributing, and the making of many good friendships along the way. Those friendships include members and former members of the WIA Publications Committee, on which he remains an active member.

When asked to identify a highlight of the past 30 years, Bill replied, "The celebrations of the Institute's 75th anniversary in 1985." He recalled it was memorable occasion that included a formal dinner in Melbourne attended by the Federal Minister for Communications and dignitaries from IARU radio societies, WIA officials and ordinary members. It is hoped we can have a joint celebration in the year 2010, that of the WIA's centenary, and Bill's 83rd birthday.

Asking about his most known personal achievement, that of being the longest serving Editor of the WIA journal, Amateur Radio magazine, Bill recalls he was driven to reach that milestone. "The achievement of the 15 years became a motivation when I realised it was not that far off," said Bill, who eclipsed the term record held by Tom Hogan VK3HX (SK).

Being Editor of any publication you learn that is it not possible to please everyone, all of the time. Bill was coupled with a few "conflicts" while Editor, but at the end of the day his personal qualities saw him overcome them.

While most readers of AR magazine will be aware of Bill through him being its Editor, his full contribution to the WIA is much broader and somewhat lesser known. He joined the WIA in 1945. In 1972 he was appointed Technical Editor of AR magazine, and remained in that position until 1984, when he became Editor. Concurrently he was also Chairman of the WIA VHF Advisory Committee, and held this appointment until the Federal Technical Advisory Committee (FTAC) was established in 1981, and he became its Chairman.

One of his tasks during this time was in 1974, when he jointly with the then Federal President, Peter Wolfenden VK3KAU, presented the WIA's technical submission to the Independent Inquiry on FM Broadcasting. Then FTAC in 1981 under Bill's Chairmanship made the WIA's submission to the Broadcasting Tribunal Inquiry on cable and subscription TV. There were issues or potential threats to the Amateur Service that the WIA addressed at the time.

Nomination initiated by WIA members

In late April this year at the WIA Federal Convention Bill VK3ABP received the Ron Higginbotham Award for service to Amateur Radio magazine- an annual award decided by the WIA Publications Committee.

At the WIA Victoria AGM meeting three weeks after the Federal Convention the issue of a Life Membership for him was raised from the floor. This resulted in six members speaking spontaneously in support, and the meeting recommending the WIA Victoria Council take steps to progress the matter with the WIA Federal Body.

The WIA Victoria Council then further considered the matter, and the recommendations of the members at the AGM were endorsed, with a postal motion issued a few weeks later to all WIA Federal Councillors for a vote. A majority of the WIA Federal Council voted in support of the motion. Probably due to the fact that Life Membership for service to WIA Federal is indeed a rare thing-making the honour even more prestigious, that not all WIA Divisions readily understood what has been a long traditional practice.

Jim Linton VK3PC, is a former News Editor of AR magazine, had been a Guest Editor for a period, and is an occasional contributor

ar

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Stealth Antenna Tuning

A device to allow an antenna tuner to be adjusted without placing a signal on air was described in Rad Com April 2001 by Kelvin Barnsdale ZL3KB. This was not the April article as this was elsewhere in the issue. The device was a noise bridge which allows the tuner to be adjusted using a noise source and the receiver. This avoids having to place a signal on air. Very useful if you need to adjust the tuner in order to work some choice DX. Kelvin ZL3KB had previously described a noise bridge in Break In September 1998.

The noise bridge is a transformer bridge which uses a small balun transformer as two arms of the bridge circuit. The other arms are a 50 ohm resistor and the antenna tuner load to be matched. The tuner is adjusted for minimum noise from the bridge circuit in the station receiver. At this point the load presented by the antenna tuner antenna combination is close to 50 ohms or a 1:1 VSWR. This is all done with just a small noise signal from the noise bridge. To aid in identifying the noise bridge noise and help in achieving a null and hence a match the noise bridge noise is modulated. You can pick the modulated noise from the noise bridge source from the noise coming from the antenna.

The circuit of the noise bridge is given in Fig 1. The noise source is a reverse biased transistor junction, TR3, and the noise is modulated by an audio square wave generated by a multivibrator formed by TR1 and TR2. Transistors TR4, TR5, and TR6 amplify the noise signal which drives the bridge. The balun transformer appears to have an unused winding but this actually helps in balancing the bridge by balancing the capacitances in the bridge transformer. Transistors TR1, TR2, and TR3 are type BC337 but any similar audio type transistor could be used. Transistors TR4, TR5, and TR6 are type PH2369 or 2N222A but any high speed switching transistor having good gain at VHF could be used.

Transformer T1 is the heart of the bridge and is wound on an Amidon Ferrite toroid type FT50-61. The winding is with four 180mm long strands of 0.3 mm enamelled copper wire which have been twisted together so as to have about 40 rotations over this length. The winding consists of 10 turns through the centre hole of the toroid. The turns should be spread evenly around the toroid with the start close to the finish. The dots on the windings in Fig 1 are all either starts or finishes of the winding. Don't mix them up. Resistors R12 and R13 form the 50 ohm bridge load and are relatively critical. They should be non inductive types such as carbon film and the lead lengths should be very short. All the other resistors are fairly non critical and are normal 0.25 W types. The capacitors are all 10 nF ceramic types.

A noise bridge PCB is available from Branch 05 Projects Group PO Box 1733 Christchurch New Zealand. Email kb.ew@xtra.co.nz . Should be fairly easy to get the parts and a PCB may help with construction.

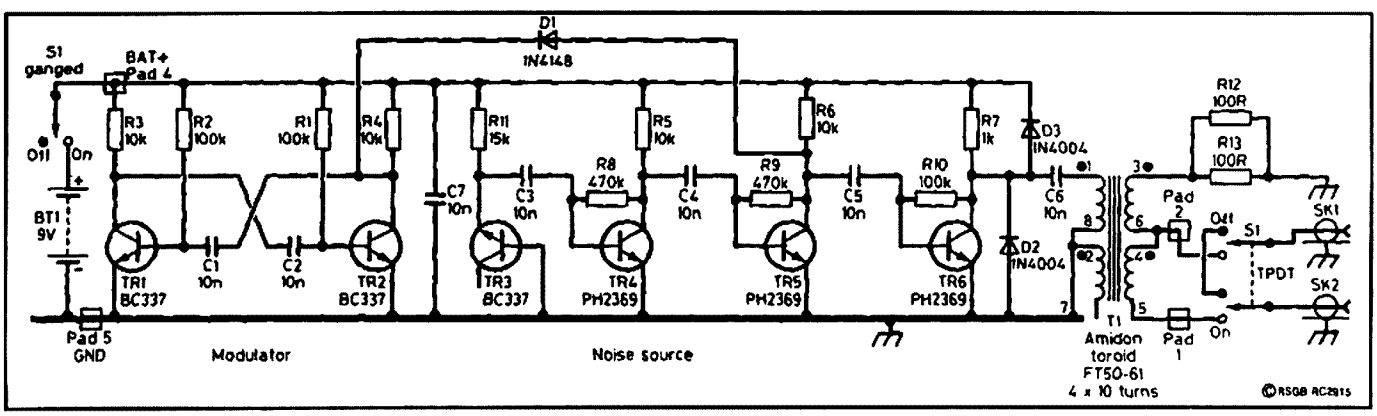


Fig 1. Silent Tuning Stealth Noise Bridge.

SWR Bridge Sensor Correction

In July AR Technical Abstracts an SWR bridge sensor was published which had been used as part of a Power and VSWR Meter by Kees Heuvelman PA0CJH published in Electron March 2001. Unfortunately the reference to the source of the original design this component was missed. This occurred due to the difficulty of dealing with a magazine written in a language other than English.

The original design was due to John Grebenkemper KI6WX and the original publication was in QST Jan 1987 and The ARRL Handbook CD Version 2 and other ARRL publications. My apologies to John KI6WX, Kees PA0CJH and the ARRL for missing this point. Hopefully this will set the record straight.

Thanks to Bill Beyer VK3BHW for pointing the error out.

Assembly Using Tubing Cutters

In the Hints And Kinks column of May 2001 QST of Bob Schetgen KU7G a method of fitting a PL259 was described by Kevin Dean VE7CFS. The method is similar to methods described at various times but it offers a neat solution to a common problem. The process is shown in Fig 3.

A small tubing cutter is used first to cut the jacket and later to cut the tinned braid. The tubing cutter is a clamp type device which can be found in lumber suppliers. Plumbers use them to cut tubing leaving a square cut end. The jacket is first cut and removed. The braid is then tinned to make it smooth and solid. You will need a soldering iron with plenty of heat reservoir capacity such as a fairly solid bit. Then cut through the tinned braid with the tubing cutter. The tinned braid to be removed should then be cut at an angle with a hacksaw blade to facilitate the removal of the waste area of tinned braid. Remove the dielectric and prepare the centre lead. Fit the cable to the connector and solder the connector body to the tinned braid.

Finally solder the inner conductor to the centrepin. Preparation of all the surfaces to be soldered will help make the procedure go smoothly. A soldering iron with sufficient heat reservoir capacity in its bit is desirable so as to minimise the time spent soldering.

ar

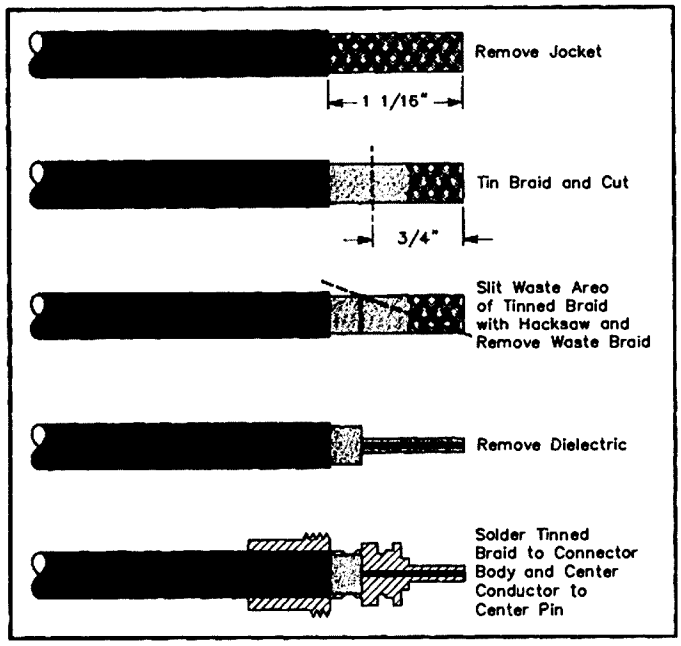


Fig 3. VE7CFS's PL259 Installation Technique.

CORRECTION

Unfortunately in the article on ***Noise Blanking for the High Q LF Loop Antenna*** several errors or omissions have crept in due to the redrawing process.

Figure 1. Auxiliary Antenna Interface & Phasing Unit (AR December 2001) Year should read 2000 not 2001.

Blanking Detector & Phasing Unit The "Noise Blank" and "Noise Cancel" labels were meant to refer to the two positions of the switch. As drawn it is not all that clear. The UP position is "Noise Blank" and the DOWN position is "Noise Cancel"

Figure 2. In the original, the Y axis was marked m.Secs meaning milliseconds. It has been wrongly marked as Microseconds.

Figure 3. Multivibrator N3 The Q and Q bar outputs on the original drawing have been omitted. Q is pin 6 and Qbar is pin 7.

Our apologies Lloyd

Colwyn, Editor

New WIA members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month ofJULY 2001

L21172	MR P A LEVARRE-WATERS
L21188	MR S KRAHE
L60417	MR D WHENT
L70156	MR M EMERY
VK2AND	MR B H ANDERSON
VK2ARF	MR R FENTON
VK2ATM	MR A T MONCK
VK2BOD	MR M CARDOSO
VK2DCJ	MR O ROBERTS
VK2FSH	MR C EDMONSON
VK2HBM	MR C MARTIN
VK2JBF	MR T J STAFFORD
VK2TPH	MR P M HOWCHIN
VK2ZS	MR C J HODGEMAN
VK6JJJ	MR C HAYHOW
VK6JRC	MR R SEAMAN
VK7JUF	MR M RICHARDSON

SCOOP PURCHASE!

All-mode operation on the HF, 6m, 2m, and 70cm bands with full satellite capability...

Yaesu FT-847 'Earth Station'

Ready for action on SSB, CW, AM, FM and digital modes, the FT-847's compact size makes it ideal for a variety of portable/mobile applications as well as for serious base station operation. You get a solid 100W output on the HF and 6m bands, 50W output on both 2m and 70cm, dual fan cooling and a rugged diecast chassis. Plus, the ultra-quiet HEMT receive pre-amp on 2m and 70cm contributes to the FT-847's amazing sensitivity figures. Advanced Digital Signal Processing (DSP) circuitry enhances received signal/noise ratio for easier copy of signals under marginal conditions through the use of 16 selectable noise reduction algorithms, while the Bandpass and Auto-notch filters aid the IF based shift and noise blanker circuits in reducing interference on crowded bands.

The FT-847 is ready for satellite operation, with crossband full duplex operation, normal and inverted VFO tracking of the satellite uplink/downlink, as well as 12 special satellite memories with alpha-numeric tags. Also provided is a low-noise Direct Digital Synthesiser (DDS) that provides tuning steps as small as 0.1Hz, plus there's an adjustable DSP bandpass filter as narrow as 25Hz for exceptional weak-signal CW performance. You can also install optional Collins* mechanical filters in both the transmit and receive chain for enhanced SSB operation, as well as a 500Hz Collins* filter in the receiver side for CW. An effective speech processor with adjustable frequency shift voice tailoring is also provided to add punch to your SSB transmissions. The FT-847 is ready for data modes, with a rear panel Data In/Out socket and a packet socket for 1200/9600 baud VHF/UHF operation. Other features include extended receive operation (36-76, 108-174, and 420-512MHz), a high-speed computer control interface, 10-key keypad for band/frequency entry, and a shuttle-jog tuning ring for fast QSY. Also included are encode/decode CTCSS and DCS operation, selectable channelised steps for FM operation, FM narrow/wide modes for 29MHz use, and a large LCD screen with adjustable backlighting.

Each transceiver is supplied with a hand-mic, DC power lead and a comprehensive instruction manual. Call us for a copy of Yaesu's 6 page colour brochure to learn more about this incredible value 'Earth Station' transceiver.

D 3425

2 Year Warranty

YAESU **$2995**

SCOOP PURCHASE!

SAVE $441

Offer expires 30/9/01

DICK SMITH ELECTRONICS

That's where you go!

When you have to get through...

YOU SAY YAESU

YAESU VX-1R 2m/70cm micro handheld

One of the worlds smallest dualband handhelds, just 47 x 81 x 25mm (WHD) including a high capacity 700mA/H Lithium-ion battery! The VX-1R covers both 2m and 70cm amateur bands, plus offers AM/FM and TV sound reception, 2 hour fast charging as standard, simple settings and a large LCD screen.

Features:

- Tx: 144-148, 430-450MHz. • Rx: 0.5-1.7MHz, 76-300MHz, 300-580MHz, 580-999MHz (cellular locked out).
- Output: 2m/70cm 0.5W (at 3.6V), 1.0W with external DC. • 291 memories, most with Alpha naming.
- AM, FM (n), and FM (w) reception modes. • CTCSS encode/decode.
- 31 smart search memories • Tone search for CTCSS and DCS.
- Includes FNB-52LI 3.6V 700mA/H Lithium-ion battery, regulated AC adaptor/charger, antenna and belt-clip.

D 3665

SAVE $37

$348

2 Year Warranty

NEW FOR 2001

YAESU FT-1500M Heavy Duty 2m FM Mobile

Another Yaesu transceiver breakthrough, the new FT-1500M blends an efficient transmitter with an almost bullet-proof receiver front end, and is packaged in rugged die-cast aluminium casing. You get powerful 50W RF output, direct keypad frequency entry, Alpha-numeric memory labelling, easy data interfacing, and much, much more.

- Transceiver coverage of the 2m amateur band (144-148MHz), with extended receiver coverage of the 137-174MHz range.
- 50W RF output, with selectable 5, 10, or 25W lower power levels. The efficient PA stage only draws 8A at 13.8V DC for full RF power output.
- High-performance receiver front-end circuitry using Yaesu's renowned Advanced Track Tuning (ATT) tracking bandpass filter design.
- Includes MH-48B6J DTMF microphone for direct keypad frequency entry, plus convenient menus with 35 'set and forget' functions.
- 149 memories are provided, with 130 regular memories, 9 pairs of sub-band memories, and an instant recall 'Home' memory.
- Additional features: Supply voltage display, transmit time-out timer, auto power off, and S-meter RF squelch.

D 3638

2 Year Warranty

$399

All Yaesu products listed are priced in Australian dollars and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

PHONE FAX AND MAIL ORDERS

direct link

PHONE: Within Australia: 1300 366 644 (local call charge)

FAX: (02) 9642 9155 within Australia and (+612) 9642 9155 from outside Australia

Visit our web site at http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 500, PO Box 500, Regents Park DC NSW 2143 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 30/9/2001. All prices shown are in Australian dollars and are inclusive of GST.

3106D AR spot col

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9289
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Bill Riis	VK4YCU
Secretary	Bruce Jones	VK4EHT
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	David Minchin	VK5KK
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@iinet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6QO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bales	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $70.00. Without *Amateur Radio* $48.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $83.00 Pensioner or student $71.00. Without *Amateur Radio* $52.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $67.00 Pensioner or student $61.00. Without *Amateur Radio* $36.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $52.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

Division News

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

The guest speaker at the general meeting in July was Olaf Moon (VK1JDX). Olaf spoke about his trip to the Dayton Hamvention 2001 that was held in Dayton USA, on 18-20 May this year.

Using his digital camera he had taken many photographs of people and places at the event, which he showed at the meeting by means of his laptop-driven projector. Olaf said that he regretted not having enough empty suitcases with him while there because of the many items of amateur gear that was available at very low prices. He saw refurbished Collins gear that had been silver-plated and looked newer than new!

The range of goods for sale was extensive and he noticed that everyone leaving the area carried antennas, transceivers, and all sorts of accessories. Those visitors who were interested in restoring radio gear were able to buy all sorts of technical manuals and other printed material of bygone days.

One important point that Olaf made, was, that flying to Dayton, staying overnight in a motel, and buying a new expensive transceiver from any of the big names, was cheaper than buying the same thing here in Australia! Olaf brought back many pamphlets and other information about radio gear. If you want particular information about any aspect of the Dayton Hamvention, you can E-mail him on: olaf@act.gov.au

The ACT Division is preparing to support the Jamboree On The Air (JOTA) using the newly opened Farrer Amateur Radio Station VK1WI. The committee has appointed Alan Hawes (VK1WX) as JOTA coordinator together with Leanne Thurgar of the Scouts movement. Alan can be contacted by E-mail on: alan@wic.net.au and Leanne on: lthurgar@cyberone.com.au

At the time of writing this issue of Forward Bias-11 August-we have identified a need of antenna rotators. They are going to be used for the Farrer VHF and UHF antenna farm on the roof of the building. We can get away with using non-rotational quarter-wave groundplane antennas, but to make the station truly effective, 3 to 6 element beams on rotators would improve the chances of doing well in contests and DX contacts. If you have any rotators to give away or know where we can get surplus types, let the Division know. By the way, the Sunday broadcasts have been moved to Thursday evenings at 8.00 pm.

That's all for now. The next General meeting will be held at the Scout facility in Longenerong Street, Farrer. Cheers.

VK3 Notes

IRLP is taking shape

The use of Internet Repeater Linking Protocol to link amateur voice repeaters continues to be very popular since its main arrival here on Australia Day, 26 January this year.

IRLP enables radio amateurs to chat on a local repeater that is linked through the Internet to another repeater or repeaters elsewhere. It has greatly boosted amateur activity.

WIA Victoria is supporting a number of IRLP projects in VK3 through its Victorian Technical Advisory Committee Chairman, Peter Mill VK3APO.

Support has been offered to, and accepted by those involved in the Moorabbin and District Radio Club and Geelong Amateur Radio Club IRLP project based at Mt Anakie, near Geelong. Others proposing IRLP linking in Victoria will receive similar help.

WIA Victoria recognises the enormous potential value of IRLP technology in terms of it promoting experimentation and encouraging increased use of amateur frequency allocations.

In February this year the ACA made a ruling on IRLP, and in a letter to the WIA stated that repeater linking must comply with the Licence Condition Determinations (LCDs) for the Amateur Service. This includes licensing, identification, and watchdog timers.

While some six IRLP projects were already in various stages of operation and another six likely to appear in by the end of this year, the groups involved would have eventually had to come to grips with the licensing requirements of the LCDs.

However, an individual radio amateur tried to push the issue claiming that in his opinion, IRLP nodes were not subject to the LCDs.

The ACA did not agree, and was forced, due to the actions of the individual, to immediately apply the regulations under the LCDs, rather than to allow everyone operating an IRLP node some leeway to catch-up with all of the requirements.

WIA Victoria would like to assure all groups engaging in this activity that they have the WIA's full support, and that WIA Victoria looks forward to the future development of this technology.

Bill Rice VK3ABP LMWIA

The WIA Federal Council has recognised the service and contributions made by Bill Rice VK3ABP since 1972, by awarding him an honorary life membership of WIA. At the WIA Victoria AGM meeting in May the issue of a Life Membership for Bill was raised. The WIA Victoria Council, through a postal motion, received majority support

of the Federal Council for Life Membership to be granted. An article on the service to WIA Federal provided by Bill VK3ABP since 1972 is due to be published in September.

Federal Coordinators

The WIA Federal Council has appointed Ian Godsil VK3VP to the position of Federal Contest Coordinator. Ian has previously held this position, resigned for personal reasons, and then re-applied for the role that has remained vacant for many months. Welcome back Ian.

Candidates are soon to be considered for two other federal coordinator positions - that of Intruder Watch Coordinator, left vacant by the retirement of Cordon Loveday VK4KAL, and Federal Awards Manager, on the retirement this month of John Kelleher VK3DP.

The WIA Victoria Council on behalf of members extends sincere thanks to both of these volunteers, with special recognition to John VK3DP for his 10 years of service as Federal Awards Manager

Support for Solomon Islands

The National Disaster Council of the Solomon Islands is turning to amateur radio to help provide emergency communications infrastructure.

The International Amateur Radio Club of Sydney has already arranged for shipments of equipment and training materials to the Pacific Island nation. Donated material can be delivered to the IARC 2 Griffith Avenue, East Roseville 2069, or left care of John Threadgold, Allstat, 4 Trade Place, Vermont, Victoria. Each donation will be personally acknowledged if you include your name and postal address. WIA Victoria will also be donating material to this cause.

VK7 Notes

Ron Churcher, VK7RN

QRM

The Tasmanian Amateurs are really making a name for themselves in the province of Motor Sports. The "Saxon" Southern Safari held early August through some forbidding countryside in the south of the State was a great success communications-wise.

Our Hobart amateurs, 25 in all with family helpers, were responsible for all the rally command network and our normal repeaters together with portable crossband repeaters covered the whole field to the complete satisfaction of the organizers. The clerk of course thinks us amateurs should NOT be called amateurs – we can teach the higher echelons a bit about professionalism!

Plans are well in hand for the "Sunday Examiner Challenge" in the North-west area on the November long weekend when we are responsible for all the comms. except emergencies. (That's enough back-pats).

As part of the "Centenary of Federation" activities the Tasmanian Museum is exhibiting "Communications through the Century". We can hardly imagine what it was like in 1900 AD. The exhibit is a real eye-opener.

Our Monday night radio magazine programme "SPECTRUM"on VHF and HF continues to attract listeners from around Australia. This programme is designed to complement our usual Sunday morning news broadcast. Listen to it at 7.30pm EST on 3.59 MHz. +-QRM and please join the callback.

An interesting idea. Most places around Australia have an FM "Tourist Radio" channel. Ours on the Northwest coast is broadcast on the "Spirit of Tasmania" as it comes into Devonport. Barry, VK7FR, who is one of the announcers on this station is broadcasting the amateur repeater frequencies for the benefit of any hams waiting to land in what we know is the closest place to "Heaven itself". Just another way to promote Amateur Radio.

Cheers for now. Ron Churcher, VK7RN

VK4 Notes

Qnews

from Alistair Elrick VK4MV

Submissions to Qnews and the VK4 website

Sending details to clubsinfo@powerup.com.au is THE way to have your groups publicised on the TeleText Pages AND VK4 area WebPages.

As well as that, messages sent via the QNEWS @ VK4WIE Server are automatically copied across to Ham Club News Editors and Office Bearers, Special Interest Groups and WIAQ Office Bearers, along with AR and QTC Magazine Editors.

Hopefully it is the SAFEST and QUICKEST way to get your organisations activity broadcast during QNEWS, plus alert all Clubs, WIAQ and AR Journal. NOTE THE ADDRESS: QNEWS @ VK4WIE.#BNE.QLD.AUS.OC , E-MAIL: qnews@powerup.com.au

If WRITING to QNEWS at the PO Box 199 Wavell Heights 4112 address, maybe a big note on the front that it's urgent and needs get to the newsroom ASAP wouldn't go astray!

WICEN Exercise Rally Qld 2001

An interview by David Jones (VK4OF) as reported to Graham Kemp (VK4BB).

(BB) So David, how did it all go?

(OF) Absolutely brilliantly Graham. Yes, all the months of planning proved very worthwhile. All equipment worked flawlessly, and I have to pay a big tribute to Nev VK4TX and Ken VK4KWM along with the other members of the

Queensland Digital Group. These guys have been a real asset since joining the team a few years ago.

(BB) And how many amateurs were involved David?

(OF) All up Graham, a team of over fifty amateurs and their families were involved. We had a few wives of amateurs, several harmonics and all seemed to really enjoy themselves.

(BB) What was it like in the field?

(OF) Can't tell you about what it was like down in the forests, but I can tell you that it was blowing a consistent 50 knots on top of Mt Kandanga and it took Nev and I all our strength just to stand a vertical collinear on top of the tower. The wind and the cold were simply awesome and all stations in the field reported ice on the ground on both Saturday and Sunday mornings.

(BB) So what did the organising committee have to say?

(OF) Basically, they were very impressed. Essentially, it was as good as last year from our point of view and that was the best it had ever been. This year the scores were actually sent more quickly to Brian VK4XS at the Oasis, but only because we had more stations using packet at the starts as well as the finishes. And even the few that were using voice did not slow anything up more than a few seconds. Comments by the drivers and navigators are, I think, more important. They were very fulsome in their praise of WICEN, commenting that as soon as they were anywhere near a control or field service point, they were able to find out their scores and those of all the other competitors of interest. So it seems that everyone was very happy.

(BB) David, I've heard of your famous curries. How was the catering?

(OF) Oh just spot on Graham. We made an offer to Bob Carroll, from the State SES Communications HQ, to come for a visit and to join us on the mountain on Saturday night. State WICEN coordinator Ewan VK4ERM chauffeured Bob and his wife Christine up the hill and they were very impressed with the whole operation. The honey roast lamb, fine wines and a chocolate pudding all served in the dining room (you know a tent with walls), was probably as good as we get in the field. Importantly, it does show the breadth of skills we bring to the SES as a communications resource, and I think we should showcase these capabilities as often as we can.

(BB) Sounds terrific David.

(OF) Yes Graham, as I said, we are all very pleased. The field packet and voice comms worked very well, the HQ operations conducted by Brian and Ewan worked perfectly, the repeater networks and all the links performed so what else is left? The Clerk of the Course, Mr Errol Bailey, will personally present the certificates of thanks at the next WICEN meeting. So team, if you can, be there in person to meet Errol. He really wants to meet you. I'd just like to add my sincere thanks to all the members of the WICEN Rally Queensland Team. It was a pleasure to work with all of you.

73s from Alistair

ar

Silent Key

Eric Nissen VK4XN 1905-2001

One of the greats of Amateur Radio, a true Pathfinder, Eric was born in Ravensbrook, eventually settling in Dalby where he worked at HITSKES Radio Sales and Repairs then ABC Radio 4QS.

In 1930 Eric passed his AOCP. Concentrating early in his AR career on the upper end of the HF spectrum 28 MHz and then 50 MHz. This area was unknown, regarded by most as a "wasteland". NOT TO ERIC VK4XN. His logbook is star studded! YH1RV, CR9CN Goa, PK's, the Dutch East Indies, XU's in China and that Tibetan station AC4YN. All with Hi-Loss gear and no digital readouts and QRP, 1.8 watts before 'upping' his power to a massive 7 (seven) watts!

Other achievements along the way, the 2nd VK to reach Europe, the 2nd VK to work Willis Island's first DXpedition with a dogpile 100 kHz wide. He earned the RF Roberts Trophy for achievements above 20 metres and the Empire Service Medal for his pioneering work in radio. Eric is survived by his wife of 60 years Gwen and 5 Children.

Rest In Peace, a true pathfinder,

Eric Nissen, VK4XN.

Forwarded by Alan Shawsmith VK4SS

ar

WIA Victoria
Treasurer Wanted

Subsequent to the retirement of Rob Hailey VK3NC, the Ex CEO, Barry Wilton, VK3XV has served in a voluntary capacity as Treasurer for the past 3 years. For personal reasons he is unable to continue beyond 31 December this year.

To assist with a smooth transition period of at least 3 months, including the external annual audit, we need to fill this position as a matter of some urgency and invite any member who may be interested in finding out more about this volunteer position to contact us immediately.

Basic knowledge of Microsoft Excel and MYOB together with standard double entry accounting practice would be most helpful.

The workload is not onerous: 30-40 minutes per week plus about 11/2 hours at the end of the month.

If you can be of assistance please contact either the Secretary, John Brown VK3JJB or the Treasurer, Barry Wilton at wiavic@wiavic.org.au or telephone the WIA Victoria office on a Tuesday (03)9885 9261.

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

The ALARAMEET Website

The web address is http:\\alarameet2002.8m.com and the email address for Jean VK5TSX is jeankopp@asiaonline.net.au

If you have access to the Internet and have any thoughts about attending the ALARAMEET in Murray Bridge next year, have a look at the website. You can apply to participate either definitely or hopefully. An outline of the activities planned is included. You can send an email to Jean VK5TSX, the coordinator of the MEET, or you can paste a message on the bulletin board for others to read. There are many options available

There are links to the caravan parks where there are on site cabins for two, four or even for up to eight people to share, and a hotel where there is single accommodation at single prices as well as twin share and multiple share rooms. There are links to motels and a chance to look at some of the beautiful attractions of Murray Bridge. At the moment of writing applications for accommodation do have to be by email, phone or snail mail but we are hoping to have some of the accommodation on line before this appears.

If you are not on email or the Internet do not despair. Write to Jean VK5TSX QTHR the Callbook and she will send you all the information you need. If you are a member of ALARA you will find much of the information about the venue and the program of events as well as a form to fill in indicating an expression of interest, all in the July Newsletter with addresses etc.

Do think seriously about coming, it is going to be a great MEET. Remember that you do not need to be a member of ALARA to attend. If you are travelling around Australia in spring next year, time your tour so you can be in Murray Bridge for the long weekend at the beginning of October.

The ALARA Contest

Hope you all had as much fun as I did. Now all we have to do is to send in our logs. They must be in by 31st October 2001. You can send them to Marilyn VK3DMS by snail mail, QTHR the Callbook, or, for the first time ever, you can email them to her at

gdsyme@hotmail.com

Please, if you do use email write your log in Plain Text, MSWord or MSExcel.

Do remember to send in your log, no matter how few the entries. We love to get them all and we know that there are always more stations heard than there are logs. We hope there will be a winner of the Florence McKenzie Trophy this year. We need to know that CW is still alive and well.

Carol VK5ZCH, Faith VK5HFC and Deb VK5JT

Sue VK5AYL, Shirley VK5JSH and Tina VK5TMC

Tourists and touring

If you have read your ALARA Newsletter you will have seen that Ann VK4ANN and Val VK4VR with their OMs have had a great holiday in China. They look cold, all rugged up when they walked the Great Wall but I know they enjoyed it all.

This is the time of the year when all the Southerners who went north for the winter are returning and all the Northerners are travelling South for the summer, so listen out for visitors passing through your home town and give them a welcome hand. From personal experience most of us know how pleasant it is to hear someone come back to the 2 metre call we send out as we approach a new place. Please keep listening and do say, "Hello, where are you? How long are you staying?" It will be appreciated.

At the end of August Marlene VK3WQ and OM Jim will be welcomed to Adelaide by a luncheon with some of the locals. Maybe this is something others could arrange for visitors, too. Phone contacts are good but so are eyeball contacts.

ALARA'S birthday

The Birthday Net on Saturday 28th on 80 metres was reasonable well attended this year, with eight YLs on at one time or another, including one ZL, Bev ZL1OS and one very new YL, Shirley VK5JSH, who came on the HF for the first time the previous Monday.

The following day, on the 28th there were 15 YLs (and 9 OMs) at the ALARA Birthday luncheon at the Flagstaff Hotel. Lorraine VK5LM and Myrna VK5YW, two of the original VK5 members were there along with two new licencees, Shirley VK5JSH and Carol VK5ZCH. Sue VK5AYL and Deb VK5JT and Faith VK5KFC who have been missing for a couple of years came along Mary VK5AMD drove down from Bordertown and Janet VK5NEI came in from the other Wasleys on the other side of town.

The regular attendees, Meg VK5YG, Jean VK5TSX, Tina VK5TMC, Maria VK5BMT, Sue Mahoney and Christine VK5CTY were also delighted to enjoy the companionship of the day.

In VK3 and VK6 the regular luncheons in July were celebrated as special celebrations for ALARA's Birthday as their numbers are not large enough to warrant a separate even, however we are all together in friendship.

HAPPY BIRTHDAY ALARA

ar

AMSAT

Bill Magnusson VK3JT

More Impressive Transponder Tests on AO-40

Experimental transponder activity of the past month or two has given satellite buffs a taste of what AO-40 will have to offer when fully commissioned.

While the final orbit determinations and systems deployment are still being sorted out, controllers have twice switched the satellite into mode V/L-S so that users can test their systems and have some QSOs.

Comments on the AMSAT-BB have been glowing in their praise. It seems that the discussion on the BB regarding system requirements for the UHF/Micro-wave region has been fruitful and many users in a host of countries have their stations tweaked up and ready to go. Signal strengths have confounded the severest critics and hundreds of high quality QSOs have been recorded by people using modest uplink power and all manner of antennas from loop-yagis and helices to small parabolic dishes.

On a slightly unpleasant note, an old problem has re-surfaced. Recent years have witnessed a spectacular rise in unlicensed VHF/UHF operation in many parts of the world. The situation is extreme in some parts of Europe, quite bad in countries to our north and very evident in South and Central America.

Add to this the "interference potential" of so-called "low-interference-potential-devices" already being licenced and we can easily foresee difficult times ahead for satellites which have uplink receivers listening in our 2 metre and 70cm amateur bands. The "LIPDs" will probably only amount to a small rise in the ambient noise level but the unlicenced stations can radiate enough power to pose a threat to satellite users. It seems we have little defence against the illegal intruders and no case at all against those licensed to operate in what was once, due to its technical difficulty, our exclusive domain.

In terrestrial terms, city dwellers will be most affected. Satellite users can be victims however, no matter where they live and reports are coming to hand of this interference already rearing its head here in VK on AO-40.

Although there seems to have been an escalation in recent years it is by no means a recent phenomenon. I can remember the first time we encountered it was up at Mt Skene working on Oscar-7. The mode-B receiver picked up interference from 'up-north' when the satellite was low in our northern sky. In those days, circa 1974 there wasn't anywhere near as much activity, even commercially on 70cm as there is today. But it was still enough to mess up a good part of Oscar-7's nice high orbit and from down south here we only had a few minutes of mutual window with the New Guinea gang. They were mostly ex-pat Aussies working on inter-island microwave links and the like in those days. I knew one or two of them and no matter how good your station was, it was a real challenge to have a contact due to the QRM.

Oscar-8's mode-J device also suffered very badly from 2m crud from the same source. Satellite receivers are vulnerable. They are by design, very sensitive devices and they operate in a low-noise environment. They are therefore susceptible to all manner of RF interference from the ground if it happens to fall within their receiver pass-band. Fortunately the interference is limited to the times when satellites are close in to Earth and near the horizon of the interfering transmitters. In the case of AO-40 this amounts to a very small time-slot and the situation is nowhere near as bad as in the case of LEO satellites with inherently short 'windows'.

The threat however does exist and will probably get worse. It was nicely anticipated by the designers of AO-40, which is equipped with RF systems up to the 10 GHz band. In the light of the recent UHF/Micro-wave transponder tests it looks to me like this is a good guide to the future of amateur radio satellite operations. We had better get used to the idea of frequencies going higher and higher. It may be a case of "have-to".

But don't despair, it's not all that bad actually. Last month's column looked at the 2.4 GHz band and how to "do it on the cheap". Radio amateurs are a resourceful lot and new ideas are coming up all the time. Check the AMSAT-BB, you'll be pleasantly surprised at the level of technical activity. It may appear to be a chore to go higher and higher in frequency but there's help aplenty available.

There are practical advantages too. Antennas get smaller and easier to handle (and therefore hide). Equipment becomes tiny. There have already been stories of "suitcase-sized" stations both digital and analog, being put together by

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141, Adelaide, SA. 5001.
Graham's email address is:
vk5agr@amsat.org

flat-dwellers, sailors and travelers. Even though AO-40 is still being brought on-line, the next generation AMSAT is already in the planning stage. Ideas are currently being sought by the design team. With AO-40's performance receiving pretty universal acclaim as each test is carried out it's not hard to foresee how the designers will view the selection of transponder frequencies for future Oscars.

AO-40's SCOPE Camera Tests successful

Just as this column was going to print Yoshi Takeyasu JA6XKQ, issued a bulletin telling of the successful test of his team's SCOPE camera on board AO-40. The first picture is available for download from the JAMSAT and AMSAT-DL web sites. It shows a slim crescent Earth shining blue and white against the blackness of space. A remarkable picture and a credit to the SCOPE design team led by Yoshi. At the time of writing the direct URL for this picture was:
http://www.jamsat.or.jp/scope/010808/index_e.html
Commissioning of the SCOPE cameras continues in co-operation with the RUDAK (digital comms expt.) team in Germany. Both the narrow and wide angle cameras were checked and found OK. This has been a stunning example of the success of both the SCOPE cameras and the RUDAK digital communications experiment. We can look forward to some spectacular imaging from AO-40 and no doubt some interesting new modes of operation from RUDAK. Many VK amateurs will remember Yoshi during his time spent working at NEC in Melbourne.

More on S-band Equipment from AMSAT-ZL

It seems there is also a flurry of experimental activity across the Tasman regarding S-band equipment modifications suitable for AO-40 operations. The latest AMSAT-ZL Newsletter included an article on four of the more popular S-band downconverters. Following this, additional bench tests have been conducted and the results posted on the AMSAT-ZL page. See if you can get hold of a copy of the newsletter or try: http://www.nzart.org.nz/amsatzl/downcons.html for more details.

Launch of APRS Satellite - PCSat

In a recent report to AMSAT News Service, Bob Bruninga, WB4APR, said that the launch of PCSat in early September 2001 will represent a new direction for Amateur Radio satellite communications. PCSat will offer travelers the ability to send and receive satellite message traffic and to report position and status from anywhere on Earth using only a handheld radio. This development raises exciting possibilities for those amateurs already experienced in APRS operations. PCSat will use conventional APRS packets at 1200 or 9600 baud, and is designed to work with handhelds or mobiles using omni-directional antennas. As the launch date nears, Steve, K4HG, will be putting together a special PCSat web page. In addition, to see the current world map of APRS connectivity, visit:

http://www.aprs.net

The design parameters of PCSat can be found at:

http://web.usna.navy.mil/~bruninga/pcsat.html

Information about APRS satellites can be found on the WB4APR web site: http://web.usna.navy.mil/~bruninga/astars.html

ar

Club News

Adelaide Hills Amateur Radio Society

As usual the July meeting of AHARS was the Mid-year Dinner, however this year the venue for the dinner became a moveable feast.

AHARS Dinner. L to R, Brian VK5SV, his XYL Mary, Vivienne XYL to, Leith VK5QH, and Meg VK5YG

Previously the dinner has been held at the Blackwood RSL but this organisation encountered financial difficulties and was forced to close its doors. This put AHARS in a spot, along with a number of service clubs etc., which had been used to using the same venue for meetings and dinners.

We were fortunate to be accommodated by the Belair Park Country Club. This is part of the Belair Golf Club and the building overlooks the fairways, which are lighted at night – a very pleasant view from the windows of the dining area.

A pleasant evening of fellowship was enjoyed as the photo shows. It is expected that future dinners will again by at the Blackwood RSL as it has gained a reprieve.

The next meeting will be addressed by Grant VK5ZWI and will deal with mobile phones – today and into the future.

continued next page

Spotlight on SWLing

Robin L. Harwood VK7RH

Spring has sprung...

...and already I am noting some propagational changes. Signals are now starting to come in the early evening hours yet are still fading out, particularly on higher frequencies. I expect that this should gradually improve as Summer approaches.

A press release has been issued by Merlin Communications, the UK firm responsible for maintaining the BBC World Service senders, announcing that they had taken over management of the short-wave transmitting facilities of United Arab Emirates Radio, both in Dubai and Abu Dhabi. However the facilities presently being utilized are in Abu Dhabi, which has not been on HF lately unlike UAE Radio in Dubai This will allow other external broadcasters such as NHK in Japan and RCI to also utilize these strategic facilities.

It is quite surprising that some religious broadcasters, such as AWR and Family Radio, have signed up for the facilities as part of the Merlin agreement. The UAE is very much an Islamic nation and it seems very much out of character, especially seeing that nearby Saudi Arabia and Iran are very much opposed to Christian activities within their borders.

Here is the tentative schedule I received via the EDXP forum, maintained by Bob Padula.

The introductory AWR schedule from Al Dhabayya shows the usage of all four transmitters in services beamed to Africa and Southern Asia, with each unit operating at 250 kW. It is anticipated that this schedule of five hours daily will be markedly increased with the commencement of the new Transmission Period in October.

Introductory Daily Schedule

Africa

0300-0330	11975	250	Amharic
1700-1800	17875	250	Afar, Oro
0300-0400	11945	250	Oro, Tigrinia
1630-1800	15520	250	Somali, Amharic, Tigrinia

Southern Asia

1330-1400	15495	250	English
1400-1430	15385	250	Urdu

USA

Family Radio, California uses the new facility, 1400-1700 on 17730 in English to Africa.

Canada

RCI uses the relay 1800-1859, on 17820, with English to Africa.

In another development, the Solomon Island Government has offered to relay the BBC World Service, throughout the islands, provided that the British Government paid for it. It is unknown whether it would be accepted. Honiara is easily heard on 5020 kHz during our evening hours and was heard relaying the BBC World Service during the civil war there earlier this year.

I was recently asked whether there is an audio version of this magazine for white-stick operators and SWLs. I seem to recollect that there was a Disabled Amateur Radio club in Glenroy, Victoria who had this service yet it is unclear if this facility is still around. Can anybody assist?

I notice that there is a very excellent relay China National Radio (CNR) on 17895 and 17565 kHz from 2200 UTC and going past 0900 UTC. These networks were best heard in our local evening hours yet the use of the 16-metre band, has allowed us to hear them during our daylight hours. The Chinese extensively use HF for their domestic broadcasting, as there are significant gaps in their MW and VHF coverage. Several provincial stations also have their own programming on short wave and have English I/Ds, which certainly assists the listeners. It is worth noting that Chinese mainland broadcasting stations do not usually operate above the 16-metre band.

Well that is all for this month. Until next time, the very best of listening.

73 Robin L. Harwood VK7RH

ar

Club News continued

Oxiey Region Amateur Radio Club Inc

The ORARC held their AGM on August 4 and appointed Bruce Walker, VK2HOT as their President for the ensuing year.

Bob Brodie, VK2EJK is the Vice President. Alan Nutt, VK2GD, Secretary and Roy Burgess, VK2YOR, Treasurer.

Retiring President Bob Brodie gave a glowing report on the past year with thanks to the repeater committee who kept both VK2RPM and VK2RCN on-air under the guidance of Trevor Thatcher. VK2TT.

The annual Field Day was a fitting climax for the year that included activities such as the Classic Billy Cart Derby where special communications were provided, JOTA, John Moyle Field Day, Lighthouse weekend and the various BBQ's and picnics.

Thanks also to the local Shire Council who contributed a grant for field equipment for emergency and community work. The ORARC has circa 40 members and meets twice a month at the S.E.S. Building in Port Macquarie

Visitors are most welcome and more information can be obtained by contacting the Secretary, Alan Nutt on 02 6582 3557 or by email at anut@ozemail.com.au.

More Club Notes on page 39

Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

Information used in this column is obtained from overseas magazines, web sites and broadcasts. If you have any interesting news from overseas you would like to share with our members, please send.

Poland prepares a new License class

The Polish Radio Amateur organization PKZ, together with the Polish Telecom has prepared a new licence class. This proposal will introduce a new class D (CEPT – Class 2). A CEPT licence holder can operate and run an Amateur Radio station, without applying for a licence, in any of the participating countries. The purpose of this new type of class is to allow its holder to operate on several HF frequencies bands without passing any Morse code examination. This is not particularly new to Australian amateurs, but very interesting is the statement made by both participating groups - The aim of the proposal is to interest people in amateur radio, and allowing them to use the new digital modes like RTTY, AX25, SSTV, MT63, PSK31 and others on the HF bands. Young people of today are not interested to learn the digital code (Morse code) from a past century.

Translated from a report by SP6LB

Electronic QSL cards are not valid for the DXCC

Electronic QSL cards, called E-QSL Cards have been around now for quite a while. An E-QSL card can be downloaded, confirmed and printed on your printer. The ARRL has announced that at present such a QSL does not count towards the DXCC. According to informed sources the ARRL is working on a solution called " Logbook of the world". The project should be finished by the end of 2002 .

Translated from cq-dl 7/2001by VK4BDQ

Starting young in the UK

A few months back, Richard Horton, G3XWH and Hilary Claytonsmith, G4JKS organized a four day "crash course" for school teachers to introduce them to Amateur Radio. The major sponsors of this seminar were the RA (UK Radio Communications Authority), the RSGB and STELAR. 19 teachers took part and at the end of the course a mock examination was held. 18 of the 19 passed. Some have now become Radio Amateurs. The Amateur Radio fraternity in the UK had donated equipment to the schools so that they can have on-air capabilities.

Now that's starting with the young.

Hamfest–Europe

Last month we wrote about the famous USA Dayton Hamfest. Europe has a similar Hamfest that is held at Friedrichshafen in Germany from June 29 to July 1. This year it attracted some 18,000 visitiors. The Deutscher Amateur Radio Club says that's about the same as last year's attendance. DARC said dealers reported a buying trend this year toward complete stations, receivers or scanners as opposed to parts and kits. ARRL Executive Vice President David Sumner, K1ZZ, was among those who attended the DARC convention—which is the largest ham gathering in Europe and the most international event of its type anywhere. Also in the ARRL contingent were First Vice President Joel Harrison, W5ZN, International Affairs Vice President Rod Stafford, W6ROD, and HQ staffers Mark Wilson, K1RO, and Dave Patton, NT1N. As in the past, ARRL had a booth in the exhibit area. "We were busy in the ARRL booth from the opening at 9 AM Friday right through early afternoon Sunday, with Friday and Saturday being the busiest," Sumner reported. "The DXCC side was even busier, with about 32,000 cards examined by Sunday afternoon! This is about twice the volume of the previous year."

Sumner said the increase appeared mainly to be the result of The DXCC Challenge. While in Germany, Sumner and Patton visited DARC Headquarters.

Ham Radio 2002 will be June 28-30. In 2003 Ham Radio will move to a new, more spacious facility near the airport.—DARC; David Sumner, K1ZZ

(from ARRL Newsletter)

Commonwealth Games

From the 25 July 2001 until 5 August 2002, 9 special event stations will be operating from the Manchester area of England. The special event will mark the 12 month count down to the start of the 17th Commonwealth games. There is an award set up for this event and an Internet gateway is being provided so that the VHF operators can work the award also. HF modes of operation will be CW, PSK31, SSTV, AMTOR, RTTY and PHONE, A list of all stations and further details are available from www.geocities.com/gbgames2002

(Kev G0TOG via Peter Naish VK2BPN and QNEWS)

ARRL petitions for new 60 metre amateur band

According to the ARRL News Letter of 28 July, the ARRL has filed a petition with the FCC for allocation of 5.250 to 5.400 MHz to the Amateur Service on a domestic (U.S. only) secondary basis.

The League feels this would aid emergency communication activities and fill the propagation gap between 80 and 40 metres. They are proposing phone, CW, data, imaging and RTTY be approved running maximum approved power. Access by General Class and higher licence holders.

WA2XSY has been carrying out experimental transmission in the 5 MHz band since 1999 to investigate its viability and confirms it reliability.

(from ARRL News)

Adventure Radio

From IOTA to SOTA!

The European Adventure Radio Society has proposed a new award scheme called "Summits on the Air" (SOTA). The idea of the scheme is to encourage lightweight portable operation from mountain tops. An exciting format has

been devised by John Linford, G3WGV, that has some elements in common with the popular RSGB Islands on the Air awards programme. The web site is at www.qsl.net/ars-eu/proposed.html

(From Aug 2001 RadCom)

Tristan Da Cunha

Many of you may have read about the devastating hurricane that hit the tiny British South Atlantic island of Tristan da Cunha at the end of May. The storm caused the total loss of transceivers, tower and antennas at the home of Andy and Lorraine Repetto, ZD9BV and ZD9CO. Colin Topping, GM6HGW, launched an appeal for the donation of Amateur Radio equipment to allow Andy and Lorraine to get back on the air. You'll be pleased to learn the appeal was successful and a Yaesu FT102, ATU and Cushcraft R-6000 have been donated. The full story of the hurricane complete with pictures can be found at www.sthelena.se/tristan/disaster/

(From Aug 2001 RadCom)

"Logbook Of The World" software design under way

Software design to support the electronic contact-verification program is moving full speed ahead. ARRL Manager Wayne Mills, N7NG, said the ARRL hopes to make LOTW software modules available soon to vendors for incorporation into their logging programs.

The logging software modules are being developed as part of the Trusted QSL open-source project headed by Darryl Wagoner, WA1GON.

At the heart of the Logbook of the World concept is a huge repository of log data provided by operators—from individual DXers and contesters to major DXpeditions—and maintained by ARRL. Mills says the system will benefit big and little guns alike by providing quick QSO credit for awards offered by ARRL, and, it's hoped, for awards offered by other organizations as well.

Once it becomes available—which could be as early as the middle of next year—*Logbook of the World* will accept authenticated data directly from computerized logs via the Internet. "This is an e-mail based system that uses easy-to-obtain digital signatures for authentication," Mills said."Once you get your digital certificate, a few keystrokes will do the trick."

Mills said the program envisions user access to the LOTW "confirmed database" so an operator can see what "matches" turn up—such as confirmation of new DXCC entities, states or grid squares. "We'll also publish a list of logs that have been submitted," he said, adding that operators may access the LOTW database once they've uploaded their own log data.

Mills said that he hopes to be able to announce a specific inauguration date for Logbook of the World within a few months.

(ARRL Newsletter Aug 3)

ar

Club News

News from the Moorabbin & District Radio Club

MDRC holds AGM

The Moorabbin and District Radio Club held its Annual General Meeting and elections on Friday July 13. In his report outgoing president Lee VK3GK cited the club's internet radio linking project, improvements to *APC Newsletter*, a successful hamfest, APC News, and work towards the commencement of study courses (which began last month) as the club's main achievements over the last year.

Key positions for 2001-2002 are as follows:

President	Keith VK3JNB
Vice President	Tony VK3CAT
Secretary	Jerry VK3MQ
Treasurer	(*vacant*, VK3JNB acting)

Tony VK3JED, Eddie VK3TYR, Graeme VK3GRL and Lee VK3GK were elected to the committee. Other positions are carried out by the following: Library Alistair VK3KAD, Education, QSLs and Station Tony VK3CAT, Public Officer Ken VK3TKR and Publicity Peter VK3YE.

After the formal part of the meeting, we were fortunate to have Tariq Hasnie from Winradio Communications. Tariq spoke on his company's range of computer-controlled radio receivers and accessories such as portable antennas, antenna switches and field strength indicators. Winradio has been an Australian success story, with customers worldwide. Those present left with much literature and a demonstration disk. Our thanks to Winradio and Tariq for the presentation.

Radio on Rails Results

Radio on Rails took place in April, albeit with fewer train and tram mobile stations than previous years. However many memorable contacts were had, thanks to good propagation on 10 metres. This enabled stations as far afield as ZL and VK6 to work train mobile stations via the 10m/70cm VK3RHF repeater. Results are as follows:

Section A–Transmitting Mobile

VK3JED	84 points
VK3YE	54 points

Section B–Transmitting Home

VK3TYR	12 points

Congratulations to all stations who took part. Certificates have been sent to all participants.

Coming Meetings

Ken VK3CEA has been busy getting speakers for our meetings. Planned speakers for the remainder of the year include:

·September 21: Peter Young, 2000 Olympic Games Communications

·October 19: David Edwards, Lightning Protection

·November 16: Jim Linton, WIA Aims and Activities

Peter Parker VK3YE
Publicity Officer
Moorabbin & District Radio Club
parkerp@alphalink.com.au
(03) 9569 6751

ar

Contests

Ian Godsil VK3VP

Contest Calendar September – November 2001

Sep	1	CCCC PSK31 Contest		
Sep	1-2	All Asian DX Contest	(SSB)	
Sep	8/9	Worked All Europe DX Contest	(SSB)	(July 01)
Sep	16	FM Funday	(FM Simplex)	(Sept 01)
Sep	15/16	Scandinavian Activity Contest	(CW)	(Aug 01)
Sep	22/23	CQ/RJ WW RTTY DX Contest		(Aug 01)
Sep	22/23	Scandinavian Activity Contest	(SSB)	(Aug 01)
Oct	6/7	Oceania DX Contest	(SSB)	(Sep 01)
Oct	6	European Sprint	(SSB)	
Oct	13	European Sprint	(CW)	
Oct	13/14	Oceania DX Contest	(CW)	(Sep 01)
Oct	20/21	Worked All Germany DX Contest	(CW/SSB)	
Oct	20	Asia-Pacific Sprint	(CW)	
Oct	27/28	CQ WW DX Contest	(SSB)	
Nov	1-7	HA-QRP Contest		
Nov	4	High Speed Club CW Contest		
Nov	9-11	Japan International DX Contest	(SSB)	
Nov	10/11	WAE RTTY Contest		
Nov	10/11	OK/OM DX Contest	(CW)	
Nov	17/18	LZ DX Contest	(CW)	
Nov	17/18	All Austrian 160m DX Contest	(CW)	
Nov	17/18	IARU 160m Contest	(CW)	
Nov	24/25	CQ WW DX Contest	(CW)	
Nov	24/25	CQ WW SWL Challenge	(CW)	
Nov	30-2	ARRL 160m Contest	(CW)	

Greetings to all readers. I hope that you did well in the RD this year. My sincere thanks to those who replied suggesting things for the VKHAM Contest site. I am still learning about it all, but I shall do my best to set it up in a way that you feel is easy for you. I am also very pleased to record that John VK4EMM has given permission for material from his previous 'Radiosport' site to be used in our new pages. Thank you most sincerely, John.

Logger Survey

During June a survey of most-used contest logging software was held via Internet. It was interesting to receive the following summary of results recently

Logger	Votes
CT	108
SD	107
TRlog	72
Writelog	48
NA	3

Full results may be viewed at http://www.435dxn.org

I was amazed at how many different programs were listed for voting (over 40 it seemed), but not surprised that the popular "big three" came out on top. As a user of SD (Super Duper by Paul O'Kane EI5DI) myself, I can assure readers that it is an excellent program which supports not only many fixed international contests, but has variable areas built in for use with other events. I have used mine for several VK and ZL events this year.

I can also record that the support by the author is superb in that he quickly answers any questions that may arise, that he is constantly alive to requests for expansion of the program and that there is a friendly user group readily available for help with any thoughts. A trial version of SD is available at

http://www.ei5di.com/

New Contest

I was most interested to receive information about the new FM Funday (details below). Even though this is for VK2, it is an excellent idea and I commend it to other Clubs.

Let's face it, there is not huge interest in the worldwide contests in this country and something of a regional

nature may be just what is needed to stimulate local interest and "have fun". Certainly, such an event need not carry the pressure of the traditional contest to make your contact and get off to find another.

Instead, there would be room for a chat to someone that you may not have heard for awhile, as well as giving numbers. Please consider this type of activity for your Club, perhaps in conjunction with a field trip or special day relevant to your area/Club/State etc.

Oceania DX Time Again

October will bring the annual Oceania DX Contest. Last year there was great effort to revitalize this event and the results were most impressive to say the least. Under the Chairmanship of Brian Miller ZL1AZE and a very hard-working committee, your participation on either or both of the first two weekends in October is invited. Please make a note of the dates and times and plan now to join in to represent our VK/ZL areas to the world.

73 and good contesting, Ian Godsil VK3VP

Results QRP Day 2001

from Ron Evaringham VK4EV #130 Contest Manager

*1st	VK3VP/QRP	Ian	198
2nd	VK5NJ/QRP	John	51
*3rd	VK3LK/QRP	Adrian	34
*4th	VK2KET/QRP	Alex	12
5th	VK4SN/QRP		11
*=6th	VK5BLS/QRP	Barry	8
=6th	VK3YE/QRP	Peter	8

*Denotes Station used Home Brew equipment.

Manager's Comment

Thanks again to all who took part in this year's contest and special mention to the top scorers for such terrific results. Conditions on the day were not favourable for QRP (in VK4) due to storm activity in Western Queensland. 80m and 40m were very noisy here on the night. It is pleasing to read the logs and note the various types of Home Brew equipment. Keep up the good work.

73 da Ron VK4EV #130

Results Sangster Shield 2001

From Stan White ZL2ST

This is a ZL QRP Contest held in June each year.

1st	ZL1PC	Paul	21862
2nd	ZL1ALZ	John	19376
3rd	ZL1AIH	Ken	18394
1st place VK section			
	VK3VP/QRP	Ian	1380

FM Funday Contest

From Roger Cooper VK2TEA

Sunday, 16 September, 2001

Object: To work as many stations as possible using FM simplex in the appropriate portions of the 6m, 2m and 70 cm bands.

Region: VK2 originating stations. Contacts from outside VK2 are allowed, provided that the originating station is within VK2.

Date: Sunday, 16 September, 2001.

Time: Morning, Afternoon and Evening sessions commencing at 1100 hours, 1400 hours and 1900 hours EST. Contest will finish at 2359 hours EST.

Bands: 6m, 2m and 70 cm bands.

Mode: FM simplex only. No repeater contacts permitted.

Categories: Single operator; multi-operator. Multi-op. stations must enter under one callsign.

Sections: (1) Low Power (five watts or less); (2) High Power (six watts or more).

Exchange: Callsign; time; RS; serial number starting at 001 and incrementing by one for each contact. Stations may be logged once per band in each session.

Score: One point per contact. No multipliers.

Send summary only of all sessions that you have entered.

Logs will be called from those entries look like winning something. Send to: Roger Cooper VK2TEA, PO Box 50, Woodford, 2778 or by e-mail to: rogerco@ozemail.com.au by 16 October 2001. Local stations may call in their entries on the 146.450 MHz Net most nights between 1930-2030 hours EST.

Certificates will be issued for first three place-getters in each session and all day in both sections and categories. Winners notified by 1 November 2001.

Web site:
http://members.ozemail.com.au/~rogerco/fmfunday.html

Rules for the 2001 Oceania DX Contest

1. **SPECIAL NOTES** for the 2001 Contest
   - The start time has been brought forward to 0800 UTC (2001 rule change)
   - Multi-Operator Single-Transmitter category added and Multi-Operator Single Band category deleted (2001 rule change)
   - Contacts between stations in the same Oceania country are permitted (2000 rule change)
   - The 160m band is included (2000 rule change)
   - Electronic logs are encouraged-preferably in the CABRILLO format (2001 rule change)
   - Further information on the contest is available from the Oceania DX Contest web site at www.nzart.org.nz/nzart/update/contests/oceania/
2. **THE AIM** of the contest is to promote HF contacts with stations in the Oceania region (VK, ZL, Pacific Islands and other locations within the IARU "Worked All Continents" Oceania boundary).
3. **CONTEST PERIODS:**
   PHONE Contest: 0800 UTC Saturday 6 October to 0800 UTC Sunday 7 October
   CW Contest: 0800 UTC Saturday 13 October to 0800 UTC Sunday 14 October
4. **THE OBJECT** is for
   - Oceania transmitting stations to contact as many stations as possible both inside and outside the Oceania region.
   - Non-Oceania transmitting stations to contact as many stations as possible inside the Oceania region. Contacts from one non-Oceania to another non-Oceania station are NOT permitted.
   - Oceania receiving (SWL) stations to hear as many stations as possible both inside and outside the Oceania region.

   *Non-Oceania receiving (SWL) stations to hear as many stations as possible inside the Oceania region. Logging of non-Oceania stations is NOT permitted.
5. **BANDS:** 160 m-10 m (no WARC bands).
6. **ENTRY CATEGORIES:**
   - **SOAB**-Single Operator All Bands.

Single operator stations are where one person performs all operating, logging and spotting functions. Only one transmitted signal is allowed at any time.

- **SOSB**-Single Operator Single Band. Same as SOAB except that operation is confined to a single band.
- **MOST**-Multi-Operator Single-Transmitter All Bands. Only one transmitter and one band permitted during the same time period (defined as 10 minutes). Exception: One—and only one—other band may be used during any 10-minute period if—and only if—the station worked is a new multiplier. Logs found in violation of the 10-minute rule will be automatically reclassified as MOMT.
- **MOMT**-Multi-Operator Multi-Transmitter All Bands. No limit to transmitters, but only one signal and running station allowed per band. Note: All transmitters and receivers must be located within a 500-metre diameter area, or within property limits of the station licensee, whichever is greater. All operation must take place from the same operating site.
- **SWL**-Short Wave Listener (Receive Only) All Bands. The same callsign for the "station being worked" must not appear more than once in any group of 3 consecutive log entries.

7. **EXCHANGE:** RS(T) report plus a three or four digit number starting at 001 and incrementing by one for each contact. MOMT entries may use a separate serial number sequence for each band.

8. **MULTIPLIER:** The multiplier is the number of different prefixes worked. Note that the same prefix may be counted once on each band for multiplier credit.

   A prefix is the letter/numeral combination that forms the first part of the amateur call-the same as the CQ WPX contest definition.

   Examples of valid prefixes are N8, W8, WD8, HG1, HG19, KC2, OE2, OE25, etc. Any difference in the numbering, lettering, or order of the same shall constitute a separate prefix. A station operating from a DXCC country different from that indicated by its callsign is required to sign portable. The portable prefix must be an authorized prefix of the country/call area of operation. In cases of portable operation, the portable designator will then become the prefix. Example: N8BJQ operating from Wake Island would sign N8BJQ/KH9 or N8BJQ/NH9. KH6XXX operating from Ohio must use an authorized prefix for the U.S. 8th district (W8, K8, etc.). Portable designators without numbers will be assigned a zero (0) after the second letter of the portable designator to form the prefix. Example: N8BJQ/PA would become PAØ. All calls without numbers will be assigned a zero (Ø) after the first two letters to form the prefix. Example: XEFTJW would count as XEØ. Maritime mobile, mobile, /A, /E, /J, /P, or interim licence class identifiers do not count as prefixes.

   Special event, commemorative, and other unique prefix stations are encouraged to participate. Prefixes must be assigned by the licensing authority of the country of operation.

9. **CONTACT POINTS:** All entries score twenty points per contact on 160 m; ten points on 80 m; five points on 40 m; one point on 20 m; two points on 15 m; and three points on 10 m.

   Note that the same station may only be counted once on each band for contact points credit.

10. **THE FINAL SCORE:** SOAB, MOST, MOMT and SWL score = sum of contact points from all bands multiplied by the total number of prefixes worked on all bands (remember that the same prefix can be counted once on each band).

    SOSB score=sum of contact points on the band multiplied by the total number of prefixes worked on that band.

11. **GENERAL LOG REQUIREMENTS:**

    SOAB, SOSB, MOST and MOMT entries are to submit a log showing the following details for each contact – date; time in UTC; callsign of station worked; RS(T) and serial number sent; RS(T) and serial number received; contact points claimed and new multiplier prefixes.

    SWL entries are to submit a log showing the following details for each contact – date; time in UTC; callsign of "station heard"; callsign of "station being worked"; RS(T) and serial number sent by the heard station; contact points claimed and new multiplier prefixes. Note that the same callsign may appear only once in any group of 3 consecutive entries in the "station being worked" column.

    Multiplier prefixes should only be entered the FIRST TIME that they are worked on each band.

    SOAB, SOSB, MOST and SWL logs must be submitted in date/time order. MOMT logs must be grouped by band and then in date/time order.

    All logs must be checked for duplicates, correct Contact Points and Multiplier prefixes. The log must be accompanied by an alpha/numeric checklist of claimed multiplier prefixes worked on each band. Duplicate contacts must be clearly shown-DO NOT delete duplicate contacts.

12. **SUMMARY SHEET REQUIREMENTS:**

    The log must be accompanied by a Summary Sheet that clearly states

    - The station's callsign
    - Operator name/s and callsign/s
    - Entrant's name and mailing address
    - Mode and Category entered
    - Contact points claimed on each band
    - Number of multiplier prefixes claimed on each band
    - Total claimed score
    - A declaration that all contest rules and radio regulations have been observed.

    Examples of log and summary sheets can be viewed and downloaded from the Oceania DX Contest web site.

13. **ELECTRONIC LOGS** are encouraged and required from those who use a computer to record or prepare the logs.

    The CABRILLO format is preferred. Please ensure that you fill out all of the header information including your club affiliation. If you submit a CABRILLO log, no additional summary sheet or alpha/numeric check list of multiplier prefixes is required. Also there is no need to identify the contact points claimed or new multiplier prefixes for individual contacts. See the Oceania DX Contest web site for more information about the Cabrillo format.

    If you cannot submit a CABRILLO log, then you may submit the **ASCII**

output from most of the popular logging programs such as TR, CT, NA, Writelog etc. In this case a separate summary sheet and alpha/numeric checklist of multiplier prefixes is required

Please name your files with the station's callsign and the file type. Example: ZL2WB submits a CABRILLO file-it should be named ZL2WB.CBR. If ZL2WB chose to submit a non-CABRILLO file such as CT's .ALL file then the log file should be ZL2WB.ALL and the summary file should be ZL2WB.SUM.

The file/s are to be preferably submitted as an email attachment to phoctest@nzart.org.nz (for PHONE entries) or cwoctest@nzart.org.nz (for CW entries). The station's callsign and mode (PHONE or CW) must be stated in the email subject line. Alternatively the file/s can be saved on a 3.5" diskette and mailed to Oceania DX Contest, c/o Wellington Amateur Radio Club Inc., PO Box 6464, Wellington 6030, New Zealand. In this case the station's callsign and mode (PHONE or CW) must be stated on the front of the package.

14. **PAPER LOGS:**

Official log and summary sheets can be downloaded from the Oceania DX Contest web site or obtained by sending a Self Addressed and Stamped Envelope to the address below with sufficient postage. If official forms are not available, then you may make your own in accordance with the general requirements above.

Paper logs are to be are to be sent to Oceania DX Contest, c/o Wellington Amateur Radio Club Inc., PO Box 6464, Wellington 6030, New Zealand. Please use airmail if you are submitting a log from outside VK or ZL.

15. **DEADLINE: All logs must be emailed or postmarked NO LATER than 26 November 2001.** The reception of logs will be confirmed via email (for email submissions) and posted on the Oceania DX Contest web site.

16. **AWARDS:** Certificates will be awarded to the top scoring station in each category listed under Section 6 for each IARU WAC continent and each country.

In addition the following trophies are available

- **The Frank Hine VK2QL Memorial Trophy**—awarded to the VK SOAB CW entrant with the highest score. The recipient receives an attractive wall plaque for permanent recognition of the achievement.
- **The Ron Wills ZL2TT Memorial Cup**—awarded to the Oceania SOAB PHONE entrant with the highest score. The recipient receives a miniature cup for permanent recognition of the achievement.

Additional awards may also be given at the discretion of the Contest Committee.

17. **DISQUALIFICATION:** Violation of the contest rules, unsporting conduct, taking credit for excessive duplicate contacts, unverifiable contacts or multipliers will be deemed sufficient cause for disqualification. The use of non-amateur means such as telephones or email, or the use of packet, to solicit contacts during the contest is unsporting and the entry is subject to disqualification.

Note that any entry may be disqualified if the overall score is reduced by more than 5%. Score reductions do not include correction of arithmetic errors.

In matters of dispute, the actions and decisions of the Contest Committee are final.

18. **FURTHER INFORMATION:**

The latest information about the contest will be published on the Oceania DX Contest Web site at www.nzart.org.nz/nzart/update/contests/oceania/.

Inquiries can be emailed to octest@nzart.org.nz or posted to Oceania DX Contest, c/o Wellington Amateur Radio Club Inc., PO Box 6464, Wellington 6030, New Zealand

Brian Miller ZL1AZE
ar

Remembrance Day Post Script

I write this on Monday morning after the RD – with some sadness, as I shall mention in a moment.

Some general comments: - My principal mode is always CW and I was pleased to hear a goodly number of signals on 80 and 40 metres, both on Saturday night and Sunday afternoon. 15 metres Phone was good on Sunday afternoon and apparently 20 metres was also during Sunday morning (I am a church organist, so my time is completely taken up on Sunday mornings). I heard no CW on 15 or on 10m during Sunday afternoon, although I heard a VK4 say that he worked some SSB on 10 during the morning. I was also very pleased to hear some ZLs taking part. Thank you most sincerely.

I felt that 160 metres did not get the attention that it deserves this year. Am I wrong – is it just a poor antenna system here? I kept one radio solely on 160 and was disappointed at the usage, considering this band scores double points! I would be interested in your comments.

Separately I operated VHF and again my impression was that there was not as much activity in Melbourne as in previous years. For the first time in many, many years I had 70 cm FM available, but I found that both this and 6m were virtually "by appointment". This is no problem for me, but I was puzzled at the approach.

Interestingly, some chats I had during the quiet moments (yes, I did what I have always railed against in this column) suggested that the Internet was to blame. Again I would welcome comments from others, especially interstate operators.

For the first time ever I used logging programs to keep track of the QSOs. I know that this is a debatable point in view of the rule which says "physical control of the station must be in the hands of the operator at all times" – but it sure makes it very easy to track dupes and elapsed time between contacts. And I can only marvel at those with the nous to build such programs!

Sad Note

The sad note I mentioned was when I arrived home at lunchtime on Sunday to be greeted by the news that Capt. Roger Alston, who had prepared the talk for this year, had died in his sleep at his home in Wiltshire UK, overnight on Friday, 17 August.

I had met Capt. Roger in Melbourne some years ago when he came as part of an RN team speaking about modern submarine life. We had kept in touch and I found him to be a most interesting fellow not only as regards his service with the RN, but also for his knowledge of what was happening in the world of electronics in general. On behalf of VK amateurs I shall send a note of sympathy and thanks to his family.

Finally thanks for taking part in this year's RD and please do not forget to send in your log. Your entry is important for your State.

73 and good contesting,

Ian Godsil VK3VP,
Federal Contests Co-ordinator

Remembrance Day 2001

Address by
Captain Roger Alston D.S.O., R.N. (Ret.)

Good evening and thank you for allowing me to speak to you on this special occasion.

For 27 years I served in Her Majesty's Navy. I must say that I enjoyed the career, but like so many people in various ways of life, there were good and bad times.

Covering both of these extremes was a period of service in Submarines. Let me assure you that they are fascinating vessels and I look back on those years with much happiness and satisfaction, in amongst the thoughts of what it may be like to be sitting on the bottom and slowly freezing to death.

You will appreciate that the Master of a vessel is expected to have a good overall knowledge of his whole ship. He must understand what each section does and how those sections all contribute to the efficiency of the whole. However, he is not expected to be an expert technician in every department. That's why members of a crew are selected to complement a working ship, especially one that theoretically could be involved in situations of conflict.

Whilst today we don't really expect to be at war with anyone else, nevertheless nations do still make all sorts of threats, so we must be prepared.

Sometimes I can recall marvelling how a submarine running hundreds of feet below the surface of an ocean could apparently with ease communicate with its home port and authorities. I knew that we had VHF, HF and VLF as well as the use of satellites miles above Earth; and whilst I had the responsibility of managing any special codes designated to be used, I did not know the technicalities of how messages actually came and went. I was slightly in awe of "the radio men".

As a boy in the UK I learnt that it was easy enough to listen to foreign broadcasts. I spent many hours doing this on simple superhet. Receivers fitted with nice glowing vacuum tubes and later with little black dots which I was told were called Transistors. Little did I realize then how such things would reduce the size of communications equipment and make it possible for such things as satellites and hand-held transceivers, pocket-sized radios, mobile telephones and meters to tell you where you are on the Earth's surface.

Our signallers of any service have at their command a vast array of equipment, but one thinks back to the World Wars and how chaps went out into battle areas with what today would be called "old fashioned gear" to report to their commanders in an effort to do their best for their comrades.

One can only admire the ingenuity and tenacity of those men, their determination to use their knowledge and equipment under sometimes very trying conditions. Not for them the ability to patch into satellites and the Net to pass messages by packet and e-mail.

Many of these chaps were or went on to become Amateur Radio operators and to use their knowledge and skills to further communications science. Perhaps now much of what they achieved has been overtaken by modern technology, but one still feels that the spirit of these men lives on and that there are ways that present Amateur Radio operators will continue to advance the techniques of communicating. Laser and pulsed-light modulation are some things that come to mind.

Today there is talk that the soldier of the future will be wired to transmit and receive pictures and sound from wherever he is. Quite what that would do to waging war with an enemy is considerable scope for imagination. Also is the idea that now any warfare need not take the lives of thousands of people on a battlefield, but need only knock out some satellites to disable a whole country's communications!

Let us pray to God that there will be no more wars; but at the same time let us not forget those who gave up their lives for the freedom of families and friends at home.

You in Australia are about to enjoy your annual Remembrance Day Amateur Radio Contest. No doubt many of you taking part will be young chaps for whom wars were the things of your fathers, grandfathers and uncles. All well and good; but be it a special event like this, or ANZAC Day in April, or Armistice Day in November, let us honour the memory of those who died in the past to make this time available now.

You in Australia are about to enjoy your annual Remembrance Day Amateur Radio Contest. No doubt many of you...will be young chaps for whom wars were the things of your fathers, grandfathers and uncles...but be it a special event like this, or ANZAC Day in April, or Armistice Day in November, let us honour the memory of those who died in the past to make this time available now.

Lest we forget—and good luck in your Contest.

Biographical Note:

Roger Alston was born into a naval family. As a lad he was interested in sailing and radio in general.

He majored in languages, history and English Literature at Oxford, before joining the Royal Navy.

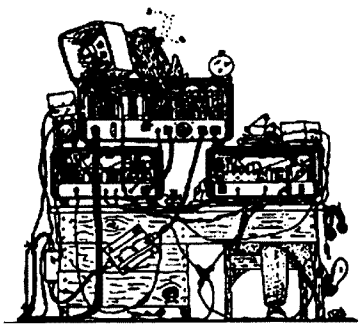
After several years at sea, much of his work centred around his language abilities, both at home and abroad.

About five years ago he suffered an accident which necessitated surgery. As a result of this he was left with reduced power of speech. However, he still retains his sharp mind, as well as his interest in things electronic and of the sea.

He lives quietly in Wiltshire and is active in local affairs.

(see *Remembrance Day Post Script* previous page)

ar



Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 6 – The Internet

Many Radio Amateurs have criticised the Internet for "continued demise" of our beloved hobby. However, research suggests that the Internet has renewed and accelerated interest in Amateur Radio (AR) by offering a fast means of worldwide communication for ideas and data interchange via the Internet.

New technologies, and the widespread distribution of free AR software via the Internet, has opened up new data communications systems like PSK31, MFK16, WOLF, Spread Spectrum and many other exciting modes including Internet FM repeater liking (IRLP), I-Phone and more. Never in the history of AR have we all had access to such a diversity of communications systems from which to experiment. The value of the AR licence has been enhanced many fold, and a far cry from yesteryear when just AM and CW were the predominant modes on the HF and VHF bands.

Today, the average RA has great difficulty trying to keep up with, let alone attempt to understand some of the fundamentals of our hobby, and the new benefits available to them. One way to keep abreast of these new technologies is to have a connection to the Internet with an unparalleled wealth of AR resources.

One example of using the Internet for communications is this series of articles "*Ham Shack Computers*". The writer "talks" to the magazine editor and the typesetters via the Internet. Drafts of each edition, including the pictures and diagrams, are also sent via the Internet in a matter of a few seconds. The publishers do not have to re-type the words, they can see the finished product on their computer screens and directly insert the article into the pages of the next edition. (This magazine is produced this way, but with a little editing)

All this reduces the financial cost of magazine production and benefits all members of the Institute.

Previous columns in this series have highlighted Internet sources for free software, and some readers "chat" with the writer via the Internet gaining further information and advice on their own Ham Shack Computer problems. Again the cost is minimal but the benefits are highly valued. No other modern means of fast communication can offer this type of affordable error-free productivity.

What do I need to get on the Internet?

Any reasonably modern computer will do provided it will run Microsoft Windows 95/98/NT/2000 or ME. An Intel Pentium 100 or upward multi-media computer will do fine. This means that it will have the capacity to add extra internal cards, a CD-ROM drive, and spare communications ports and a sound card. This can be purchased from "computer recyclers" for far less than $500 and the dealer will throw in an external communications modem as well.

The Modem

The cheapest way to make your Internet connection is via a modem that connects between the public telephone line and a spare communications port on your computer. It works just like a telephone except you make the call, via the modem, to an Internet Service Provider (ISP) in your local area.

The modem converts the digital data from your computer into analog tones that can be sent down the phone line. To receive information from the ISP, your modem converts the received analog tones back to digital data signals so your computer can process the information.

External modems are recommended because they can be easily moved, switched on/off, and you will not have to reboot your whole computer if the modem or ISP connection "hangs".

The maximum speed of the analog public telephone system for data exchange is 56kb/sec. However, Internet connection speeds can vary dramatically depending on the connection path, and at times, may stop completely for a few seconds then continue without notice! Most new modems are capable of 56kb/sec and can be bought for around $150 or less.

If you need a modem, check with your local dealer or use some of the more cost-effective options suggested in previous articles in this series.

Internet Software

Microsoft Windows software CD's come with Microsoft Explorer, which is a "browser" program, used to display the special codes in Internet "pages". These pages are displayed in magnificent colour, some with animated graphics and buttons and underlined text (called hyperlinks) that can display other pages or distant Internet sites with just a single "click" of the mouse. Netscape Navigator is another popular browser program that does much the same thing.

For electronic mail (or email), easy to use programs like Eudora and Pegasus are very popular, and like the above browsers, they are freely available on the Internet.

For file transfers between "sites". WS-FTP is excellent, and again free via the Internet. There are many other programs freely available, but it's best to stick with the common ones above until your confidence in using the Internet has become second nature to you.

Internet Service Providers

You will need an account with an Internet Service provider (ISP). Shop

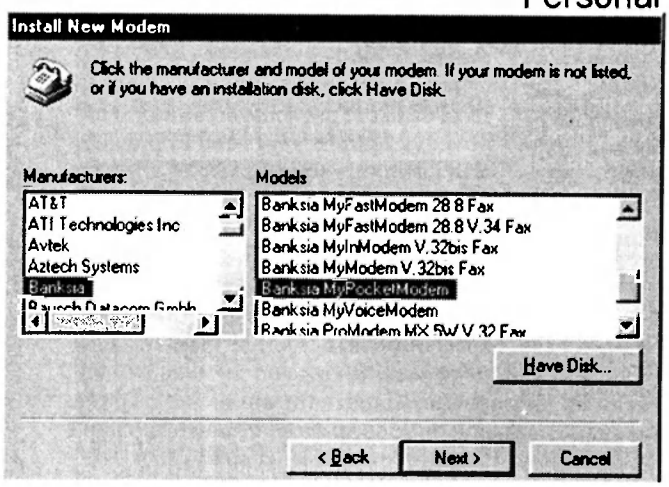
around your area for the best deal. Some accounts are paid by the hour, by monthly plans, or for the year depending upon what you can afford. These accounts offer you an email account with a user name and a password. EG: vk6pg@tpg.com.au

VK6PG is my own user name, the "@" means at, and "tpg" is my ISP. "com" means commercial, and lastly the "au" says it's located in Australia. Your ISP account also allows you to use a browser program like Netscape Navigator to connect to millions of sites worldwide.

EG: http://www.whitehouse.gov

The "http" means Hypertext Transfer Protocol, the colon and slashes are a separator, "www" is the World Wide Web, "whitehouse" is the Whitehouse in the USA, and "gov" means it's a government site. Easy eh?

Setting up Microsoft Windows for the Internet



Firstly, install the modem from **Start, Settings, Control Panel** and **Modems**. Select the modem type from the list, or use **Have Disk** if your modem is not listed, then select **Next**. Select the **Com Port** used for your modem. Windows will acknowledge the modem, test it and announce that the modem has been successfully installed. Next select **My Computer** then **Dial Networking** icon in **My Computer**. Open **New Connection** then "right click" the new icon and carefully fill in the details given to you by your ISP. They include the connection name, dialup number and a list of other instructions needed for successful Internet connections. Once done, copy the ISP icon to your desktop, "click" the icon and test the new connection is successful by entering your user name and secret password to be verified by your ISP. Once connected, open your browser and try one of the many sites listed in this magazine.

With your email program, use the HELP options and your ISP instructions to correctly setup the software. Once done, new messages can be compiled and sent to your friends to "test" that all is well. Next time you connect to the Internet, "click" on New Mail to download any replies which you can answer whilst online and then select Send.

For practice, look for the Internet address of the Wireless Institute of Australia in this magazine and do some "surfing around". Try the WIA site in your own State and so on. Within a very short time you'll become very proficient, confidence will build, and you will be thinking of "downloading" free software to enhance your own AR interests.

Personal Web Sites

Many RA's have personal Internet Web Sites. The WIA, AR clubs and societies, national organisations like the ARRL in the USA, the RSGB in Britain, AMSAT and thousands of others. Each has their own specialised point of interest. Try looking for your own callsign listing in a worldwide Internet online callbook like QSL.net, QRZ.com or Buckmaster.

The addresses are:
http://www.qsl.net
http://www.buck.com
http://www.qrz.com

After a short while you'll have saved dozens of Internet World Wide Web (www) sites and email addresses of AR operators, friends and relations.

Summary

In the June 2001 edition of QST, the Journal of the American Radio Relay League, a survey suggested that there were now 97% of ARRL respondents connected to the Internet. Another major society concluded that the number of members connected to the Internet had increased by 300% in the last 12 months! It seems clear that the Internet is opening new and wonderful opportunities for the AR movement worldwide. Why don't you "get connected"?

Ham Tip No. 6

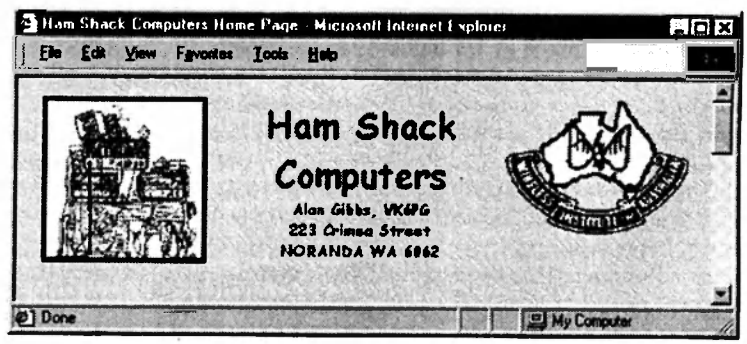
Ron, VK6RV suggests unlimited connect times from http://freeonline.com.au Also, free email can be obtained from the Microsoft HotMail and Messenger services. Whilst typing this article, Messenger allowed the writer to "chat" to Ron at the same time! Ron added that Messenger provides unlimited time for national and international voice "telephone calls" at no cost. A simple headset/boom microphone (from Big W stores) connected to your computer sound card with Messenger doing the work for you. You can now have a private QSO, without QRM and no antenna, with your colleagues overseas!

Ham Shack Computers, Part 7 HTML

Highlights the basics for building your own AR Web Site pages using Microsoft FrontPage Express. For a preview, check out the new Ham Shack Computers site at: http://www2.tpg.com.au/users/vk6pg/

73's de Alan, VK6PG

ar



AR VHF/UHF AN EXPANDING WORLD

David K Minchin VK5KK
Postal PO Box 789 Salisbury South Australia 5108
E-mail: tecknolt@arcom.com.au Web page: http://members.ozemail.com.au/~tecknolt
Fax +61 8 8292 4501 NEW FAX NUMBER Phone 0403 368 066 AH ONLY
All times are in UTC.

Doug VK3UM Fires up the BIG dish!

Doug VK3UM reports ... Well the 10m dish is up and running fully on 70cms. It's sure been a while as my last QSO off the moon was 7th January 1995 with G0RUZ from the old QTH. My first echo's were received on 23rd July with the driver and 55 watts at the feed. The returned signals were as expected so I was pleased to know ohm's Law had not changed! My first contact was with Peter SM2CEW on 25 July 54n/56n with the Amp then on line. Given the Sun/Moon coincidence I had to wait until the first activity weekend of 11/12th August to try it out in earnest.

Arrh its good to be back on ... crawling out of bed at 0130 ... being caught up in the W dog pile ... having more signals to work than you can cope ... the smell of the ozone ... the crash of the circuit breakers .. and the presence of Murphy .. neighbours (you have not heard from for weeks) ringing up wanting help that their bull has got out (now that did not happen at the old QTH!) ... etc etc. Not to mention the XYL quipping 'it's nice to see you this weekend dear'... even the dog, who normally goes ballistic at the slightest noise of wombats or possums took no notice of me getting back to bed at 0415!! Arrh nothing has changed!!

The following are all random and the TxH or V and Rx H or V refer to the polarity I was using at the time.

26/7 1300 SM2CEW	54n/56n	TxH RxV
11/8 2250 DL7APV	44n/44n	TxH RxV
11/8 1455 K1FO	55n/53n	TxH RxH
11/8 1535 VK4AFL	43n/43n	TxH RxV
11/8 2213 JA5OVU	54n/55n	TxV RxV
11/8 2306 JA4BLC	44n/45n	TxV RxV
11/8 2354 G4ERG	44n/55n	TxV RxH
12/8 0002 G4YTL	44n/44n	TxV RxH
12/8 0035 JA6AHB	44n/55n	TxH RxV
12/8 1540 VK4AFL	44n/52n	TxV RxV
12/8 1616 KL7M	54n/55n	TxH RxH
12/8 1735 W7BBM	54n/55n	TxH RxV

Libration Fading was very bad at times and conditions generally I would rate only as fair. A couple of comments re the polarity, as being able to switch is a bit of a novelty at present. Faraday seemed to be about 60° (I guess) all weekend. I used the high tech method of determining my transmit preference by calling alternatively on H and V and waiting for replies!! You will find it interesting to see the mix as listed above and without the ability to switch, many contacts would not have been possible. At no time was I unable to hear my echo's and for about an hour at one stage I found that V-V was the only combination. (H-H was zilch.) Most of the time H-V or V-H was the norm and H-H was a rarity.

Several new initials there and great to catch up with the Steve (K1FO) and Yoshi (JA4BLC) again whom we have had many dozens of QSO's in the past. It was a pleasure to operate with the dish on fully Autotrack and positioning to 0.5° absolute. It was one less thing to worry about. I have been asked about accepting skeds. In a word generally no, but I will accept them under exceptional circumstances. This has always been my 'policy' as I prefer to work stations 3dB above my imagination! 23cms?.. well working towards it ... it will be a little while just yet! ... Doug VK3UM

Gridsquare Standings at 12 July 2001

The following is Guy VK2KU's gridsquare standings for July 2001. We try and publish the listing once per year (usually in winter!) but if you want to keep closer track of the standings, Guy provides these at regular intervals on the VK-VHF email group.

144MHz Terrestrial

	VK2ZAB	Gordon	70
	VK3BRZ	Chas	62
	VK2KU	Guy	58
	VK2DVZ	Ross	56
	VK3TMP	Max	53
	VK3EK	Rob	51
	VK3CY	Des	50
	VK2FLR	Mike	48
	VK3XLD	David	47
	VK3ZLS	Les	47
	VK3BDL	Mike	43
	VK2MP	Rej	41
	VK3BJM	Barry	40
	VK2DXE	Alan	38
	VK3WRE	Ralph	37
	VK3CAT	Tony	34
	VK3KAI	Peter	29
	VK4KZR	Rod	29
	VK6HK	Don	28
	VK2EI	Neil	27
	VK4TZL	Glenn	25
	VK7MO	Rex	21
	VK3KME	Chris	20
	VK2TG	Bob	19
	VK4DFE	Chris	19
	VK6KZ	Wally	19
	VK3TLW	Mark	18
	VK2TK	John	17
	VK3AL	Alan	17
	VK6KZ/p	Wally	16
	VK3DMW	Ken	13
	VK2DXE/p	Alan	10
	VK3YB	Phil	10
	VK2TWO	Andrew	5
	VK2CZ	David	1
432MHz	VK2ZAB	Gordon	46
	VK3BRZ	Chas	45
	VK3XLD	David	43
	VK3EK	Rob	30
	VK2KU	Guy	28
	VK3BJM	Barry	28
	VK3ZLS	Les	27
	VK2DVZ	Ross	25
	VK3TMP	Max	25
	VK3BDL	Mike	24

	VK3CY	Des	23
	VK3KAI	Peter	23
	VK3WRE	Ralph	21
	VK2MP	Rej	18
	VK3CAT	Tony	14
	VK4KZR	Rod	14
	VK7MO	Rex	14
	VK3TLW	Mark	12
	VK6KZ	Wally	12
	VK2TK	John	11
	VK3AL	Alan	10
	VK3ANP	David	10
	VK6KZ/p	Wally	8
	VK2TG	Bob	7
	VK3KME	Chris	7
	VK3YB	Phil	4
	VK2CZ	David	3
	VK2TWO	Andrew	3
	VK4DFE	Chris	3
	VK2DXE/p	Alan	2
	VK3DMW	Ken	1
1296MHz	VK2ZAB	Gordon	25
	VK2KU	Guy	19
	VK3EK	Rob	19
	VK3KWA	John	19
	VK3XLD	David	18
	VK3BRZ	Chas	16
	VK2DVZ	Ross	13
	VK3BDL	Mike	12
	VK3KAI	Peter	11
	VK3TMP	Max	11
	VK3WRE	Ralph	11
	VK3BJM	Barry	10
	VK3ZLS	Les	9
	VK4KZR	Rod	9
	VK7MO	Rex	9
	VK2TK	John	8
	VK3TLW	Mark	8
	VK3AL	Alan	7
	VK6KZ/p	Wally	5
	VK6KZ	Wally	4
	VK2MP	Rej	3
	VK2DXE/p	Alan	2
	VK3CY	Des	2
	VK2CZ	David	1
	VK3DMW	Ken	1
	VK3YB	Phil	1
2.4GHz	VK3WRE	Ralph	8
	VK3KAI	Peter	7
	VK3EK	Rob	4
	VK6KZ	Wally	4
	VK4KZR	Rod	2
	VK3BJM	Barry	1
	VK3TLW	Mark	1
3.4GHz	VK6KZ	Wally	4
	VK3EK	Rob	3
	VK3KAI	Peter	1
	VK3WRE	Ralph	1
5.7GHz	VK3WRE	Ralph	6
	VK3KAI	Peter	4
	VK6KZ	Wally	4
	VK3BJM	Barry	2
	VK6BHT	Neil	2
	VK3XLD	David	1
10GHz	VK6BHT	Neil	9
	VK6KZ	Wally	5
	VK3EK	Rob	4
	VK2EI	Neil	2
	VK3BJM	Barry	2
	VK3TLW	Mark	1
	VK3XLD	David	1
24GHz	VK6BHT	Neil	3
	VK2EI	Neil	2
	VK6KZ	Wally	2

Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@hermes.net.au, or by mail (QTHR 2001). Next update of this table will be in early November 2001. Stations who do not confirm their status for more than 12 months may be dropped from the table.

Microwave Primer Part Sixteen: Packaging the Portable Microwave Station

Last month we looked at the DC powering of a Portable station. This month we will look at considerations for packaging the various modules and the combined station.

Shielding and mechanical stability are the two main considerations for any assembly. Shielding is almost an art form, with the proper decoupling of various parts of a microwave transverter the most critical factor for stable operation. Yet how many times have you heard the story that "it worked fine until I put the lid on!"? Short cuts usually mean disaster.

Our circuit invariably is built on a piece of Teflon or Glass Fibre PCB. RF components are usually mounted on one side with DC components mounted on the same or opposite (better) side. Each DC line is usually decoupled at the signal frequency as well as lower frequencies where devices can have 10 times more gain and suffer from low frequency oscillations. Successful decoupling usually needs several stages of L & C. Feed through capacitors, of the correct size, should be used to exit DC from any enclosure. These can be solder in type or threaded.

The various RF stages use Stripline transmission lines and inductors. Each one of these RF carrying parts has a three dimensional radiation pattern with a field usually developing longitudinally. Proper PCB layout will ensure that these fields do not interact in such a way that unwanted coupling occurs. The radiation typically leaks to space where it causes a small amount of EMI but little effect on what goes out the output socket. Putting a lid on the whole assembly contains this radiation. If this radiation is significant and finds its way back to an earlier stage via a number of paths then you have a problem! Another problem may be that the whole enclosure may have a resonant frequency near the operating frequency setting up a perfect oscillator.

There are many factors in solving feedback problems. Before you even look at mechanical means, the circuit must be optimised to the point where device mismatch problems are minimised and things like filters are close to the target input/output impedances. Reflected power from mismatches makes up the bulk of radiated power. PCB groundplanes and device ground points must be made in the lowest inductance manner possible. Use brass rivets, plated through holes, foil Z wires or what ever. Grounding problems are typically the main cause of circuit instabilities, sometimes it is hard to visualize but often the poorly bonded surface of a groundplane can be a very efficient radiator!

The PCB must be contained in an RF tight enclosure that is efficiently connected to both groundplanes. Tinplate boxes made to the size of the PCB are popular. I have used 20 & 25mm wide Brass strip, obtainable from model shops, for years for the walls of the PCB enclosure. The gauge is not that important; usually you don't need anything thicker than 0.3mm. This same strip can be used for internal shielding as well. The lid can also be fashioned from wider material or tinplate. The height of the lid should be such that the waveguide cut-off frequency is above the highest operating frequency, if possible. Otherwise, you may strike resonant enclosure problems.

Another popular way to shield PCB's,

especially below 2 GHz, is to place a groundplane immediately above the PCB at say 10mm spacing. The groundplane usually needs to be tied to the PCB groundplane at multiple points (rows of brass bolt/standoff's.). This form of shielding doesn't need solid sides if you pay attention to correctly bonding the groundplane of the PCB around the edges. The aim here is to provide a waveguide section above the PCB with a cutoff frequency of at least double that of the highest frequency on the PCB. It works well where you have a number of PCB filters that need shielding from each other to get better stop band figures.

The ultimate method is a milled brass or Aluminium box. At 24 GHz, there is no choice; at 10 GHz, it is borderline. Commercially this is the most popular method. For the average amateur it is an elegant and expensive option. PCB Groundplanes still need to be correctly bonded to each other and the base of the box. Silver loaded epoxy is usually used to do this. If you have to remove a PCB, you do so with a chisel!

Having taken all due care, you may still need a little help to stop stray coupling within an enclosure. Various RF absorbing materials are available to dampen the response of an enclosure. All of this material has Carbon as its absorptive material. Commercially RF Rubber is available that is characterized for various frequencies. Nearly all RF power circuitry above 2 GHz will use bits of this foam to keep things stable should the RF load be less than optimum. My best source is from ex commercial equipment and the odd bit rescued from ex military equipment (where rubber absorbing material is used to reduce radar reflections). If your local junk joint doesn't have surplus bits from a F-117 Stealth fighter you may also consider using truck tyre rubber as an alternative. Some of this rubber has a very high carbon density, go looking along a highway for bits. The absorbing rubber material is usually stuck to the lid or various sides of an enclosure, subject to a bit of experimentation.

Contrary to popular belief, Carbon "plastic" foam commonly used for IC packaging is almost totally useless at lower frequencies; the highest density rubber IC foam is a "maybe". The only way to test the various types is to shove a piece into a bit of waveguide and measure its attenuation at the required frequency. Remember, RF absorbing materials is a band-aid solution, if the design is poor to start with nothing will save you!

For RF interconnection, select your favourite miniature connector. I used SMB's for many years but found that they suffer from similar problems to BNC's and become unreliable. SMC's (threaded version of SMB) is far better. Both are available for RG142 Teflon & RG174 miniature coax cable. For above 2-4 Ghz I use SMA's. Source's of second hand SMA's and hardline are numerous. Bending 3.5mm hardline is a bit of an art; at frequencies above 5 GHz, you must pat attention to the correct bending methods of hardline.

The box you put everything in needs special mention. It must be mechanically rigid, so modules are attached to a solid structure. Shoe boxes, full of modules and clip leads, tend not to work the same twice! It must be both serviceable and provide protection of the internal modules. It doesn't have to be weatherproof; I keep garbage bags and cable ties on hand for when it gets wet. As everything usually has to pack down into a car, using similar sized square boxes makes it easy. For years, I have used Horwood (Melbourne) style boxes for all my transverters. These are no longer available. Surplus boxes, e.g. those used for AMPS mobile phone base stations make excellent enclosures. Russell VK3ZQB has built a number of his transverters into these die cast Aluminium cases.

I pack all the transverters into carry cases. Originally, I used suitcase styles, similar to early video camera boxes. Now I use ex commercial aluminum cases, with foam packing, to pack everything into. This means you can literally "throw" everything into the back of the car, bounce around on that mountain track and still have it working at the end of it all. It also makes it easy to put on a plane if you are traveling.

Next month the portable dish, tripod and engineering frequency considerations.

In closing

Few have played with 10 GHz rainscatter in VK but O/S it is different ... "KD4RLD and I just completed (18/08/2001) a S9 10 GHz rain scatter contact via a storm over Newberry, South Carolina. The distance to the storm was approximately 184 km and the power at both ends was just under 100 mW. I know this is old hat to most experienced microwave ops but it was a first for us. If there happens to be any heavy rain cells within a few hundred km's of my QTH (EM95tg) I will be beaming into the rain calling CQ at random on 10,368.100 +/- a few kc." .. Dexter W4DEX

Those wishing to look at the various weather radar sites around VK, for tropo propagation can find them at http://mirror.bom.gov.au/weather/radar/#map2

I'll leave you with this thought ... "We make a living by what we get, but we make a life by what we give"

73's David VK5KK AR

ar

PLAN AHEAD

JOTA

Jamboree On The Air

A World activity enabling Scouts to experience the International dimension and the bigger picture of Scouting while making friends and having new experiences. It can be a rewarding and fun time for the Amateur and is a chance to showcase our hobby to young people.

from

0001 Saturday 20 October

to

2359 Sunday 21 October 2001

How's DX

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Cycle 23 a damp squib

How have the bands been? For me cycle 23 has not lived up to expectations. It has now been confirms cycle 23 peaked this February so it is now 5 years of decline so we live in hope for some good openings next year.

However things are not always bad. The world distance record for pedestrian mobile is now 22593 km LP or 17549km SP for both SSB and CW as reported in RADCOM recently. This was between Max, ZL1BK of Auckland, New Zealand who was walking in the park near his QTH while Demetre, SV1UY, of Athens, Greece was hiking in Mount Ymittos, and both were operating small portable style QRP rigs. Contact between the two was first established on the 28th of February at approximately 06:25 UTC on CW, later at 06:45 they changed over to SSB. Greece and New Zealand are almost antipodean so the chordal hop mode would be a great boon to these QRP stations.

The QSO fully qualified for the HF-pack '5 Watt Pedestrian Mobile Category 2' award. Both stations were using hand-held 5 metre long centre loaded whips.

For those of you with an interest in this field a full listing of the 'HF-pack' hall of fame can be found at the following web site, but please be aware, to access the listing you must join and become a member:
http://groups.yahoo.com/group/hfpack/database

Reading this has had me checking my own equipment, it's all OK so get yours out and we can enjoy the Spring and Summer DX activity.

The DX

3V, TUNISIA. All Tunisian stations have been authorised to use the callsign 3V8MED until the 15th of September. This callsign is celebrating the 'Mediterranean Games 2001' being held in the city of Tunis. A web page on the games can be found at http://www.tunis2001.tn/en/indexen.html [TNX OPDX]

4Z8, ISRAEL (Attention Prefix Hunters!). Marc, WC1X, is currently operating in Israel using the call 4Z8BB. This is a rare prefix and Marc will be on air with it until June 2002. This callsign should be of great interest to prefix hunters as there is only one other '4Z8' call. Marc is mainly active on 20 and 15 metres around 0330-0430Z on 14082 +/- QRM, 7 days a week into the USA, but give him a call if you hear him. He can also be found on 20 metres using RTTY. QSL manager is WC1X. [TNX W1CX and OPDX]

5R8, MADAGASCAR. Phil, G3SWH, is visiting Madagascar between the 6th and 20th of September. He has submitted a licence application to the authorities requesting the call 5R8WH, however he has not yet received confirmation on the call. Phil will be travelling extensively and doesn't expect to get on air until he arrives on lie Ste Marie (AF-090) on the 15th of September. His preferred mode is CW so shake out the cobwebs. QSL via G3SWH. [TNX G3SWH and The Daily DX[

5R. MADAGASCAR. Jack, F6BUM says he will be active from here between the 2nd and 27th of September. He is planning to be active from AF-090 from the 3rd until the 7th of Sept and from AF-057 from the 23rd until the 26th. Jack will be taking along an IC-706 and an R7 vertical, his preferred mode of operation is CW. [TNX F6BUM and 425 DX News]

8Q, MALDIVES. Pierre, HB9QQ will be back in this tropical paradise for a month beginning the last week of October. He will be signing 8Q7QQ and intends to concentrate mostly on 6metres, however if 6 is not performing he will be active on 10, 12, 17 or 30 metres CW. [TNX HB9QQ and OPDX]

CP, BOLIVIA. Steve, G4ASL, will be active from Cochabamba, Bolivia signing CP5/G4ASL until October. He is on 80-10 metres using RTTY, PSK31 and CW with some SSTV and HELLFAX. QSL to G4ASL via the Bureau. [TNX G4ASL and 425 DX News]

D4, CAPE VERDE. Xara, CT1EKF has just been authorised to use the call D44TD. He will be visiting the Cape Verde Islands often, his next planned trip is for about six weeks beginning on the 25th of August. He will be taking an IC756 and a 4-element beam for 6 metres. So, if you haven't worked **D44** yet here comes your chance. [TNX EH7KW, UKSMG and OZ50MHz Bulletin]

FO0FLA. Dave Flack, AH6HY, is planning a trip to Rurutu Island (OC-050) in the Austral Islands. He expects to be there from the 9th until the 14th of September. The main reason for the trip is diving but he plans to spend as much free time as possible on air. He will most likely be found on 15 and 20 metres SSB. QSL via AH6HY. [TNX AH6HY and The Daily DX]

FR/T, TROMELIN. Jacques, FR5ZU, is heading back there again from the 6th of Sept until the 5th of Oct. He expects to be active on all bands using SSB. QSL via direct or his current QSL Manager JA8FCG. [TNX OPDX and The Daily DX]

LX, LUXEMBOURG. A group of Dutch operators will be signing LX9SW from here from the 15th until the 22nd of September. They will mostly be using CW and SSB on 160 – 10 metres but will also try to get in some RTTY and PSK31. QSL to PA1KW or via the bureau. [TNX PA1KW and The Daily DX]

PJ2, NETHERLANDS ANTILLES. Tom, AE9B, and Marty, NW0L, plan to be active from the Netherlands Antilles during the WAE Contest run over the weekend the 8th and 9th of September. The pair will sign as PJ2/AE9B and PJ2/NW0L for the week prior to the contest. [TNX The Daily DX]

PJ7, St MAARTEN ISLAND. Jim, W6JHB is planning to operate as PJ7/

W6JHB from St. Maarten (NA-105) in the Netherlands Antilles from the 8th until the 14th of September. He will be active on 40, 30, 20, 15, and 10 metres CW QRP. He will also try and get some time in on 17 metres antennas permitting. QSL via W6JHB [TNX W6JHB and 425 DX News]

TG, GUATAMALA. A team of Spanish operators comprising EA1QF, EA3CUU, EA4BT, EA4KA, EA7AAW, EA7JB, EB1ADG and EB4EE are travelling to Guatamala to install a digital radio emergency network in Guatemala. They have performed similar work in recent years in neighbouring El Salvador and Honduras. The group will be there from the 17th until the 26th of September. Activity will take place on 6 – 160 metres using SSB, CW and RTTY. Special emphasis will be placed on CW and the WARC bands. Approval has been sought to use the call TG0R but the group is still awaiting confirmation. All the activities will take place jointly with the CRAG (Club de Radioaficionados de Guatemala). QSL via EA4URE. [TNX EA5RM, Radioaficionados Magazine DX and 425 DX News]

TL, CENTRAL AFRICA. Charles, TL8CK, has been worked often lately on 15 metres SSB. Have a listen for him between 11:30 and 14:30 UTC. QSL via F6EWM. [TNX F6EWM and OPDX]

VK0, ANTARCTICA. Mark, VK4KMT, is currently on air during his spare time as VK0KMT from the Australian Antarctic Base "Davis" (68.5S-77.9E, IOTA AN-016, CQ Zone 39, ITU 69). He can often be heard on air between 04:00 and 10:00 UTC around 18.120 +/- and 14.180 MHz. QSL via VK4KMT, Mark Tell, 3 Whelk Close, Trinity Beach, QLD 4879, Australia. [TNX VK4KMT and 425 DX News]

Special Events

The Latvian Amateur Radio League is sponsoring the "Riga 800" Award to celebrate the 800th anniversary of the Latvian capital city. The award is for contacting, or listening and logging, the special calls YL800xx for the period 1st of July and 30th of September. Further information can be obtained from Grigorij, YL2NS at yl2ns@e-apollo.lv [TNX YL2NS and 425 DX News]

Round up

Gerard, PA3AXU, is planning an extensive trip to the Pacific region. He will be operating as T30XU from Tarawa, West Kiribati (OC-017) from the 4th until the 10th of Sept. He will then move on to Nauru (OC-031) and operate as C21XU from the 11th to the 19th of September. The last stop on his itinerary is Fiji (OC-016) where he will operate as 3D2XU from the 20th until the 28th of September. Gerard says he plans to be active on all bands and modes. Details are available at http://www.qsl.net/pa3axu/2001/. [TNX VA3RJ and 425 DX News]

Bert, PA3GIO, is also planning a trip to the Pacific. He plans to operate on all bands from 10 - 80 metres using SSB. He will be using a number of calls during his trip, VK9CQ from Cocos/Keeling (OC-003) from the 8th until the 14th of Sept, VK9XV from Christmas Island (OC-002) from the 15th until the 22nd of Sept and as VK9LO from Lord Howe Island (OC-004) from the 9th until the 15th of Sept. Bert says the actual dates will ultimately depend on flight schedules. QSL via PA3GIO either direct to Bert vd Berg, Parklaan 38, NL-3931 KK Woudenberg, The Netherlands, or preferably via bureau. [TNX PA3GIO and 425 DX News]

The Turkmen Club Station EZ3A is located in Annau near Ashgabat. Four special event callsigns have been issued for the year 2001. These calls are for the following special anniversaries; EZ21A for the New 21st Century, EZ56V for the 56th anniversary of Victory at the end of WW II, EZ75R celebrating 75 years of Amateur Radio in Turkmenistan and EZ10A for the 10th anniversary of the Independence of Turkmenistan. QSL direct to P.O. Box 73, Ashgabat 744020, Turkmenistan.

Andy, G0KZG/MM, has let us know that he will be operating from aboard ship from the 21st of Aug until the 11th of Nov while plying the Indian Ocean. The ships route will take him from Durban to the Seychelles arriving on the 30th of Aug. Departing from here on the same day and sailing north of the islands heading for Oman arriving on the 29th of Sept. After this his travels will take him to either the Arabian Gulf or the north Indian Ocean until 11th November 2001. [TNX G0KZG/MM, Six Italia and OZ50MHz Bulletin]

Jose Jacob, VU2JOS, reports that Indian amateurs have had their permission to use the following frequencies extended until 31 January 2002: 10100-10150 kHz, 3790-3800 kHz, 50350 and 50550 kHz. [TNX VU2JOS and 425 DX News]

DX NET. Chris, VK2UW, extends an invitation to all DX Stations to join the Pacific DX Net on 14240 kHz from 11:00 until 13:00 UTC. The net will be a great opportunity to increase their country count and also help others make contact with DX. [TNX VK2UW and OPDX]

The Republic of Ireland, EI, has just granted permission for a new 10-metre beacon. It will operate on 28209 kHz running A1A CW, 25 watts. The beacon will be operating into a dipole for the first few weeks until four phased quarter-wave verticals, beaming north-east, north-west, south-east and south-west, can be erected. The callsign will be EI0TEN and reception reports are requested by QSL via the bureau to EI4HQ. [TNX RSGB]

A new book has just been published for DXers, "The Amateur Radio DX Reference Guide - DX101X by AC6V". The book includes information on DX equipment, propagation, operating aids, working DX, QSLing, DX Secrets and has 14 Appendices. This 226-page book took 12 months to compile and write and features invaluable DXing advice of several well respected Dxers and technical experts. An extensive outline and summaries are available at http://ac6v.com/ [TNX AC6V and OPDX]

Sources

As usual our thanks go to the following people and organisations; W1CX, G3SWH, F6BUM, HB9QQ, G4ASL, EH7KW, AH6HY, PA1KW, EA5RM, F6EWM, VK4KMT, YL2NS, VA3RJ, PA3GIO, G0KZG/MM, SIX ITALIA, VU2JOS, AC6V, VK2UW, Radioaficionados Magazine DX, UKSMG, OZ50MHz Bulletin, 425 DX News, OPDX and The Daily DX

ar

Silent Keys

The WIA regrets to announce the recent passing of:-

R W (Reg) Cooke	VK2DJJ
T P (Paul) Hinsby	VK2GTP
D E (Douglas) Hale	VK3DE
C B Roberts	VK3ZMR
M G White	VK5ZL
M H B (Marcus) Hurburgh	VK7MH

HF Predictions

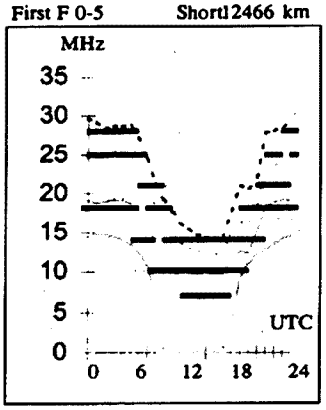
by Evan Jarman VK3AN
34 Alandale Court Blackburn Vic 313(

These graphs show the predicted diurnal variation of ke frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

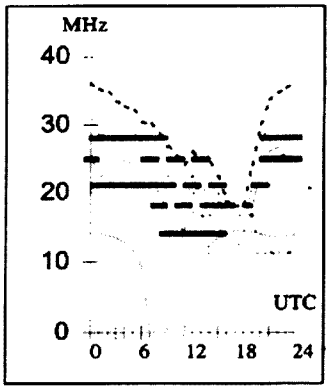
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands ir ranges between these key frequencies, when usable. The path propagation mode and Australian terminal bearing are also give for each circuit.
These predictions were made with the Ionospheric Predictio Service program: ASAPS Version 4

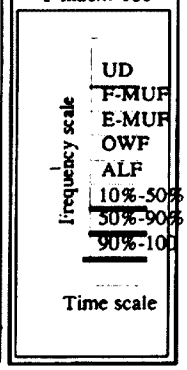
Adelaide-Anchorage 3
First F 0-5 Short12466 km



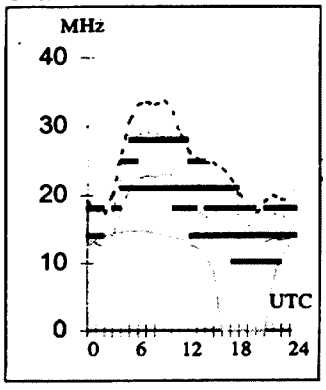
Brisbane-Lima ##
First F 0-5 Short13056 km



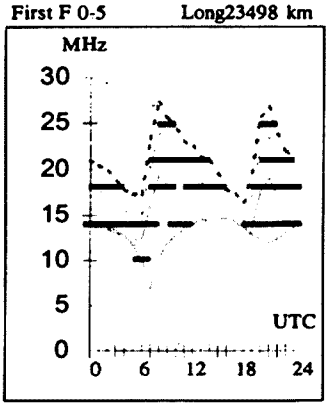
September 2001
T index: 106



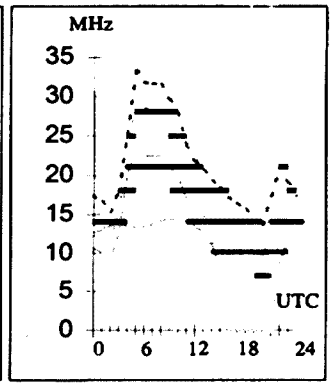
Adelaide-Budapest ##
First F 0-5 Short14908 km



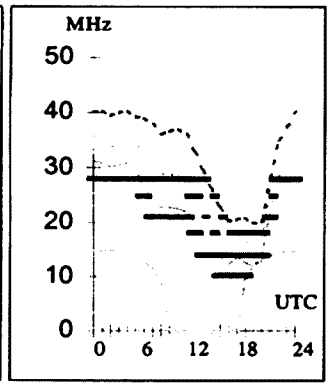
Brisbane-London ##
First F 0-5 Long23498 km



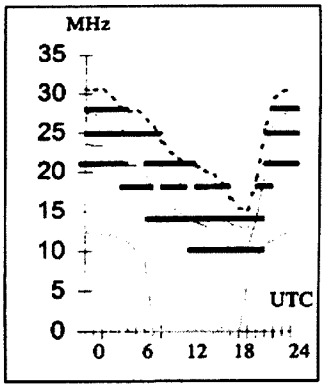
Canberra-Lusakar ##
Second 4F3-5 4E0 Short11620 km



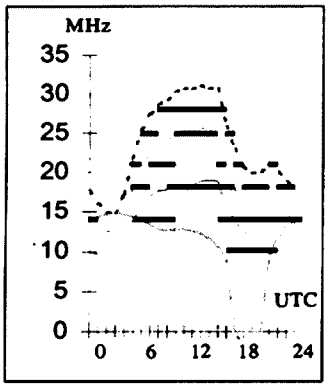
Darwin-Honolulu 65
First 3F3-9 3E0 Short 8635 km



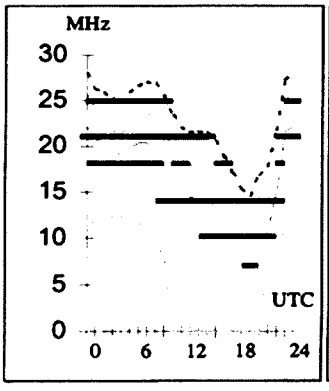
Adelaide-Suva 75
First 2F8-11 2E0 Short 4340 km



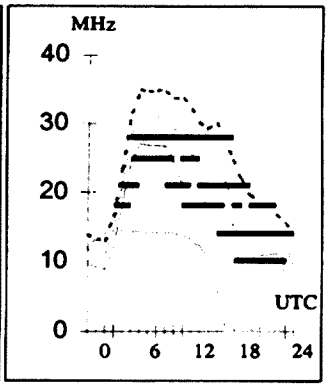
Brisbane-London ##
First F 0-5 Short16526 km



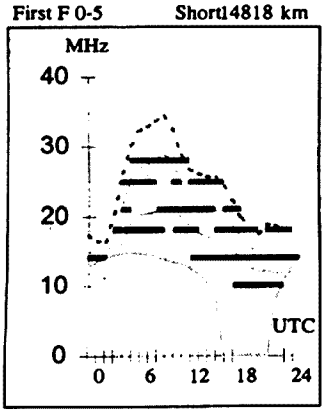
Canberra-Manilla ##
Second 3F8-15 3E0 Short 6256 km



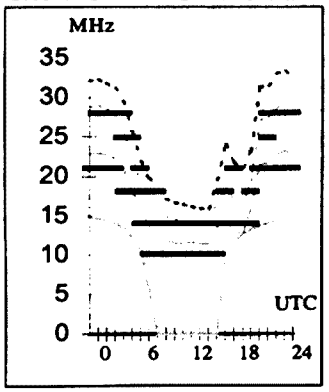
Darwin-Johannesbur ##
Second 4F4-7 4E0 Short10639 km



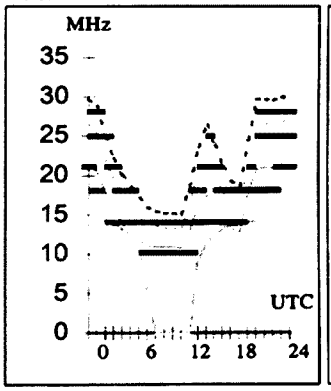
Adelaide-Warsaw ##
First F 0-5 Short14818 km



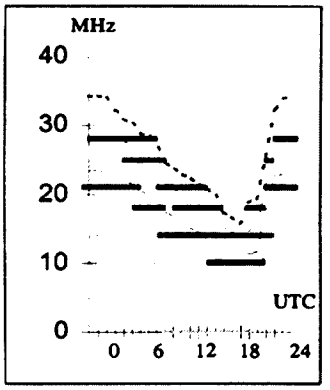
Brisbane-Seattle 44
Second 4F3-7 4E0 Short11846 km



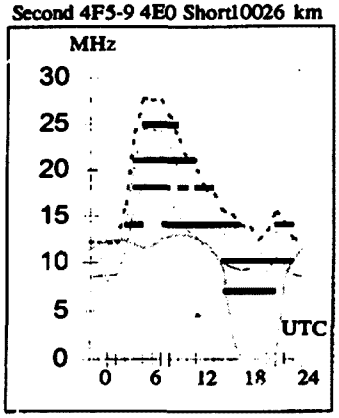
Canberra-Ottawa 59
First F 0-5 Short16100 km



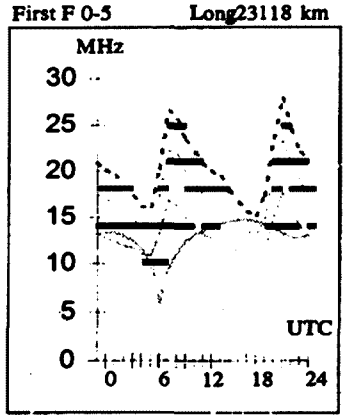
Darwin-Wellington ##
First 2F4-7 3E0 Short 5322 km



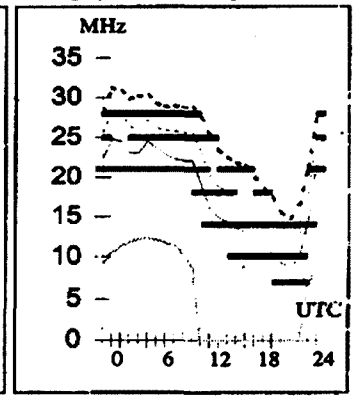
Hobart-Capetown ##
Second 4F5-9 4E0 Short10026 km



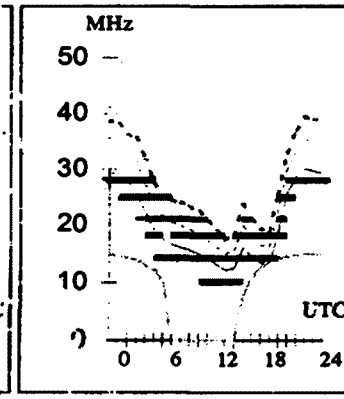
Melbourne-London ##
First F 0-5 Long23118 km



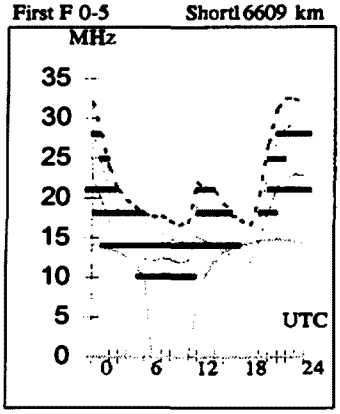
Perth-Koala Lumpar ##
First 2F8-15 2E0 Short 4179 km



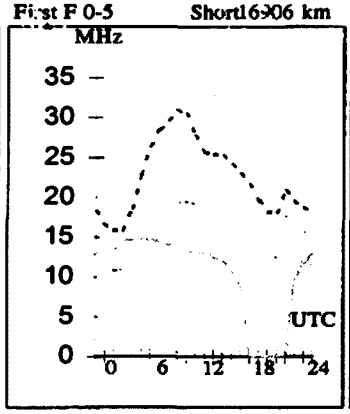
Sydney-Los Angeles 61
First F 0-5 Short12075 km



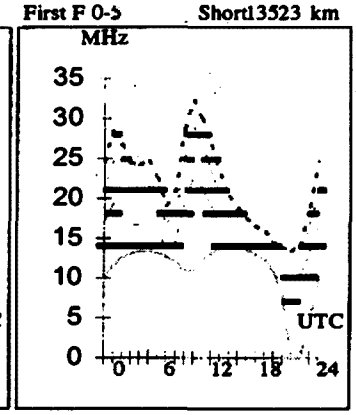
Hobart-New York 50
First F 0-5 Short16609 km



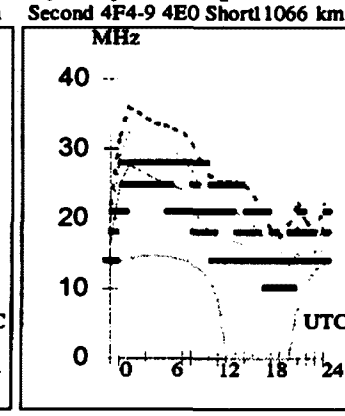
Melbourne-London ##
First F 0-5 Short16906 km



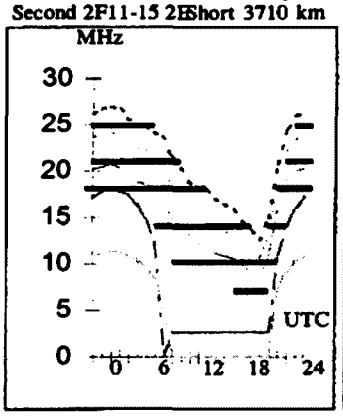
Perth-Rio de Janeiro ##
First F 0-5 Short13523 km



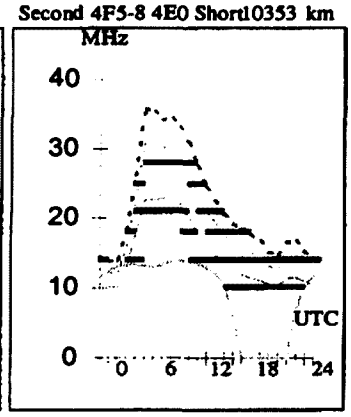
Sydney-Rawalpindi ##
Second 4F4-9 4E0 Short11066 km



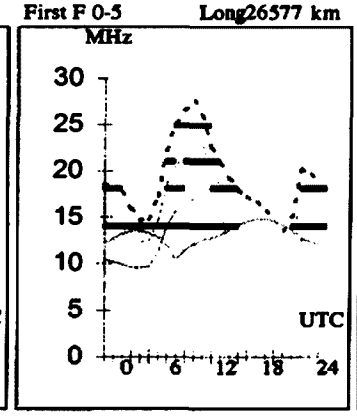
Hobart-Port Moresby ##
Second 2F11-15 2E Short 3710 km



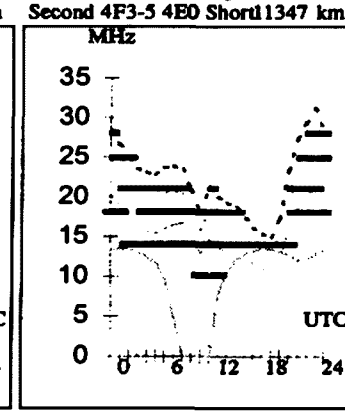
Melbourne-Pretoria ##
Second 4F5-8 4E0 Short10353 km



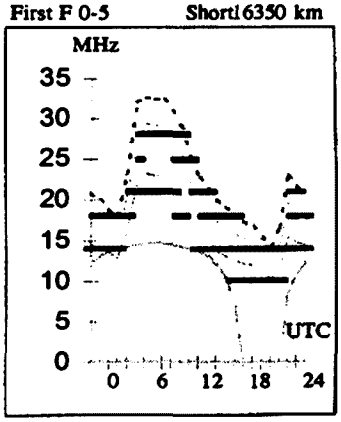
Perth-Stockholm ##
First F 0-5 Long26577 km



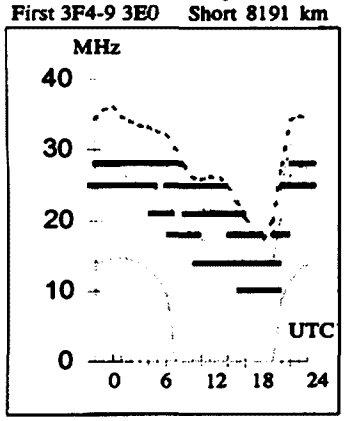
Sydney-Santiago ##
Second 4F3-5 4E0 Short11347 km



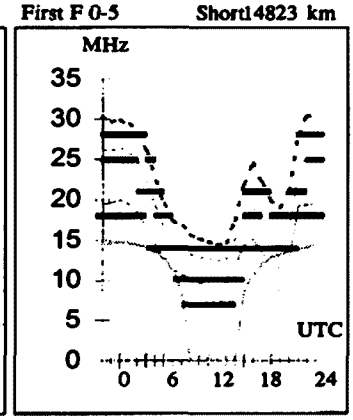
Hobart-Rome ##
First F 0-5 Short16350 km



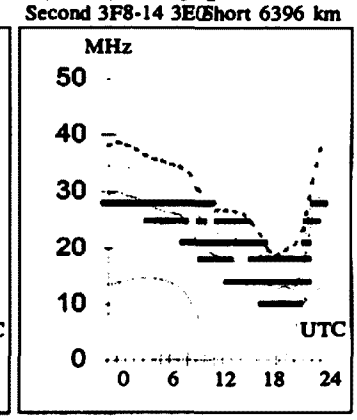
Melbourne-Tokyo ##
First 3F4-9 3E0 Short 8191 km



Perth-Vancouver 50
First F 0-5 Short14823 km



Sydney-Singapore ##
Second 3F8-14 3E Short 6396 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE NSW

• YAESU FT-901D XCVR manual, mic, lead. Good condition $350. YAESU FV-901 ext memory unit. Good condition, manual $200. YAESU FT 101-ZD XCVR, manual, mic, AC lead. Good condition $300. M D Drady VK2DBI. Phone 02 6367 5095 QTHR

• HEATHKIT amateur radio general licence course. Two huge manuals which include two excellent CW tapes, ideal for novice licence study. Very good condition. $60 posted and insured. Charlie VK2NAJ QTHR 02 6456 1646

• ALINCO DX-70 $990. YAESU FT-102 $500. YAESU 8800 $350. Tiny 2 $100. Pakratt PK232 $150. All have manuals, mics etc. Good working order. David VK2BDT QTHR Phone 02 4821 5036

• KENWOOD station monitor model SM220 with Pan adaptor BS-8 and operating manual $250. Maurie VK2OW QTHR. Phone 02 9838 1834

• KENWOOD TM-733A dual band 2m-70cm, never used $350. Phone Ted 02 4625 4959

• YAESU FT-890 HF transceiver all HF bands and all modes AM/SSB/CW/FM, built in keyer, the last of YAESU's best, used to receive only VGC $900. Chris VK2YMW QTHR. Phone AH 02 9487 2764

• Complete PACKET setup, comprising Computer, monitor, keyboard, printer with plenty of paper, Tiny 2 Mk 2 TNC and paKet 6 software with manuals $275. Ian Paterson VK2MW Phone 02 9144 4985 or ianpat@bigpond.com

• TANDY HTX-100 10m SSB/CW transceiver in very good condition, with manual, mobile mounting bracket & screws, mic bracket and power cable. Originally purchased in US, Serial No 83008803. Good value at $200.00. Contact Doug VK2KIQ, QTHR, Phone 02 9550 6264 (BH) or doug@tiaretechnics.com

WANTED NSW

• IC type MF4-50 switched capacitor filter. Require 2 (one spare) for use in 'Experimental HF Receiver' by the late Harold Hepburn VK3AFQ as described in 'Radio and Communications' Dec. 98 to April 99. Pat Brennan VK2ABE, PO Box 158, Tamworth 2340

FOR SALE VIC

• YAESU VX-IR 2m/70cm micro handheld latest model (with extras optional) $290. VK3GMM Phone 03 5985 2671

• YAESU FT-707 transceiver with ICOM PS-15 power supply, KENWOOD AT-200 tuner, KENWOOD desk mike and YAESU SP-102 filtered extension speaker. $700. Ex deceased estate VK3VBU. Lindsay VK3IQ, Phone 03 5672 2563, email vk3iq@telstra.easymail.com.au

• YAESU FP-757HD power supply with internal speaker, 20 amp extended duty cycle 30 Min on/30 Min off. Thermal switched cooling fan, good condition $150 plus $10 freight. Bert VK3DVY. Phone 03 5221 6804 or virgo@webaxs.net

• KENWOOD TS-711A 2m all mode transceiver, VGC with operating manual, hand mike and service manual $650. ICOM ICR-7100 VHF/UHF receiver, like new condition with original carton and operating manual etc. $1400. Damien VK3RX, Phone 03 5427 3121

• KENWOOD TS-711A all mode 144MHz transceiver serial no. 7050329 complete with microphone and operating manual. Still in original box. As new condition. $640.00 Fred VK3AFR QTHR, Phone 03 5345 3633

WANTED VIC

• FT-2FB manual or circuit diagram VK3ANJ QTHR Phone 03 5155 1380

• Wanted dead or alive. BATTERY PACK for YAESU FT209RH. Any condition. Ron, VK3OM. QTHR. Phone 03 5944 3019

• FT102, FV102 and FL2100Z all must be in good working order. Contact Chris, VK3FY. Phone 0419 155 139 or vk3fy@hotmail.com

• COLLINS 75S-3 series, RECEIVER in good to excellent condition. Willing to swap COLLINS 32S-3 TRANSMITTER in mint condition. Contact Chris VK3FY. Phone 0419 155 139 or vk3fy@hotmail.com

FOR SALE QLD

• TS-440S SN0010795 $850. PS-50 Power supply SN0010393 $275 MC-60 Desk mic $100. Speaker SP-430 $75. Katsumi keyer EK150 $110. MOSLEY TA33 beam junior $125. Regulated power supply 13.8V 4A $80. KR400 Rotator, controller cable $375. Pat Dryden, VK4PAT, 17 Wonga St, Scarness Qld 4655, Phone 07 4128 1752

• YAESU FT-101EE HF transceiver with 10MHz, AC or DC operation, virtually unmarked, owner's manual, hand microphone. Same owner since new, late model $350. Ham III antenna rotator heavy duty $475. John Abbott VK4SKY QTHR, email japat5@bigpond.com or phone 0417 410 503, PO Box 1166, Coolangatta 4225 Qld

• Deceased Estate: YAESU FL-2000B linear $600. YAESU FT-101E Transceiver, CW filter $325. SWAN 350, spare finals & matching power supply $100. PIERCE SIMPSON 27MHz CB $10. SANSEI SE405 SWR & F/S meter $20. SANYO CTP 3617 12in. Colour TV $40. Power Transformer with case, heatsinks & 6x2N3055's suit 13V @ 30A $50. HP logic probe 545A, pulser 546A, current tracer 547A $50. PHILIPS FM 828 4 ch. fitted $20. Spare unit $10. KINGSLEY AR7 Rx. 8 coil boxes & spare valves $20. KIKUSUI Sig Gen 18Hz - 200kHz $20. PHILIPS GM4144 R & C Bridge $20. E/A Digital freq counter 200MHz $20. NIMROD T-100k gas soldering iron $20. DECADE RESISTANCE boxes 1 X 100kohm, $10 1k - 10Mohm $10. RF IMPEDANCE BRIDGE $10. 2 Tone Gen $10. 2m Transmatch $10. HITACHI TRS-1161 3 band Cassette recorder $10. Contact George VK4XY QTHR Phone. 07 3285 5181

• DRAKE TR4CW transceiver with RV4C remote VFO, power supply, speaker, manual, microphone, all in excellent condition, $500. Carsten VK4OA QTHR, Phone 07 3264 6443 or e-mail pedersen@powerup.com.au

FOR SALE SA

• SONY ICF-7600G portable all band, all mode receiver, mint cond. 150kHz to 30 MHz AM/FM/SSB only 18cm X 12cm X 3cm $200, as new, accessories, Ray VK5AVR. Phone 08 8762 2034

• PHILIPS FM-93A converted to 2 metres, 99ch, s/n 200794, $120. PHILIPS FM-1680c converted to 2 metres, 10ch, 25w, mobile bracket, s/n 32533, $60. Rob VK5CS, Phone (mob) 0421 088 857

WANTED SA

• Mobile HF XCVR IC-706, TS-50, FT-757 etc. Also interested in small ATU (prefer matching unit where applicable) David VK5AXW Phone 08 8370 1066 (bus), 08 8370 9569 (AH)

FOR SALE WA

• EMTRON EAT300 tuner, OSKER BLOCK meter, paddle key. LP Filter, 20 amp power supply (large), 4 amp power supply, multi meter, 2m whip, MFJ-4010 keyer. CHIRNSIDE vertical antenna 5 band. VK6BEB Phone 08 9841 5040

WANTED WA

• Reduction drive gears, variable air capacitors, 2000 ohm headphones for home brew projects, VK6PKK, PO Box 512, Manjimup, WA 6258

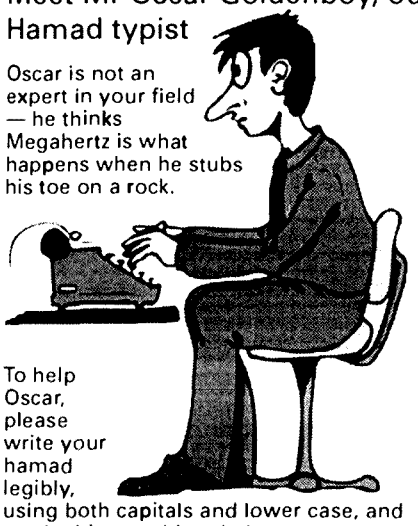
• YAESU FRG-7, TRIO 9R59DN or 9R59DS or LAFFAYETTE HE-30, Karl VK6PKK, PO Box 512, Manjimup 6258 WA.

FOR SALE TAS

• YAESU Narrow CW filter, suit FRG100 receiver. TET 4el 3 band Yagi, h/duty rotator (tower) coax included & rotator cable. What offer? Allen, VK7AN. Phone 03 6327 1171, 0419 755 124

PLEASE BE KIND TO OSCAR

Meet Mr Oscar Goldenboy, our Hamad typist



Oscar is not an expert in your field — he thinks Megahertz is what happens when he stubs his toe on a rock.

To help Oscar, please write your hamad legibly, using both capitals and lower case, and use legitimate abbreviations.

This will reduce the chance of errors being published, which incoveniences everyone.

WANTED COCOS ISLAND

• VK9CC Andy needs HF RADIO. My YAESU FT-101 dead! Anything considered! Sweep tubes 6SJ6C will get me back on air from here on Cocos Island! Prefer solid state but must be low cost as freight is a killer! Andy VK9CC, benoel@fan.net.au

MISCELLANEOUS

• I am writing a history of the Blue Mountains Amateur Radio Club/s. In particular the early years from its inception in 1958, as the Blue Mountains Section of the WIA. NSW Division. I am mainly after photographs of early members. ie; VK2s - EX, AVA, AGN, HZ, TM, ADA, RM, ACP, AVK, ABK, MZ, NR, OA, NK, ART. If anyone has information on those early years, I would be grateful. I can be contacted at email; daclift@pnc.com.au, or QTHR. Daniel Clift VK2DC

Email your hamad

Then we just cut and paste.
You proof it, you retain control.

Is this magazine borrowed?

Join the WIA and get your own each month!

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

FOR SALE ELECTRONIC VALVES

If you are looking for valves you can contact, Gamini Liyadipitiya at email: gamini@ee.unsw.edu.au Small negotiated fee — first come first served.

• **AMIDON FERROMAGNETIC CORES:**

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please. 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports.

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura: Tower Communications, Perth: Haven Electronics, Nowra

http://www.hamsearch.com

a not-for-profit site that is a search engine for hams

PLAN AHEAD

Ballarat Amateur Radio Group

HAMVENTION 2001

Ballarat Showgrounds Wool Pavilion

27 & 28 October

ARDF Events•Displays & Sales•Fox & Sniffer Hunts•Homebrew Competition

Enquiries: Stephen SWL 03 5331 5526, Doug VK3KAY 03 5339 2778

Clubs, do you have an event coming up?
Send details to the Editor for inclusion in PLAN AHEAD spots

"Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the

Radio Amateurs Old Timers Club Australia

or if you have been licensed for less than 25 but more than ten years, you are invited to become an Associate Member of the RAOTC.

In either case a $2.50 joining fee plus $8.00 for one year or $15.00 for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to

RAOTC,
3/237 Bluff Road
Sandringham VIC 3191

or call Arthur VK3VQ on 03 9598 4262 or Allan VK3AMD on 03 9570 4610, for an application form.

ADVERTISERS INDEX

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Over to You

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

RE: AM TRANSMISION (sic) - AR August 2001

It is gratifying to know that AM is still alive and kicking. Keep it up chaps.

Some years ago, I collected enough bits and pieces to construct an AM rig similar to that outlined by Antony Rogers' (VK3JIA) in his letter published in the August issue of Amateur Radio. Unfortunately, I never proceeded with the construction other than a 6V6/807 rig as described in the Radio and Hobbies publication "The Australian Shortwave Handbook" for 1950. The gear I have includes power transformers, chokes, 866 mercury vapour rectifiers, 807s, a 50 Watt modulation transformer, class AB2/B driver transformers for the modulator, and a Geloso VFO. There is also a quantity of lovely ceramic valve sockets, and vintage meters.

These items (and more) are gratis to anyone who would like to make a trip to sunny(?) Mount Gambier to collect them. It would be a shame to throw them out.

I am QTHR in the callbook and can be contacted on (08) 8725 5514 or via e-mail at ieh@sesawvic.com.au.

73, Ivan VK5QV

Membership

I refer to a letter from Mike Patterson VK4MIK, published in the August 2001 issue. Mike asserts that members from North Queensland do not feel any ownership of the WIAQ. I can assure him that his views are NOT universally held by Amateurs from his region. By way of example, the current WIAQ council has three councillors from north of the Tropic of Capricorn (one from his own area), a secretary from Mt Isa, and I was born in North Queensland and spent most of my working life in Townsville. The immediate past president was from Thursday Island. There is also a long-standing tradition of members from North Queensland joining the WIAQ council when they retire in Brisbane.

The WIAQ also holds regular general meetings outside of Brisbane, including a regular one at the North Queensland convention. There is ample opportunity for members from outside Brisbane to become involved in the life of their organisation. Lets not waste our effort on re structuring when it is not necessary. We even hold a regular HF sked on 3.605 MHz after our news on Monday evenings, where you can talk directly to council. Sadly, whilst this net is open to all, it is only patronised by a few regulars. Another avenue of input is the callback sessions after the Sunday morning news.

The WIAQ recognises that running an organisation like ours in the most de-centralised state in Australia is difficult but we try to achieve a balance between the wishes of all our members. The WIAQ has directly funded Amateur Radio projects in Mike's own area. The WIAQ is a democracy, run by the membership, and yet Council gets little or no input from the members. Ownership of any organisation is a two way street. It is very frustrating for elected office bearers, when the membership does not get involved.

So Mike, will we be seeing your nomination for WIAQ council in 2002?

John Stevens VK4AFS

Why I am an Amateur

Starting in late 1939 I developed an interest in experimenting with circuits, trying them out and altering them as the need arose. How things change as we grow older! If we define an activity index as Number of contacts multiplied by 1000 divided by possible days to operate; then from 1947 to 1949 it was 697 while I worked in Joinery, from 1949 to 1955 it was 41, while I was in the PMG. I married in 1955 and from 1955 to 1963, the index became 14. From 1963 to 1990 when I worked for CSIRO the index was 12, but since I retired in 1990 until 2001 it fell to 3. So much for free time in retirement for operating. However I have always kept up my constructional and experimental activities.

Phil Grigg VK2APG.

Silent Key

Bruce Wheeler VK6BEQ

Dear Sir

My father asked me to advise you of his death so that you may print it in your magazine.

Bruce Andrew Wheeler passed away on August 14,2001 in Swan Districts Hospital, WA, after a long illness. He spent many years moving in Radio circles and used the following call signs throughout his years: VK6XK, VK3BBS, VK5B, Woomera Radio and his current one of VK6BEQ, which he hasn't been able to activate due to his illnesses.

He wished to advise you of his parting and thanks everyone for many years of fun.

Thank you for printing this in Amateur Radio for him and it also means a lot to me, his daughter as well.

Regards,

Monique Wheeler/O'Garr,
6 Brown Street, Middle Swan 6056.
On behalf of Mr Bruce Wheeler.
August 16, 2001

YAESU'S DONE IT AGAIN

YAESU

FT-817 HF/6m/2m/70cm Transportable

The world's first self-contained complete battery powered multimode transceiver covering all the amateur bands from 160m to 70cm. Provides up to 5W PEP output, with SSB, CW, FM, and AM modes, plus reception of the 100kHz-56MHz, 76-108MHz (wideband FM only), 108-154MHz, and 420-470MHz ranges. Operates from 8 x 'AA' size batteries (not supplied) and alkaline or NiCad batteries may be used. An external 13.8V DC power source can be easily connected to the transceiver, and a menu function will allow charging of the optional FNB-72 NiCad pack from the 13.8V DC source. Includes 'big rig' features such as IF shift for reduced adjacent channel interference, IPO to allow by-passing of the RF pre-amp on HF/6m for improved strong signal performance, an IF noise blanker for reduction of impulse noise, and a front-end attenuator for more pleasant reception of extremely strong signals. Includes 2 antenna sockets - a top panel BNC socket plus a rear panel SO-239 socket and the menu system allows you to define which socket will be used on the HF, 6m, 2m, and 70cm bands. Includes: 200 memory channels with Alpha tagging, VFO and memory scanning, dual watch and priority channel operation, as well as smart search. CTCSS and DCS encode/decode circuitry is built-in as standard. Supports 1200 and 9600 baud VHF/UHF packet operation, and the menu system allows custom setups for RTTY and PSK31 (USB & LSB), as well as two user defined models (eg. for SSTV use). Supplied with the following accessories: MH-31 handheld microphone, FBA-28 internal battery holder, YHA-63 whip antenna for 6m/2m/70cm operation, E-DC-6 DC cable, and a shoulder strap.

D 3680

$1495

2 Year Warranty

DICK SMITH ELECTRONICS

That's where you go!

All Yaesu products listed are priced in Australian dollars and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information. Offers expire 30/9/2001

ICOM'S GREAT CHAMPIONS

IC-756PROII NEW!

Sharp & soft IF filter shape · Improved 3rd IMD & wide dynamic range · One-touch record/play · Digital voice memory · Extended 1/4 Tuning step & BPF functions for SSB-D mode · 32-bit floating-point DSP and 24-bit AD/DA converter · SSB/CW synchronous tuning · 4.9-inch color TFT LCD

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional AF DSP capabilities, including noise reduction & auto notch function. It's versatile, compact & loaded with features.

IC-910H The new dimension in the VHF/UHF world!

Tri band multimode transceiver · 2M -100W, 70CM - 75W, (optional 23CM, 10W) · 9600GPS packet operation · Satellite communication · Reverse/normal tracking doppler shift compensation · CIV capability for PC control

IC-706MKIIG HF · VHF · UHF

The amazing evolution of the legendary 706.

Now includes 70cm @ 20W and output power has been increased to 50W on 2m. You get base station performance and features in a mobile rig sized package.

IC-T81A

A remarkably compact tri bander.

VHF/UHF Multiband FM · 2M, 6M, 70CM, 23CM · 124 alphanumeric memory channels · Ni-MH battery Tone squelch · "Joy Stick" operation

ICOM

Clearlymahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

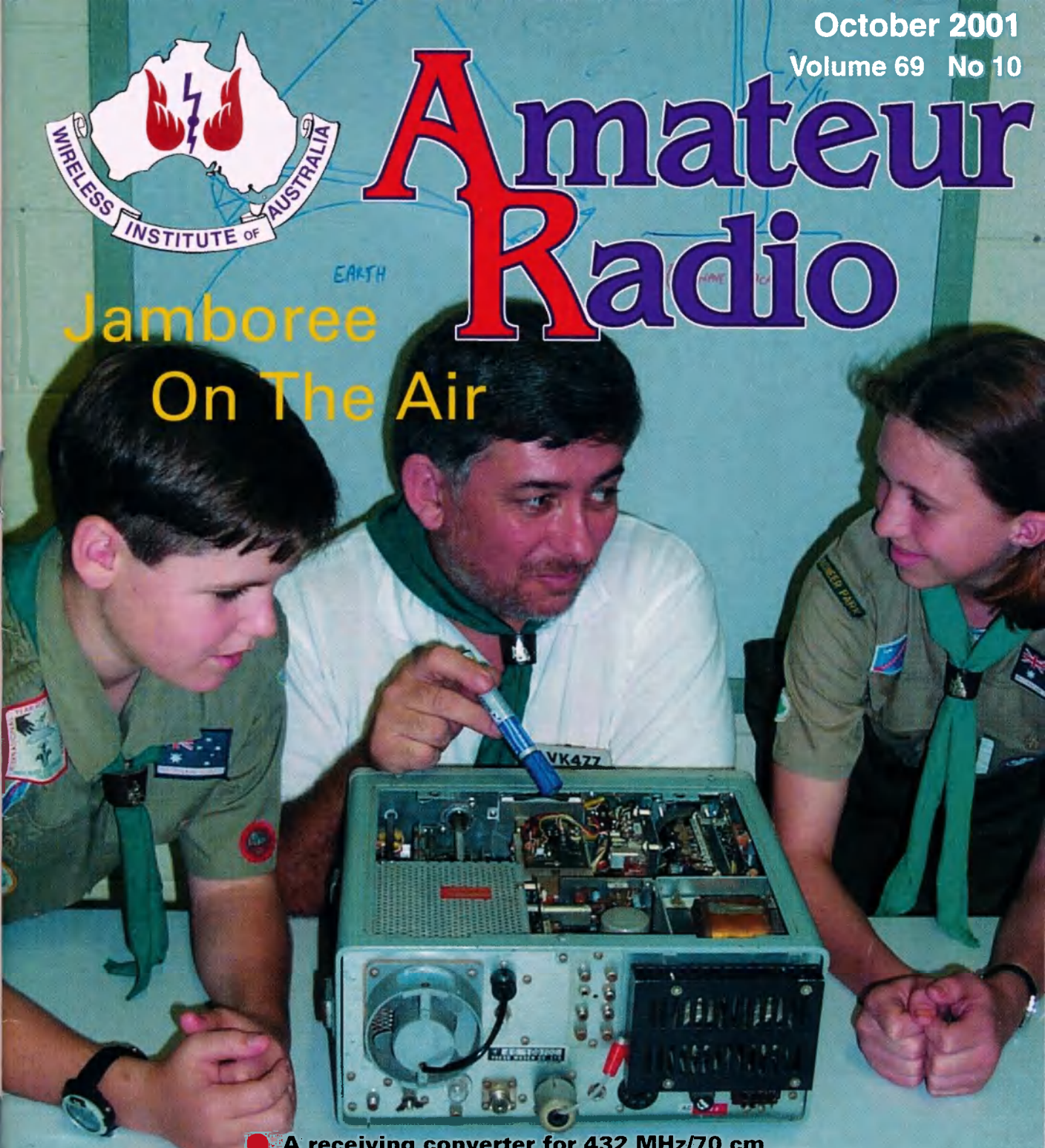
2 YR WARRANTY

October 2001
Volume 69 No 10

Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

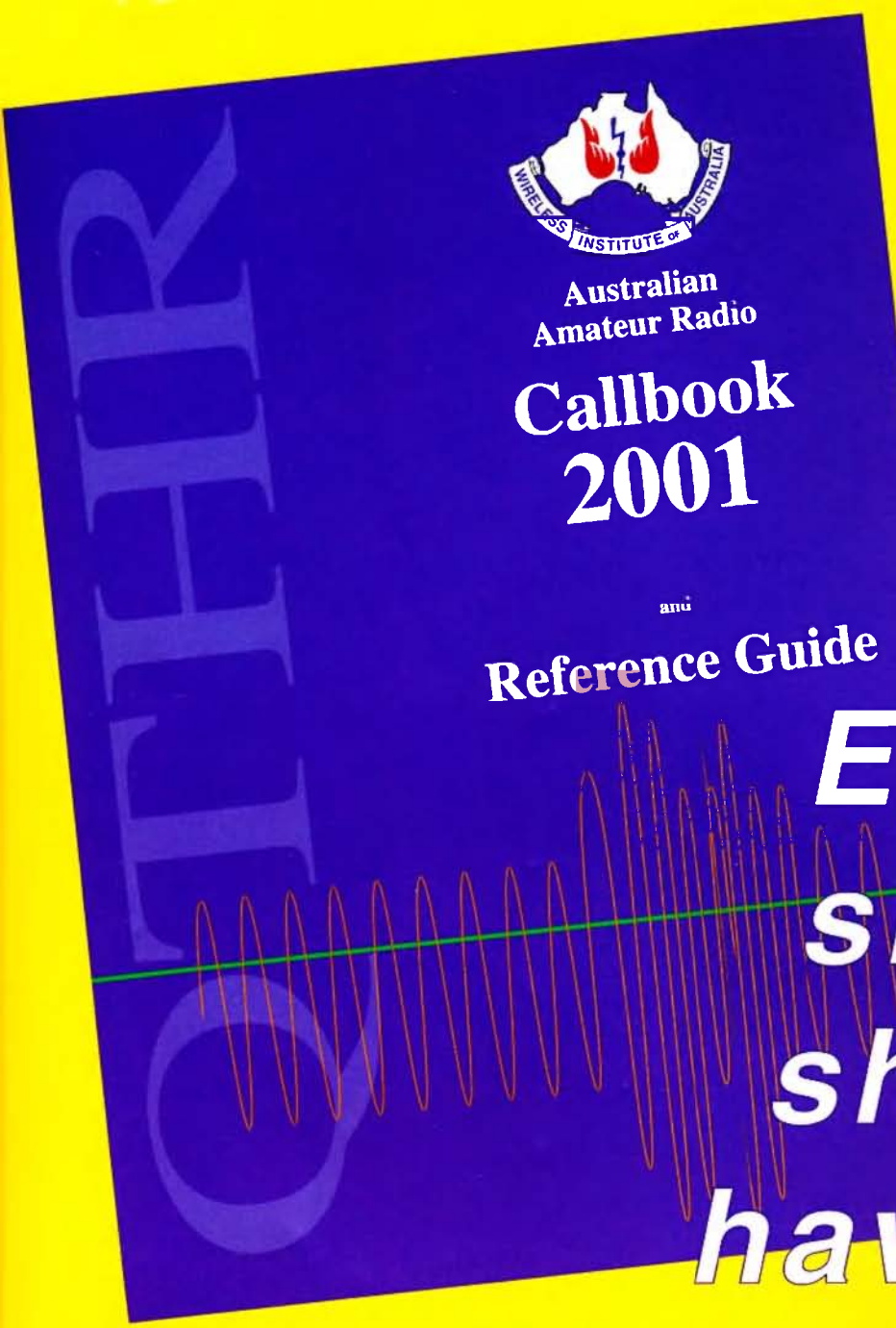
Jamboree On The Air



- A receiving converter for 432 MHz/70 cm
- An experimental HF direct conversion receiver
- Modification of D4825 6m half wave vertical for 50.110 MHz
- Recycling mobile phone hands-free microphone/earpiece
- VI5RAS Special Event Station

Transforming the NEW CAR

Photos from GIPPSTECH 2001



Every shack should have one

Callbook Listings • Frequency Listings • Band Plans • Repeater Lists • Beacon Lists • Satellite Lists • Licence Conditions • Examiner Lists • Special Interest Groups • Radio and TV Frequencies
and more!

The "WIA Call Book 2001" is available from Divisional Bookshops and selected outlets

For further information contact your local Division, phone numbers on page 30

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 10
October 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031

e-mail: *newsletters@ozemail.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191

Business Hours 9:30am to 3:00pm weekdays

Postal

P.O. Box 2175
CAULFIELD JUNCTION
VICTORIA 3161
AUSTRALIA
e-mail: armag@ hotkey.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Our cover this month

It always helps to explain some of the technology during a JOTA activity.

Gavin VK4ZZ explains the transceiver to Scouts.

General

Technical

Columns

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Federal Secretary

Peter Naish VK2BPN

Federal Office staff

June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

Council

President	Ernest Hocking	VK1LK
VK1 Federal Councillor	Gilbert Hughes	VK1GH
VK2 Federal Councillor	Barry White	VK2AAB
VK3 Federal Councillor	Jim Linton	VK3PC
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6UU
VK7 Federal Councillor	Phil Corby	VK7ZAX

Executive

Branda Edmonds	VK3KT
David Pilley	VK2AYD
Don Wilschefski	VK4BY

Federal Coordinators

AMSAT	Graham Ratcliff	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	Mal Johnson	VK6LC
Contests	Ian Godsil	VK3VP
Education	Brenda Edmonds	VK3KT
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Grant Willis	VK5ZWI
Intruder Watch	Harry Andersson	VK8HA
International Travel Host	John Miller	VK3DJM
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (VK9, VK0)	Neil Penfold	VK6NE
Videotapes	VK2 Division	
Web	Joe Burford	VK5UJ

ACA Liaison Team

Ernie Hocking VK1LK
Gilbert Hughes VK1GH
Keith Malcolm VK1ZKM
Peter Naish VK2BPN
Canberra Liaison Officer Richard Jenkins VK1RJ

Editorial

Colwyn Low VK5UE

Shock and horror

As the AR Publications Committee meeting drew to a close on Tuesday 11th September the world changed.

In the matter of about 2 hours some six and a half thousand people died in ways that shocked us all. Into the nightmare rushed the emergency crews and a large number of these crews perished. Amateur Emergency Networks activated and some of them were in the centre of the destruction zone. They all stood firm and did what was required of them.

The WIA response to this tragedy is given elsewhere in this issue. One of the lessons that came out of these events is that a nation can never be too well prepared and complacency can lead to disaster.

We as Amateurs always rise to the occasion in times of emergency and provide first up communications. This one of the best reasons we can put to Government when we fight to keep our frequency allocations and keep any fees we pay minimal.

However this brings with it the need to be able to put a competent emergency force in the field at short notice, a group that has trained and knows the local region. Knows where to put the portable repeater and has the charged batteries on hand to run it.

This group is WICEN and we all have an obligation to know something of its operations and who are its active members. We can even help them out every now and again when they are mounting an exercise to help a local organisation and get some practice in the field.

The Field Day Contests are an other activity that helps prepare us for emergencies. JOTA, if we go away from the home QTH is another learning situation. I know from experience that 20km from home on a Field Day is not the time to find the microphone is home on the bench.

October

JOTA and the Oceanea Contest are upon us. If you missed the SSB Section then there is still the CW. The Spring and Summer VHF/UHF Field Days are in November and January see the CONTEST Column.

I see the WebMaster is proposing an email diversion service for all Australian Amateurs. I consider this is one way to establish contacts with non members and to provide a useful service to members who have to change ISP. There are more in depth services available to members. I have already heard that this has caused some members concern. However it is certainly an avenue to showing the Australian Amateur population that the WIA is willing to do something for all Amateurs. I look forward to some OTU letters but please keep them to 200 words.

That's all for this month. Let us continue to look at the big picture and not get lost in the minute details.

73 Colwyn VK5UE

Useful info

HSC Part 8 - Rotor-EZ Review is a beauty, and reviews the concept of computerising your antenna rotor". Watch for the November AR

FYI - IRLP Node Addresses and Status

http://status.irlp.net/static.html http://www.ipass.net/~jimprice/irlp/

John Alcorn VK2JWA SARC

The WIA

Advancing Amateur Radio

Ernest Hocking VK1LK

It's *not* the end of the world! It's time for new ideas

By now some of you will have already had a chance to visit the new look WIA web page and seen that Joe Burford has done a great job of setting up a email alias facility for all licensed amateurs. Please make use of the service and don't forget to tell your friends.

Congratulations are also due to Colwyn Low and the AR team. I have heard from a number of members that the improved quality of the AR has been noted and is appreciated. Keep up the good work.

Further to my announcement last month about the Productivity Commission's (PC) review I can now confirm that we have already started informal talks with the commission about the issues that the WIA sees with the current Radio Communications Act (RCA) and its administration. I will ensure that the best interests of all amateurs are represented and will be pushing very strongly to have amateur operators take a much greater part in the administration of all aspects our hobby.

International News

As I write this month's notes, I wonder what the world will be like when you get to read them. We are all I suspect still very conscious of the impact of the events in the USA on 11 September. Daily we have heard more about the way that events have unfolded. Although none of us can predict the future I am sure that amateur operators will be involved in some aspect of these difficult times. My thoughts go out to all amateurs regardless of where in the world they might be. I would like to think that we are all prepared to support their efforts in any way that we can. I am sure that they would certainly reciprocate their efforts if it were Australia that was in need.

Membership Issues

A number of us within the Federal council and the Federal executive have watched with dismay as our membership numbers continue to fall in recent months. As I have already identified in recent articles, new amateurs and new members are critical to the continued success of the amateur service here in Australia. Given the continuing reduction in membership I decided that I would use my notes this month as a means to bring this critical issue to your attention. More importantly I would like to ask you all to help to increase both the number of amateurs and the number of WIA members. It's in all of our interests to increase membership. The more members the better the service and the cheaper that we can make membership fees. If we continue as we are then a number of options will be open to us:

- Increase membership fees to support the current level of services
- Reduce the quality or frequency of AR
- Charge more for services such as the QSL service.

We all know what needs to be done and we all can make a difference.

If we all were to approach one friend and ask if they were interested in amateur radio, and only one in hundred were to succeed in obtaining a licence each year, we could achieve some 400 new amateurs each year.

Make the time to get involved with a local group. This might be a scouting group, a local school or education establishment such as the radio repair group at the local TAFE or the University of the Third Age, or perhaps something such as a local walking club. Offer to give a talk or a demonstration of some of things that make amateur radio exciting for you.

We all know friends who used to be members but have for a number of different reasons decided to not renew. This may be for a number of reasons. Some that I have heard are:

- Ex members have become disenchanted with the people in the organisation and refuse to rejoin whilst these individuals remain. Can I ask that people put these issues to one side and focus instead on the positive aspects of the WIA? Call in on the local radio club or Division. They and the WIA need your support
- Members believe that WIA membership is too expensive. Perhaps they are looking for alternate membership models. Would a family membership help? Would a sponsorship of new amateurs for the first year in the hobby help?
- Some members and ex members have indicated to me that they are dissatisfied with the current State based Divisional structure. We already know that Martin Luther has proposed that the WIA needs a new Federal structure. However at this stage there is simply not enough evidence that people want this change. Here is your chance. Please, please write to me and let me know what you want.

To close can I simply ask everyone who is interested in amateur radio to please make the effort. Individually it might not seem like a lot. Together as the amateurs of Australia we really can make a difference. Just look at the respect that we have for the efforts of amateurs in the USA assisting with the current crisis.

To contact me please use any of the following means:

Email to president@wia.org.au
Auspost mail to
Ernest Hocking
PO Box 691
Dickson
ACT 2602

ar

A Receiving Converter for 432 MHz/70 cm

Drew Diamond, VK3XU,
45 Gatters Rd.,
Wonga Park, 3115.

In addition to our 6 and 2 m bands, another region of interest to the VHF/UHF enthusiast is the 432 MHz (or 70 cm) band. Lately however, there has been little technical information in the local amateur press for a device which would permit easy, cheap and effective receiving capability on this interesting band. It is hoped that the converter plan offered here may fill that gap.

In use, the converter is quite sensitive; the signal from a HP 608 generator stands right out of the internal noise with the generator at its minimum output of 0.1 uV. The VK3RMB beacon at Ballarat, some 200 km away, on about 432.535 MHz comes in at good strength off my little 5-element 70 cm Yagi beam. With the beam directed at Melbourne, no incursions of out-of-band signals have so far been observed. The converter draws 45 mA from a nominal +12 Vdc supply.

Circuit

The generally accepted method of gaining access to a desired VHF or UHF band is to convert the required band down to a lower one, such as 28 MHz, by mixing the incoming signal with a crystal-controlled local oscillator (L.O.), and thus permit tuning on an ordinary HF communications receiver.

For a 'tuneable I.F.' of 28 MHz, the L.O. must therefore be 432 - 28 = 404 MHz. As far as I can determine, there are no stock crystals available which produce this I.F. (an amplified 13th harmonic from a 32 MHz TTL clock oscillator for a 16 MHz I.F. was tried in similar fashion to those used for the converters described in Refs 3 and 4, but the resulting scheme was potentially prone to unwanted signal responses).

See Fig. 1. A 101 MHz 5th overtone Butler crystal oscillator, one of the easiest overtone circuits to get working properly, is powered by a pair of BFY90 transistors Q2 and Q3 (simple single-stage circuits, although of lower component count, are rather too fiddly to get going reliably. See Ref. 1) . The oscillator signal is applied to a BFR91 quadrupler Q4, whose collector tank- a circuit board strip-line L4, is tuned to the 4th harmonic at 404 MHz. A second strip line L5, coupled to the first, forms a selective filter at 404 MHz. The resulting L.O. signal is presented to the pin 6 L.O. port of the mixer; a ubiquitous NE (or SA) 602AN.

The NE (SA) 602AN has a published noise figure of 5 dB (Ref. 2), and so an RF amplifier with just a bit more gain than that (about 10 dB in this instance- see Refs 1 and 6) is required as pre-amplifier for weak signal work. Whilst trying to buy some Philips UHF tuner FET's (or similar), I was fortuitously reminded of the availability of reasonably priced NEC NE 72084 GaAs FETs. My guess is that these devices are intended for microwave satellite work. However, for a pre-amp at 432 MHz, they make an excellent low-noise amplifier. Q1 drain load is un-tuned, so the pre-amp. is quite stable. Output signal is applied to the signal port at pin 1 of the '602. The 432 MHz band is selected with a strip-line filter L1 and L2 (similar to that for the L.O.). Rejection of the 376 MHz 'image' (404 - 28 MHz) is -40 dB, and rejection of the 331 MHz 'alias' (3rd harmonic of the crystal at 303 MHz + 28 MHz) is measured at about -90 dB.

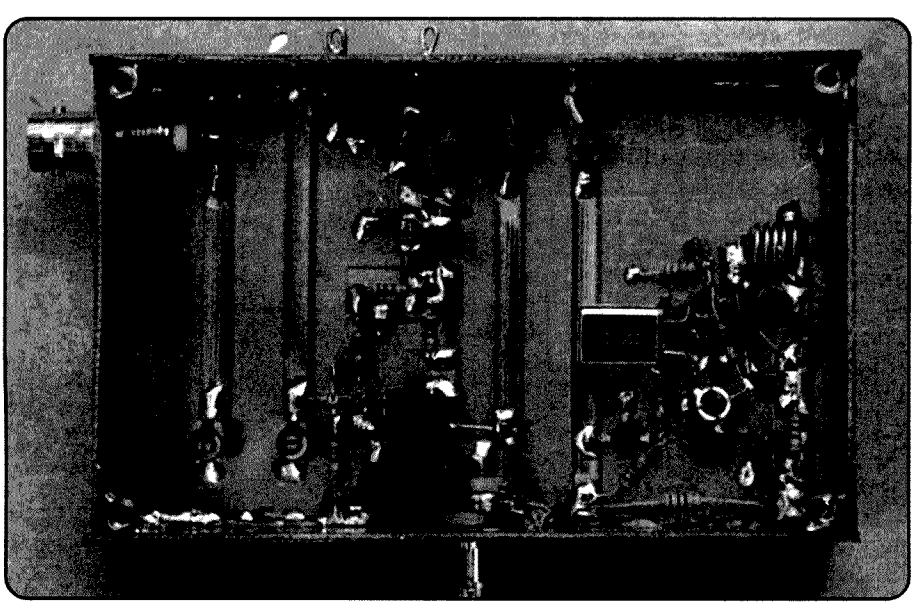


Photo 1. 432 MHz Converter

Construction

A blend of surface-mount, 'ugly' and 'paddyboard' styles were used for the prototype model. The GaAs FET and chip capacitors make it necessary for the builder to have good eyesight, a steady hand, and a fine tipped soldering iron. Components are mounted upon a circuit board ground-plane measuring 115 x 75 mm. It may be double-sided or single-sided foil up. Box walls of about 25 mm height permit mounting the input and output BNC connectors, and +12 Vdc feedthru capacitor.

If you have not used the 'paddyboard' method before, please look up Ref. 5. Figure 2 and Photo 1 show a suggested layout. Start by super-glueing suitably

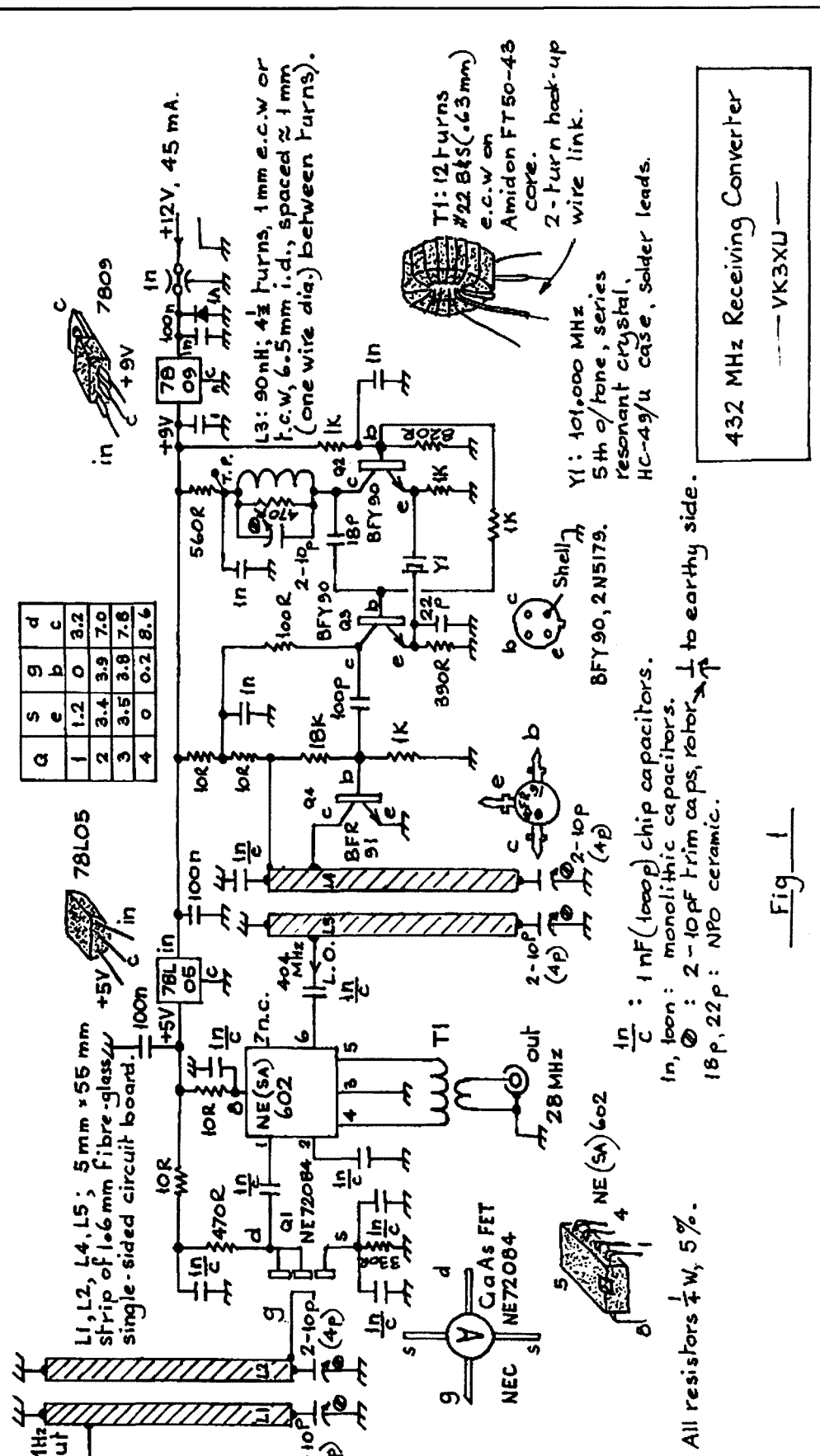


Figure 1. 432 MHz Receiving Converter

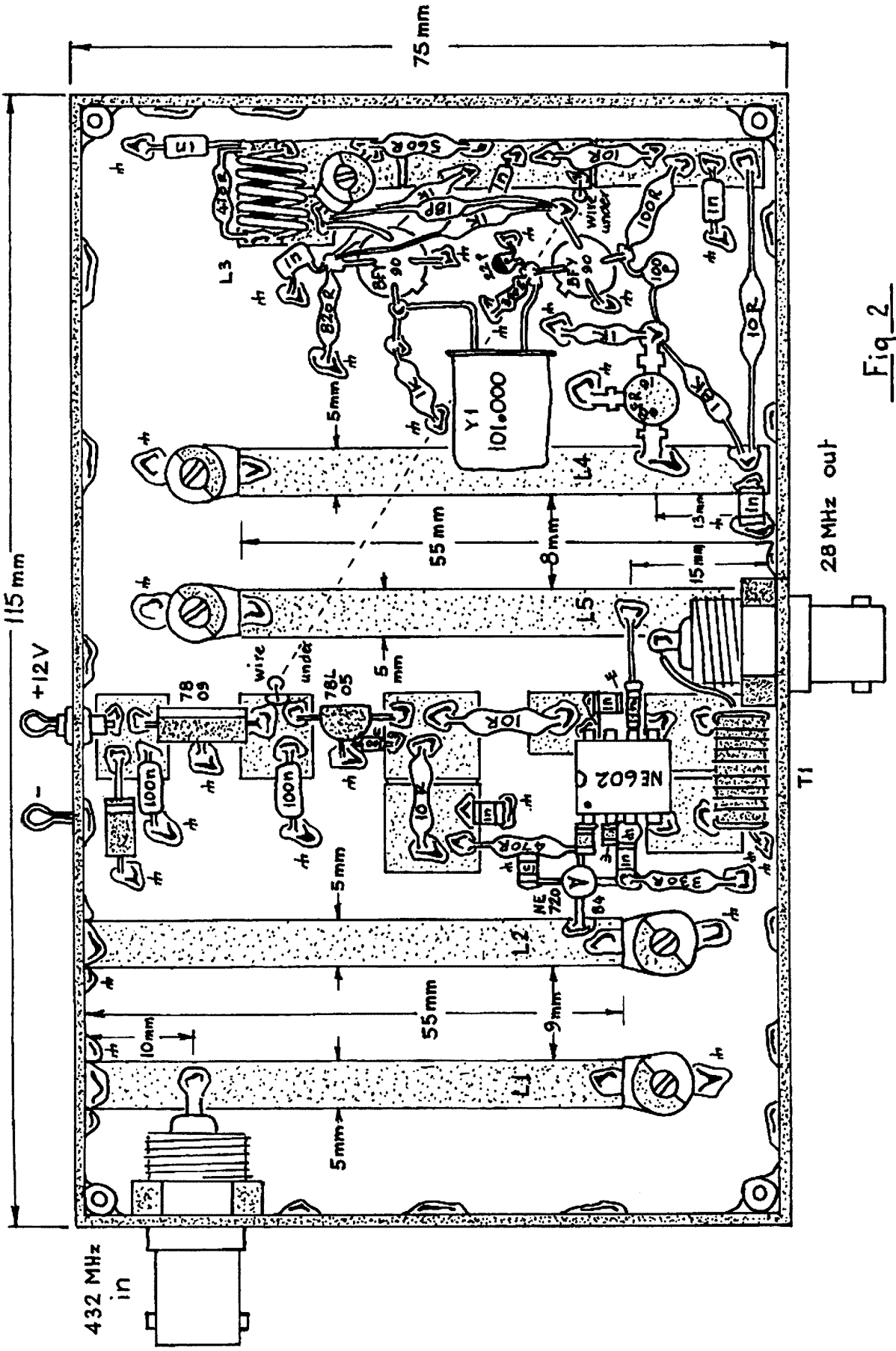


Figure 2. The circuit layout

sized pads upon the circuit board. The strip-line pad strips are made from ordinary 1.6 mm single-sided fibre-glass material, sized and spaced as shown.

Your iron should not be too hot- and check that the mains earth connection is intact. 7809, 78L05 regulator chip, '602 and their associated components may now be soldered in place. The 1 nF chip capacitors are quite fiddly to work with. Grip the part with fine pliers or tweezers, carefully (and quickly) apply a tiny pre-tin to the metal end plates, then solder in place (if you have not worked with surface-mount chip caps before, I suggest you buy two or three spares for practice).

Take care soldering the FET- observe normal anti-static precautions. Try not to bend their leads upwards or downwards where they exit the device- they should remain in the straight condition (but don't be too concerned- my GaAs FET's had a thorough working over during the experimental phase, and they all survived the ordeal).

Connection of the +9 V supply for the oscillator and quadrupler is made by means of a thin insulated hook-up wire under the board via holes as shown.

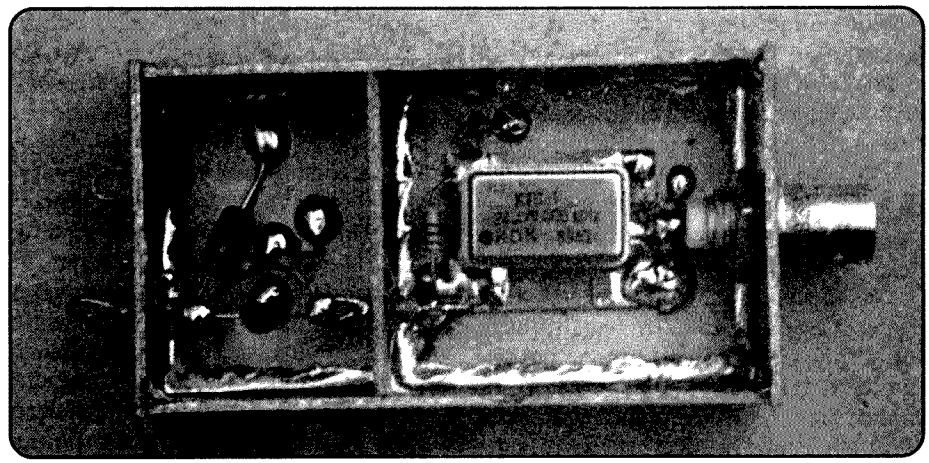


Photo 2. 'Signal-box'

When all components are satisfactorily placed, the side walls may be fitted. Holes for the BNC connectors, and the 1 nF +12 V feedthru cap should be pre-drilled. The ground ends of the strip-lines must be soldered to the inside copper of the walls where the strip abuts, and extra solder flowed immediately adjacent the abutment. Note that the strip-line L4 for the BFR91 collector must clear the side wall by perhaps 1 mm, where it is by-passed to foil ground with a 1nF chip cap. When positioning the walls, remember to extend them down past the level of the hook-up wire under the main board so that the box thus formed shall sit flat. It is not necessary for a continuous fillet of solder to be applied, just stitch the walls on with a number of regular "tacks". A lid is not essential, but inclusion is highly

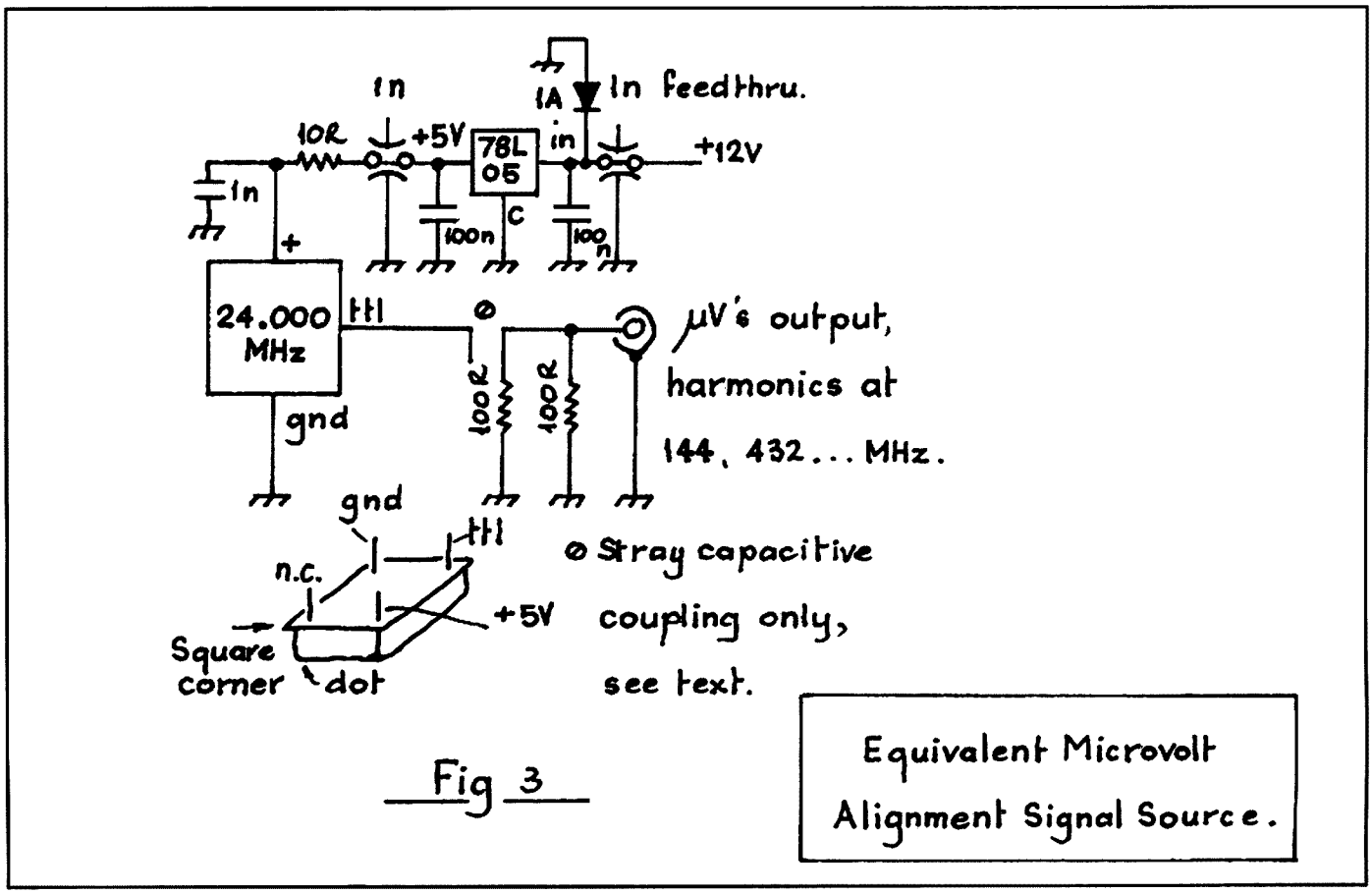


Figure 3. Equivalent microvolt alignment signal source

recommended. Solder four brass nuts upon the inside corners for attachment of a suitably sized lid made from single or doubled-sided board material. Tuning holes are suggested, as installation of the lid causes a small alteration (about 500 Hz at 404 MHz) in crystal frequency.

Tune-up

Before applying +12 V supply, visually inspect the job for soldering quality and correct placement of all components. Set the five trim caps for about half capacitance (5 pF). Apply 12 Vdc from a regulated supply. Measure the voltage with respect to ground at the coil end of the 560 ohm resistor at the test point (marked t.p. on the circuit). Adjust the oscillator tank trim cap so that the voltage drops from 7 V to about 6.8 V. When this occurs, the crystal should be operating correctly on the fifth overtone at 101 MHz. The trim cap may be adjusted later if desired to set the crystal spot-on frequency.

If a UHF signal generator is available (one that is stable, and can be accurately varied in level down to sub-microvolt), set it initially for 432 MHz at about 100 uV output level (or you could use the third harmonic of 144 MHz if necessary). Connect the converter I.F. output to the input of your 28 MHz receiver via 50 ohm coax, and the generator's output to the converter input with 50 ohm coax. You should detect the signal where expected. Carefully peak (tuning is very sharp) the quadrupler strip-line caps for maximum signal (don't be deceived by a peak in noise), then peak the input filter caps for best sensitivity.

Should a sig. gen. not be available, and you do not have a local 70 cm beacon signal, consider making a handy little "signal-box" tuning aid, as shown in figure 3 and Photo 2. An ordinary 24.000 MHz computer clock module is mounted upon a segmented paddyboard substrate, which in turn is glued and soldered to a plain circuit board measuring about 70 x 40 mm. Walls (similar to those for the converter) are suggested, although a lid is not mandatory. The 50 ohm internal termination, comprised of two parallel 100 ohm resistors, is coupled by stray capacitance to the ttl output pin of the clock. If made as shown, the equivalent uV level of the harmonic at 432.000 MHz will be about 10 uV- quite a strong signal if the converter is tuned up and working properly. If no signal can be detected initially, solder a 3.9 pF capacitor between the ttl pin and the output connector, and try again. The capacitor should be removed later to obtain a suitably low level signal for final tune-up. A 10 dB/step attenuator may be interposed to obtain an equivalent sub-microvolt signal if desired.

A table of typical device voltages, as measured with respect to ground foil using a DMM, is shown on the circuit to aid in any necessary troubleshooting. A badly wrong voltage would be a vital clue.

Parts

NE (SA) 602, NEC GaAs FET, BFR91, BFY90's (or 2N5179's), 1 nF chip caps, 1 nF feedthru caps and other parts are (at writing) available from Electronic World (ph 03 9723 3860- will answer mail orders). The more ordinary components are available from the usual electronics retailers. See Hamads in this journal for Amidon suppliers. My 101 MHz crystal was purchased from John Freeman (Crystals); 03 9583 4533, and cost $18 plus p & p.

References and Further Reading

1. The VHF/UHF DX Book; Ian White, G3SEK (ed.), DIR Publishing, pp 8-4,5,6.
2. "NE602 Primer"; J. Carr, *Elektor Electronics*, Jan. '92.
3. "A Receiving Converter for 2 m"; Diamond, *AR*, Sep. '95.
4. "A Receiving Converter for 6 m"; Diamond, *AR*, Oct. '96.
5. "Paddyboard" Circuit Construction"; Diamond, *AR*, Feb. '95.
6. VHF/UHF Manual; G. Jessop, G6JP (ed.), RSGB.

ar

Senior Operator, Alf VK2UC

In respect of the current request for info to find our oldest active operator, on behalf of the Summerland Amateur Radio Club and VK2 we present our candidate.

He is Mr. Alf Webb, VK2UC, of Lismore. Alf is now 96 years old, still very active on all bands using both CW and phone. Alf was in the VDC Signals during WW2 using line, radio, semaphore and heliograph. He gained his Licence in 1947 and has been continuously active ever since. His first contact was on 13 June 1947 on 7.100 MHz using CW with Leith Martin VK2EA then at Kangaroo Creek. (Leith's log, he is now in Lismore).

Alf is a foundation member of SARC and has been on the Committee and Club President 1984. Alf's crowded shack represents his long period of activity and is right up to date. His latest rig is the Kenwood TS2000 and his current log is just at 50,000 entries.

Alf VK2UC in his shack

VI5RAS Special Event Station — Activity Report

Godfrey Williams, VK5BGW
14 Jenolan Cresc.
Hillbank
S.A. 5112

During 1997 I wrote to the Director of R. Aust. Sigs., suggesting that a special event amateur radio station would be an appropriate way of contributing to the approaching celebrations for the Corps' 75th birthday.

This idea was then forwarded to the Certa Cito committee, which consisted of senior retired signals officers having the task of suggesting and organising events to celebrate this important event. This committee approved the idea and in turn contacted the Colonel Commandant of Central Region (South Australia) Colonel (Retd) Neville Bergen who also embraced the idea, Neville Bergen was the Commanding Officer of the School of Signals in 1975 and organised a special event station for the Corps 50th birthday. In Australia only societies, associations etc can be granted a special event amateur licence so it was deemed that the Royal Australian Signals Association (South Australia), who had a few ex Sig amateurs within its ranks, would conduct the event sharing the station with other Australian States who would operate the call on a portable basis.

Subsequently a sub-committee of the Association was formed and consisted of myself, Brian Melville (VK5ABO), Brian Stevens (VK5FV), Lindsay Collins (VK5GZ) now VK2YN and Bill McKeough. Bill who is not a qualified amateur was not able to attend many of the four meetings however provided valuable assistance as a logging operator and also transported three operators and station equipment the 500 miles to the Army Communications Training Centre at Watsonia Barracks in Melbourne. Lindsay with his usual dedication was able to make many interstate contacts with ex Sigs who indicated an interest in participating.

The subcommittee settled into its task quickly and decided that Brian Melville (who is the President of the Association) would be the station manager, Brian Stevens being designated as the QSL manager, myself as station co-ordinator, Lindsay as RSARS. Representative and Bill McKeough as administration support. Brian Melville provided leadership and advice and a link back to the Certa Cito committee and also in conjunction with his daughter Rachel, designed and produced the station's QSL card. Because of the strong traditional links between R.Aust. Sigs. and Royal Signals the sub-committee deemed it appropriate that VI5RAS should be a member of the Royal Signals Amateur Radio Society for the duration of the year 2000.

Operation

Conditions at best could only be described as inconsistent, some improvement being noted towards the end of the operating month (November), also because of the passage of continual low pressure weather systems across the country high levels of QRN effecting all bands up to and including 20 metres made it impossible to work weak stations. VI5RAS went to air at 1331 hrs UTC on Tuesday 31st OCTOBER (0001 hrs on the 1st November in South Australia), operating 20 metres SSB on the short path to Europe. The station was kept busy for some hours picking out stations from the large pileup that developed but many of our operators calling during dawn, daytime and evening hours were disappointed with the poor conditions. It was pleasing to note that amateurs in rare countries were calling us, it was also gratifying to sense the interest and regard that stations had for VI5RAS. Mainly the station was operated from the rostered operator's home QTH except for activity at Watsonia barracks in Melbourne, a brief session at 144 Sig. Sqn. here in Adelaide and by WO2 Steve Salvia (VK8AM) from the signal troop at Norforce (Darwin).

Five of the fifteen operators involved were ex Royal Signals, the association wishing to commend them for their efforts, Alan Gibbs (VK6PG) deserves a special mention for his work, in operating the station and producing a VI5RAS web site. The other ten operators all being ex R. Aust. Sigs together with the five ex R. Sigs represented all Australian States and the Northern Territory, no operation being conducted from the Australian Capital Territory (Canberra VK1). The total contacts for the month where 2517 (1689 SSB 828 CW) with 121 different countries being worked.

Life after VI5RAS

From a personal point of view, having a part in the planning and operation of VI5RAS has been the highlight of my involvement in amateur radio, and I doubt if anything radiowise will surpass it, except perhaps if in my 83rd year I am fit and well, then I am willing to be involved again in the 100th birthday of the Corps.

The Sigs Association here in South Australia is planning to continue it's involvement in amateur radio and has applied for a special licence. Finally I should mention our QSL manager Brian Stevens whose good work will continue on for some time. The whole QSL process is a very responsible job to ensure all cards dispatched are accurate and reflect a professional approach. In retrospect it would have been an advantage if most or all of our operators were in possession of a computer logging program compatible with that of our QSL manager. It would have saved Brian Stevens spending many hours of typing from written log sheets and the information could have been added to the main database by way of a floppy disc.

ar

Transforming the New Car

Richard Cortis VK2XRC
richard@richardcortis.com.au

"I ...have this new (to me) sparkling, and shiny car and three black recycling bins full of radios and stuff which has to go into the car without my wife being in the slightest bit inconvenienced. Her request was that I not make the car look like a fishing trawler. I think she was referring to the antennae. She did not care if it would be easy for me to spot in the carpark."

In about mid 2000, people were starting to point at the rust holes in the old XF Falcon. In about October 2000, my sister visited and announced that she was going to buy a new car and that, really, I should buy one too! After some discussion, it was decided that I would buy her 3 year old car at an agreed market value and she would go and buy something far more ostentatious. So, in December 2000, I took delivery of a 1997 model Falcon GLI. The bottom of the range, but it had airconditioning and cruise control. I haven't yet worked out what I will do with the cruise control in the Sydney traffic.

I take delivery of my new car, change the rego, put my plates on it, and that is just the beginning. First of all, it took two full days to decommission the old car. There was the 15 year old 2 m and 70 cm dual bander, the crystal locked RT80 modified to work on two metres, and the Plessey MTR8000 modified to work on six metres. Both the RT80 and the MTR8000 have remote control heads. They need them. The Plessey is about the size of half a slab of beer and weighs quite a bit more. You would not want to carry the RT80 very far either. In the old car, to maintain reasonable family relationships, I had run the remote control cables under the back seat and under the carpet to emerge in the console with discretely located control heads. The dual bander was located in the ash tray hole about a foot behind the gear stick. All this stuff had to be retrieved very carefully. I managed to find and restore the ashtray too. Accordingly, a long time was spent carefully disassembling the car and reassembling it. I wanted to be able to offer something reasonable to sell too!

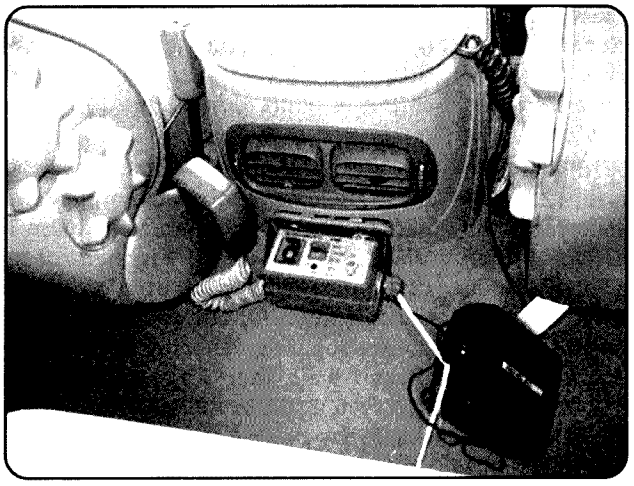


Photo 1. RT80

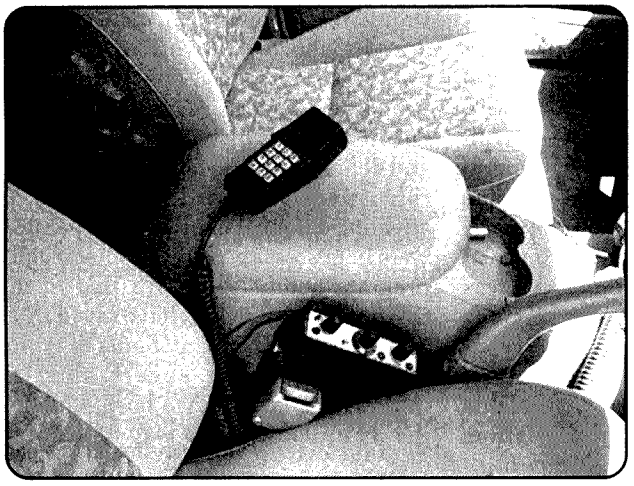


Photo 2. MTR8000

Along with all this stuff, I also decided to retrieve the mobile phone hands free kit as it was probably worth more than the car. Having spent about $1000 to $1500 keeping the airconditioning working in the old Fally in the last two years, she went for a grand. I hope the new owner enjoys the $350 stereo that my wife insisted on installing before we went on holidays for Xmas 1999.

I now have this new (to me) sparkling, and shiny car and three black recycling bins full of radios and stuff which has to go into the car without my wife being in the slightest bit inconvenienced. Her request was that I not make the car look like a fishing trawler. I think she was referring to the antennae. She did not care if it would be easy for me to spot in the carpark.

Back to the task at hand. Having shelled out for a sparkling nearly new car (new to me), I thought it was time for a new dual band radio. So I went out and purchased a Yaesu FT8100 with a remotable front panel. This is one of those radios with the ADMS (Advanced Data Management System) software where you program in the memory channels with the computer. Now that was a learning experience! Finally, after several sessions of psychiatric help with various Waverley Amateur Radio Society gurus, the FT8100 was in a state suitable to be installed in the car. Thanks to Mark VK2YZA, Simon VK2UA and Eric VK2KUR.

Because I live and work in the eastern suburbs of Sydney, I spend a lot of time driving on roads with line of sight to the Waverley radio tower that seems to radiate gigawatts of pager noise. So, we have to maintain the old crystal locked RT80 which is very very good at thumbing its nose at pagers. Apart from the odd polite burp, the RT80 seems to tolerate the pagers quite satisfactorily.

Okay, we have decided to keep the RT80.

Back from the dim dark distant days of my entry into amateur radio, I have been an enthusiastic fanatic on six metres. So the MTR8000 has to be found a home in the car.

At the front end of the central console, the dashboard of the new car had this sort of recess, which appeared to suggest that there was room for a CD player or something just below the broadcast radio. So, I set about to remove the plastic facade of the dash in this area. Take out the ashtray, undo the screws, lever, pull, lever, pull, lever a bit more, CRACK. Anyway it was out and there was a space for the FT8100. I brought the face of the dash panel up to the shack and, with a hacksaw, sawed the back off the plastic shelf and slid in the FT 8100. Back to the car, and with a certain amount of grunting, sweating and swearing, the FT8100 was set into the dash panel in an acceptable manner. This entire goings on consumed the best part of a day.

On the basis that I was proposing to run the FT8100, the RT80, and the MTR8000, I decided that a separate power supply was required which was independent of the general car wiring. The first thing that I discovered was that the new Falcon was far less friendly in terms of available cable routes from the engine compartment to the passenger compartment. Remember the fishing trawler? Remember also that I have to be quite aesthetic in this work. In addition to the power for the radios, I also needed separate power for the mobile phone hands free kit and an antenna route for the FT8100. I am 1.8 m tall, 110kg, and 54 years old. There did not appear to be a suitable cable route on the passenger side. Accordingly, lying upside down with my head in the driver's side footwell of the car was neither comfortable nor pleasant. However, I did manage to locate a rubber bung with some cable penetrations that also had room for other cable penetrations. The only trouble was that this rubber bung was totally inaccessible to a person other than a dwarf with three elbows. Getting the cable through the rubber bung was another matter.

Having located a suitable cable route, I then had to find a way to get the cable through the rubber bung. I raided the wardrobe and stole a couple of wire coat hangers. There was washing on the line so I hoped that the coat hangers would not be missed until the car episode had passed from memory. From these I cut three sections of wire approximately 30cm (1 foot) long. I sharpened one end and I cleaned up the other end and solded the main radio power wire to one, the mobile phone power wire to another and the RG58 coax to the third one. As far as the RG58 is concerned, I cut back the outer sheath about 7cm, folded back the braid, cut out about 5cm of the central core and then soldered the braid onto the needle fabricated from the coat hanger. I then filed off the rough edges of the solder so it would pull through the rubber. The power cables were also smoothed out and the leading edge of the plastic insulation was cut back.

With significant swearing, sweating, and one significant puncture wound to my hand, I managed to push through the needles from the inside and then retrieve them from down in the bowels of the panel work in the engine compartment. I never got to actually see the engine bay side of that rubber bung. All I could do was to feel for it. Hence the puncture wound. Anyway, the cables were pulled through. I duly installed fuses on the ends of the power cables and connected them to the battery terminal. Then I went out with my wife and she wanted to use the broadcast radio. New discovery. This car has one of those coded radios. My sister, who sold me the car, was no help so there was a trip out to the local Ford dealer, complete with detail ID and the car rego. You would think I was applying for a passport or something. Anyway I now have the code for the radio. Be warned.

Once I had the heavy fused power cable through to the passenger compartment, I installed a 35 amp relay which was actuated either by the power from the car cigarette lighter or by a switch. To prevent power feedback into the car system, I installed two diodes on the actuator coil terminal of the relay. One diode for the cigarette lighter circuit power supply (ignition on) and the other for the switch (ignition off). The aim is to avoid damage to the car circuitry and the associated unbelievable costs in rectification. The idea was to be able to operate the radios without having the ignition turned on. That system worked very nicely. The relay was tucked up somewhere inside the front console but I had to take the front panel off yet again. The separate switch was attached to a triple outlet cigarette lighter socket that was also attached to the main power cable. This is so that I can run the GPS in the car at the same time as my wife can charge her mobile phone. The third outlet is in case I am allowed to charge my hand held. The original cigarette lighter remains in its standard format.

Okay, so we have the FT8100 in the

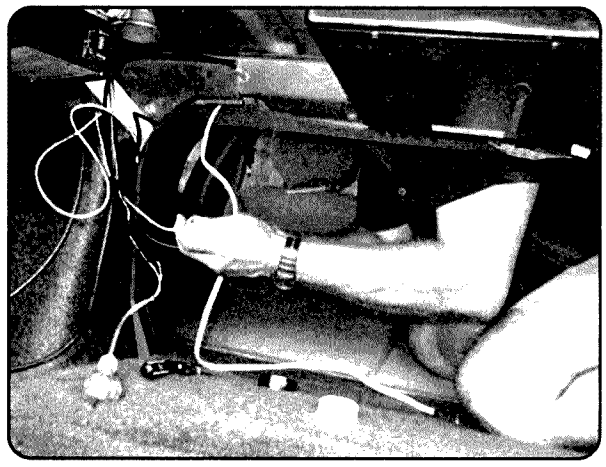


Photo 3. Power cables

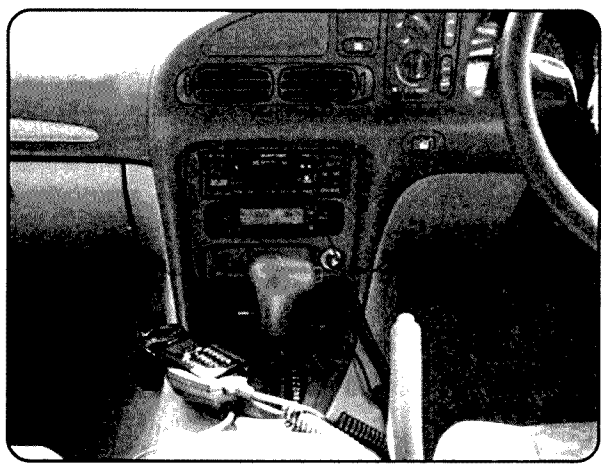


Photo 4. Console

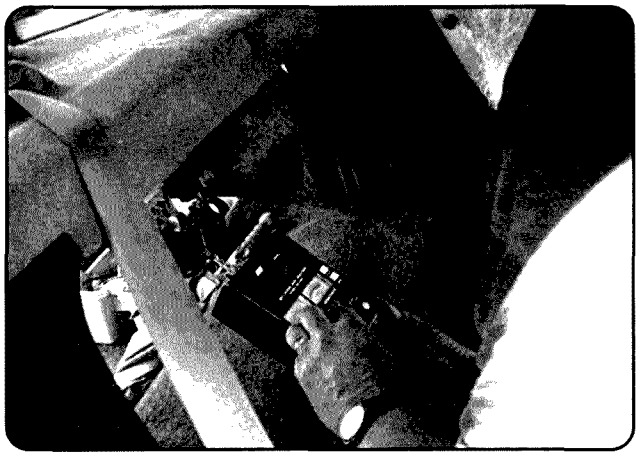


Photo 5. Antenna tuning

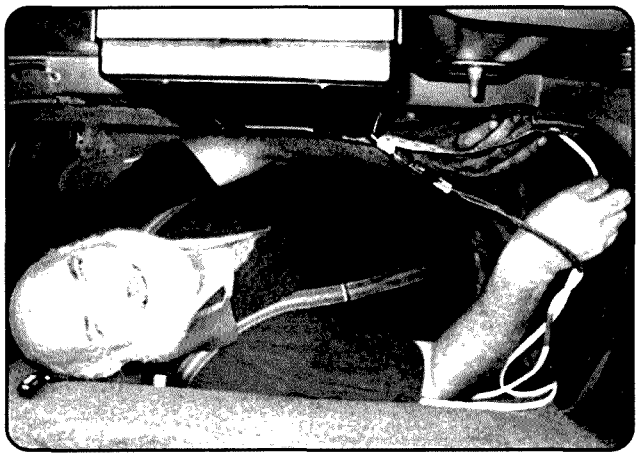


Photo 6. Joint mobility!

Photo 7. The trawler

dash, what about the others? Both the RT80 and the MTR8000 were installed in the boot under the rear window shelf. Holding up the heavy steel bracket for the MTR8000 and then screwing it to the rear window shelf was quite an effort. The RT80 was a bit simpler. Anyway, they both went in and have taken no appreciable or useable space out of the boot. I even had to stick my head right down into the boot just to see them.

Next job was to again dismantle the car and run the cables for the remote control heads through to the console. Rip out the back seat, use an old whip antenna as a mouse to push through under the carpet, attach a string, pull the string back and then pull the remote control cables though with the string. This took nearly a day. Small amounts of blood, lots of sweat and some tears.

The substantial control head for the MTR8000 (same size as the FT8100 complete) was installed to the side of the console, at the driver's hip, just outside the seat belt buckle. The RT80 control head went on the back of the console, useable by a back seat passenger if I ever had one. I still have not found a suitable location for the speaker from the RT80. The FT8100 speaker is set in the shelf at the front of the console, in front of the gear stick. Perhaps it should have a friend from the RT80. Microphone holders for the RT80 and the MTR8000 were hung on the back of the console on each side of the RT80 control head. I can feel for them and put them away without taking my eyes off the road.

The antenna for the FT8100 dual band radio went on a bracket on the front guard. This is a fairly standard arrangement with the bracket bought from Dick Smith. The only easy bit.

I decided that the RT80 would have a quarter wave antenna in the centre of the roof and that the MTR8000 would have a similar arrangement from the boot lid. Drilling the hole in the boot lid was a simple matter as I could get to both sides of the lid to drill the hole. The antenna installation in the centre of the roof had the potential to be fairly difficult. However, it turned out to be quite simple. I removed the central dome light from the head lining and had a look at the roof structure. There was a beam across the roof at the dome light but the head lining could be pulled down a bit to gain access to the roof just in front of the dome light and its associated beam. I started by drilling a 3mm hole upwards through the metal roof sheet from the dome light opening. I then used a large bit and a tapered reamer to enlarge the hole. In hindsight, it may have been a lot easier if I had used the correct size hole saw to make the opening in the roof as the tapered reamer seemed to want to only make a star shaped opening and lots of filing was required to obtain a satisfactorily shaped hole. The antenna cable from the central dome light area was fed through over the hood lining using a flat plastic strip called yellow Tongue. It is the plastic key used in chipboard flooring sheets. Some gets thrown away on most building jobs and it is always useful to have a couple of metres on hand if you occasionally run cables. I keep a bit on the boat too. You could use an old whip antenna if you wanted. The cable was then fed down through the various linings beside the back window and down into the boot. I had attached the cable to the antenna base before installation. This meant that I had to put the BNC connecter onto the radio end of the antenna cable in the boot compartment. This required more grunting, more swearing, and profuse sweating.

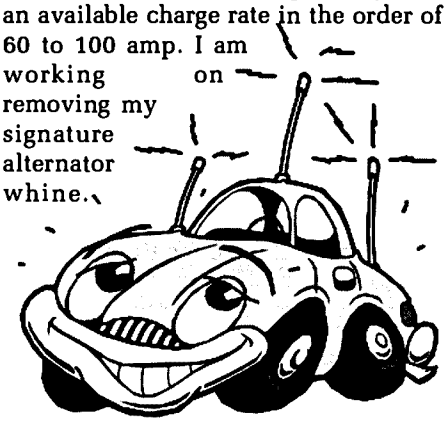
So, out I went in my new car with my new radios to try them out. The first report that I received was from Bruce, VK2JAI who said that I had the most horrendous alternator whine he had ever heard on 70 cm. There was a similar whine, but thankfully less, on 2 m. The MTR8000 has a minor problem. However, the RT80 appeared to be free of alternator whine. Cold comfort!

To treat the alternator whine, I installed a ceramic capacitor from the

alternator output to the body frame of the car. I also installed an in-line suppressor on the main power line near the battery. Thanks to Eric, VK2KUR. These works substantially reduced the alternator whine, however, it still exists and I now have to acquire sufficient strength of character to disassemble the face panel on the console, gain access to the power supply wiring for the FT8100 and install some more suppression in that area. Perhaps it is too hard. On the other hand, do I really want to be recognised by my "signature" alternator whine? I will ponder this question for a while.

I have been trying to manufacture a "City" antenna for six metres. I need a whip not more than 95 centimetres long so it fits in the garage. I have made a helical that tunes a bit but it is "peaky" and does not work very well. The quarter wavelength "country" whip is great. However, the "country" whip does not fit into the garage. I think I need more psychiatric help on this one!

There is still substantially more work to be done to fully commission this car to make it into a half decent mobile amateur station. The old car had a 35 amp alternator. The new one seems to have a high rate alternator, probably with an available charge rate in the order of 60 to 100 amp. I am working on removing my signature alternator whine.



So far, apart from the pain and the puncture wound, it has been fun. I intend to continue the fun, operating mobile every time I am out. I still have to find a location on "The Trawler" for a 10-metre antenna. Who has a design for a 6-metre/10-metre dual band whip? Make sure the "city" version is not more than 95 centimetres long so it fits into my garage!

The project to install mobile amateur radio in my new car has been a challenge, both technically and physically. The work under the dashboard has been good for my joint mobility. The changes in the design and manufacture of motor cars since my last project has meant that the whole project needed to be re-thought, virtually from the road upwards. This is progress and forms part of the challenge. The car does look just a little bit like a fishing trawler, but my wife has taken the end result as an acceptable compromise. I hope my experience has encouraged others to make more significant efforts to "go mobile" on their favourite bands. Have lots of fun setting up your new car and I look forward to working you mobile to mobile on six metres. The next step is to find somewhere to put ten metres!

ar

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

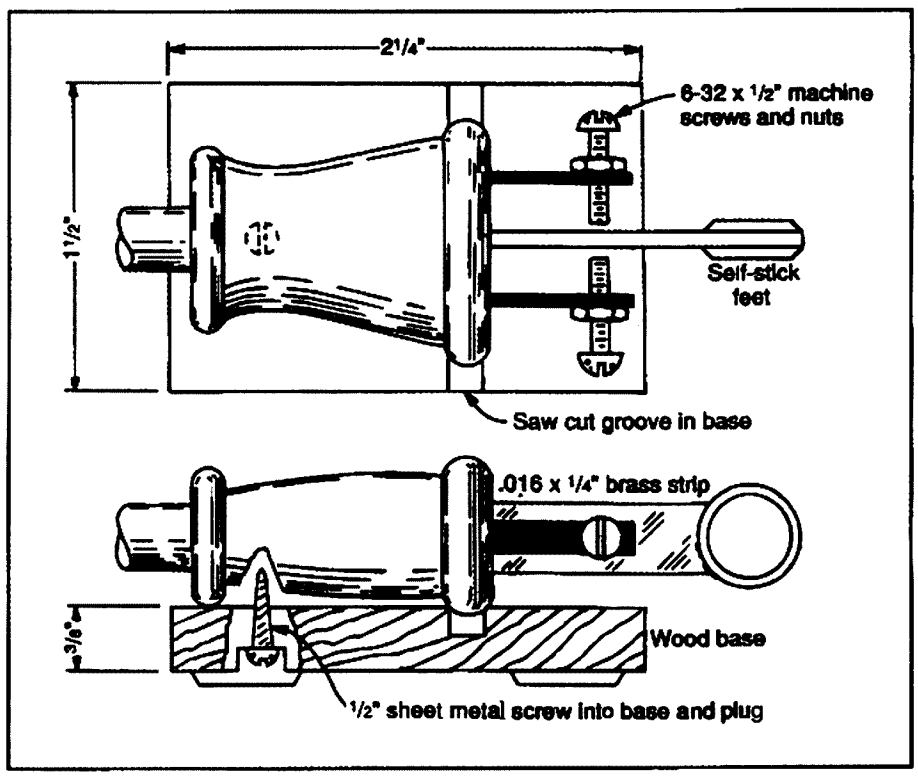
Power Plug Paddle

In Dave Ingram K4TWJ's QRP column in CQ June 2001 an interesting CW paddle is described by Roger Allen N1UIY. The paddle is made out of a standard USA style 2 Pin power plug.

The assembly is shown in Fig 4. The two pins of the power plug are tapped and machine srews and nuts are used as contacts for the dot and dash lines. A thin brass strip is inserted into a slot cut midway between the plug pins and this is the lever of the paddle. Stick on feet are used as the fingerpieces for the lever. The lever is made from thin brass strip. It is inserted into a sawcut midway between the plug top pins. The lever is glued in place. Connections are soldered.

The plug top keyer is attached to a wooden baseplate by self tapping screws. The baseplate is grooved where necessary to fit the plug top.

The device is quite useable and shows what can be done with a little ingenuity and imagination.



#Fig 4. N1UIY Power Plug Paddle

Recycling a Mobile Phone Hands-Free Microphone/ Earpiece

Stave Mahony VK5AIM
19 Kentish Road
Elizabeth Downs SA 5113

Like many of the modern electronic devices of today these microphone/earpieces, are "throwaway" if they go faulty! My set was obtained because the particular mobile phone was considered "outdated"!

I looked at the unit with its 2.5 mm stereo phone plug and thought, "I wonder if this can be used with my dual band hand-held transceiver?"

A check with an audio oscillator showed that the earpiece was OK. I also found that the connections for the earpiece were the tip and sleeve (body) of the phone plug. The microphone was a bit more difficult. Luckily I had a small microphone preamplifier PCB, with electret microphone input facilities. Making temporary connections to the ring and sleeve connections, and monitoring the preamp's output on the CRO, soon showed that the little electret microphone worked OK. Now to make it work into the hand-held transceiver!

The instruction book for the hand-held showed that the PTT was worked by grounding the microphone line via a 2.2 k resistor. The audio out was straightforward. A "rats nest" of leads, plugs, sockets, push-button and resistors was soon wired up.

Trap number one

The PTT was on all the time, although the microphone was OK, listening to myself on the home receiver.

I unplugged the mobile phone microphone/earpiece, and found no PTT lockup! However, plugging it back in again caused the PTT to be on again. I then unplugged the earphone plug into the hand-held transceiver, and there was no PTT made.

Aha! I touched the tip of the earphone plug on to the case of the hand-held, and the PTT was back on! My conclusion? DC Loops!

A 0.47 µF capacitor was placed in series with the earth lead of the audio headphone line, and that cured the PTT triggering.

The system was then tried listening to my signal on a 2 m simplex frequency. It sounded OK both ways. With the "rats nest" of components dangling on the wires, I went outside and called for a report on the local 70 cm Elizabeth repeater. Back came Richard VK5ZLR, with a comment, "It sounds OK, but there are some funny squiggles as you move around". Ahhh!

Trap number two

Don't use the small twin figure 8 cable for the audio-out earpiece lead. I went back into the workbench and changed it for some single shielded audio cable. It sounded a lot better listening to myself coming back on the repeater, but there was still some instability when the two cables came close to the rubber duckie antenna!

Back to the workbench

Drawing out the circuit it still appeared that the problem was DC loops in the audio output. I particularly noted that there was a common connection in the mobile phone microphone/earpiece cable. Thinking about the circuit, I believed that the circuit required DC isolation in the earphone wiring. I had some small audio output transformers from old transistor radios, 8 to 600 ohms. I decided to try one of them. The transformer was wired in, the 8 ohms winding to the hand-held, the 600 ohms to the earpiece via the blocking capacitor.

With it all connected up again, I called on the 70 cm repeater. Back came Richard VK5ZLR, "That sounds a lot better". I now had no "funnies" and good audio.

Tidying up

I purchased a small grey box, approximately 16 mm x 50 mm x 100 mm from Dick Smith Electronics. I then mounted a small PTT button switch, along with the 2.5 mm socket for the mobile phone microphone/earpiece, on the top of the box. The two shielded leads to the hand-held transceiver came out the bottom. I then "borrowed" a large cloths peg from my wife's clothes line, and attached it to the back of the box to enable it to be clipped on to my belt.

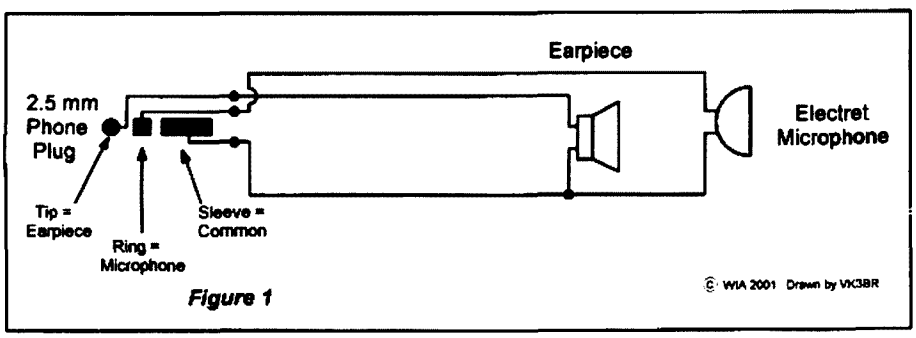


Figure 1, Circuit of the "hands free" Microphone/Earpiece.

With the hand-held transceiver clipped on to my trouser belt, the control box also clipped on to my belt, the lapel microphone clipped to my shirt and the earpiece in my ear, it makes a very neat pedestrian portable set up.

My wife then made me a simple harness of nylon webbing that goes over my shoulder and down my back, where it is attached to a belt around my waist. A pouch/pocket, to hold the hand-held, is attached to the shoulder strap, located up almost at my shoulder. This makes "hands free" pedestrian portable operation quite easy.

Incidentally, there is enough room in the grey box to mount a VOX circuit. However, my wife maintains I should forget about VOX because, if I get puffed out walking, my "Huff & Puff" would trigger the VOX and be a nuisance on the repeater!

Keep your eyes open for one of these "hands free" microphone/earpiece units and you, too, can walk around pedestrian portable, looking like an idiot, talking to yourself!

ar

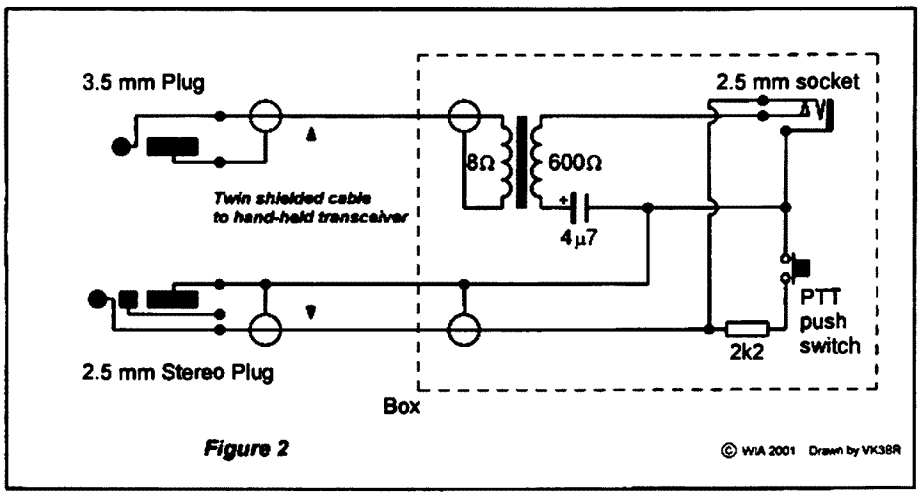


Figure 2. Circuit of the control box linking the handheld transceiver to the Microphone/Earpiece. Note that this circuit depends on the PTT circuit of your particular handheld transceiver - see the text.

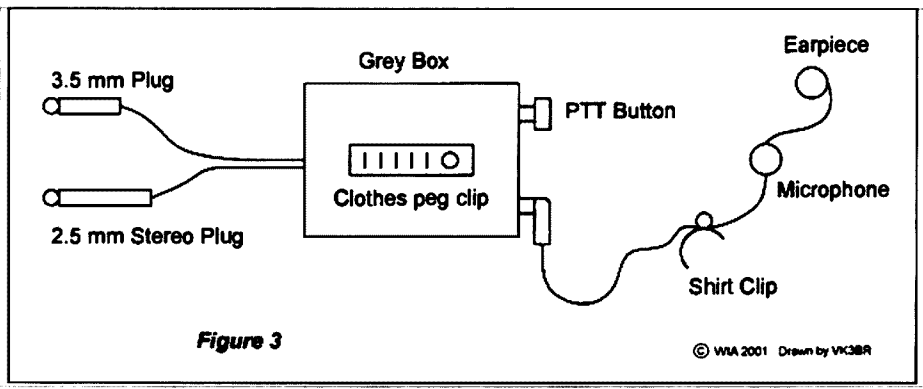


Figure 3. A line sketch of what the completed setup looks like.

World Trade Center

This is a copy of the personal message sent to Jim Haynie President of the ARRL following the destruction of the World Trade Center

Jim,

It is with great sadness that our first contact is to be made at such a difficult time. I do however wish to send you this short note of support from Australia at this time of great grief in your homeland. As many have already said - how do we go about expressing the shock and horror that we all feel at the events that have so shocked the world in the last few hours. I am sure that the thoughts of hams worldwide are with all of you at this time of distress.

I note that you have already swung the resources of the ARRL into action in order to assist those in need at this time. Please feel free to call on the assistance of the amateur community here in Australia if you believe that we can be of assistance at this time. I pray that this is the end to this madness and that these terrorist acts do not strike at us again in the coming days and weeks.

I have also attached a copy of the message that I have asked to be posted on our various web pages here in Australia. This message will also go out on the various WIA broadcasts over the next few days.

My sincere condolences

Ernest Hocking, Federal President, Wireless Institute of Australia.

In the ARRL Newsletter of September 14th the following Hams were reported missing:

Steven A. "Steve" Jacobson, N2SJ, 53, of New York City, A transmitter engineer.

William V. "Bill" Steckman, WA2ACW, of W Hempstead, New York. He was well know in the NYC area and ran a number of repeaters from the World Trade Center, most notably the 434 MHz ATV repeater.

Robert D. "Bob" Cirri Sr, KA2OTD, 39, an ARRL member from Nutley, New Jersey and the ARRL District Emergency Coordinator for Hudson County. A Port Authority police officer, Cirri was on the job helping to evacuate workers from the building when it collapsed.

Michael G. Jacobs, AA1GO, 54, an ARRL member from Danbury, Connecticut.

We express our condolences to their families and all the other Hams who have died. We also send our Best Wishes for recover to the injured, for they will live with the memories of this day of horror for the rest of their lives.

ar

Ramblings of a Crystal Set Constructor

John Hodkinson VK2BHO
11 Burge Place
Warilla 2528

Every boy or girl who eventually drifted into amateur radio has a crystal set story to tell. From a simple beginning the allure of radio grows until we spend large sums of money and spend much of our spare time chasing something we cannot feel or see. Generally those around us do not understand; It's a form of blood disease called RF poisoning and has been known to be a life long affliction (with no known cure).

I digress. At the age of 8 or 9, I was given for my birthday a "Crystal Set". Presented to me over the laundry tubs on a few old fence palings by my proud dad who had constructed this device from scratch. This basic device of cardboard tube with wire wound on and tuned by a large single condenser, a Perspex tube with a magical cat's whisker and Galena crystal all mounted on a wooden board. It made the "Emmco" earphones give forth with our local radio station 2WL Wollongong. Funny such details are still remembered.

Great, I was off in a world of adventure to where I knew not but come Monday morning I was reminded of the practical side of my new interest by me mum "pack it up now I need to do the washing". Though I never knew it then, I was to be haunted by those words until the present day. Needless to say when I got back to the laundry tubs and reconnected to my aerial and earth the device had ceased to function. I was then on a mission: how did it work? Why did it stop? Who knew my dad was not much help as he had just built and it worked, or so he said. I was on my own once the cat's whisker lost the magic spot on the Galena. The condenser had also moved; it was no man's land for some time.

A school friend discovered some time later had interest, so we pooled resources; we tried black coal, coke, rocks of all descriptions, made lead sulphide (a most unpleasant process) which gave us the best results as I recall. It was blind experimenting but we were always trying of achieve that goal of receiving 2FC from Sydney. He was a good mate for the rest of our school years and we then drifted apart..

In 1949/50 several GeX diodes made an appearance, a gift from my mates uncle who was a technician on the mobile TB chest clinic of that time. No more cat's whisker as they say it worked every time. With access to the public library whilst at high school and time in the army school cadets signals all this consolidated my meagre misunderstanding of radio. Work at 15 allowed small purchases of components tools including soldering iron, to take place. The battery operated one valve (tube) 1R5 Reinartz regenerative receiver, was followed by 2 then 3 valve mains operated models. The last with plug in coils with which the Short Waves and Amateur Radio were discovered.

In 1957 I left home and joined the PMG as a Technician in Training. I shared a large room in a boarding house at Strathfield with three other like souls. My final Crystal Set was constructed with a single earphone which resided under my pillow the aerial was ten or so turns of fine enamel wire wound on pins around the back of my large old wooden bed head approximately 1m x 1m. The earth counterpoise was the wire spring base. Being in the Homebush Bay area with several transmitters located close by. It provided a choice of stations. Some years later I had the opportunity to visit the 2UW transmitting facility as an old workmate was a duty technician there. Progress now sees this good transmitting site redeveloped as a large sporting complex.

I look back now with good memories of those "Crystal Set" days: the formative years of my introduction to Amateur Radio. It is a pity that in these so called modern times young people of today seemed to be denied the simple beginnings such as an introduction into the wonderful world of radio. AM radio has been replaced in many areas by FM; not really the domain of the crystal set.

Now with computers, mobile telephones, remote controls and Game-Boys, where is the imagination to follow into amateur radio?

This hobby unless it finds a new image which fires the imagination of young minds to explore and experiment is on a path to obscurity Why is it that in the past 100 years amateurs have been in the forefront of technical advancement now see their clubs and national bodies which manage the hobby in general decline world wide? Horses and steam trains are no longer a general means of transport. The old bogie CW is nearing a similar position in amateur radio history. 65 years ago CW was king, 50 years ago AM had the crown, 25 years ago SSB had taken over. So what about Packet, RTTY, SSTV and PSK31; where will they be in 50 years time?

The hobby will survive in a form that many present-day amateurs may not like or be able to come to grips with. These changes will reflect different generations and the changing society in which they live. With the ever-increasing pressures, both regulatory and social, placed on our hobby; these changes that take place may not always be for the benefit of Amateur Radio, as we know it today.

With some 50 or so years since my first Crystal Set it has been an exciting journey which I hope and trust others can still follow to fulfil their own personal goals in the company of like minded persons around the world in Amateur Radio for many generations to come.

73 de John VK2BHO

The DC-2000:
An experimental HF direct conversion receiver

Peter Parker VK3YE
12/8 Walnut Street, Carnegie, Vic, 3163
Email: parkerp@alphalink.com.au
URL: http://www.alphalink.com.au/~parkerp/

1.0 Introduction

Direct conversion receivers are deservedly popular with those seeking an easy way to receive SSB/CW signals on the amateur bands. They can be simple yet give performance adequate for many applications. Most DC receiver circuitry operates at audio frequencies, making construction easier. Unlike regenerative sets, DC receivers are easily incorporated into transceiver projects. They also have no fiddly regeneration control to adjust. The QRP publications are full of simple DC designs from which to choose.

But what about the experimenter seeking an HF receiver that's better than average? Can direct conversion deliver all of the attributes expected of modern receivers, such as sensitivity, selectivity, stability, strong-signal performance, freedom from spurious responses and quality audio? With the partial exception of selectivity, the answer is yes. And even selectivity can be tightened to superhet standards by using phasing techniques to suppress the audio image.

2.0 Project overview

The aim of the project was to experiment with techniques that could be used to construct an HF direct conversion receiver of better than average performance. Experience gained could then be applied to other equipment. The result of these experiments is the DC-2000 receiver (Photo 1). It draws on the best overseas designs, with compromises to suit locally available parts. Overall parts count and cost compare favourably with receivers of lesser performance.

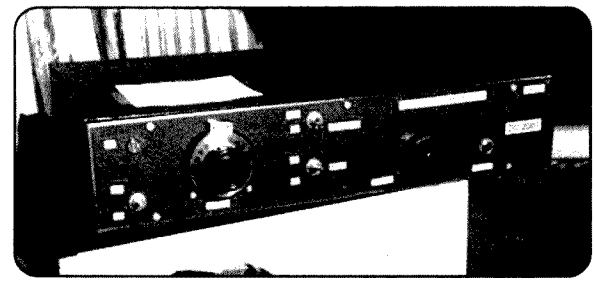


Photo 1: The DC 2000 Receiver. The front panel is uncluttered with only two knobs and three switches.

The DC-2000 provides SSB and CW reception of the most popular parts of 20 and 40 metres. Features such as digital frequency readout, S-meter and AGC were omitted; these do nothing to improve basic receiver performance and increase construction costs.

The finished set is surprisingly simple – just five transistors and three integrated circuits are used. Most unusual is the extensive use of readily-available CMOS ICs and the absence of specialised RF chips. As will be explained later, no performance is sacrificed by this choice. Approximately 50 hours was expended in the DC-2000's development and construction over a twelve month period. Figure 1 is a block diagram for the DC-2000.

This article is for the moderately experienced builder who has already built several HF receivers. For this reason, most space is devoted to discussing why various approaches were (and were not) taken in the development of the receiver. Only limited constructional information is provided – it is expected that this article will find most use as an ideas source for receiver experimenters.

3.0 Design notes (or why it's like it is)

The DC-2000 consists of six modules. These are:

a. Attenuator, high pass filter and RF preamp
b. Band Pass Filter
c. Mixer/Diplexer
d. VFO/Buffer/Regulator
e. AF Preamp/Low Pass Filter
f. AF Amp

Because the choice of components for each module has a direct bearing on the design of other stages in the receiver, the modules will be discussed in the sequence that they were constructed. The emphasis during construction was on getting a working receiver as early as possible.

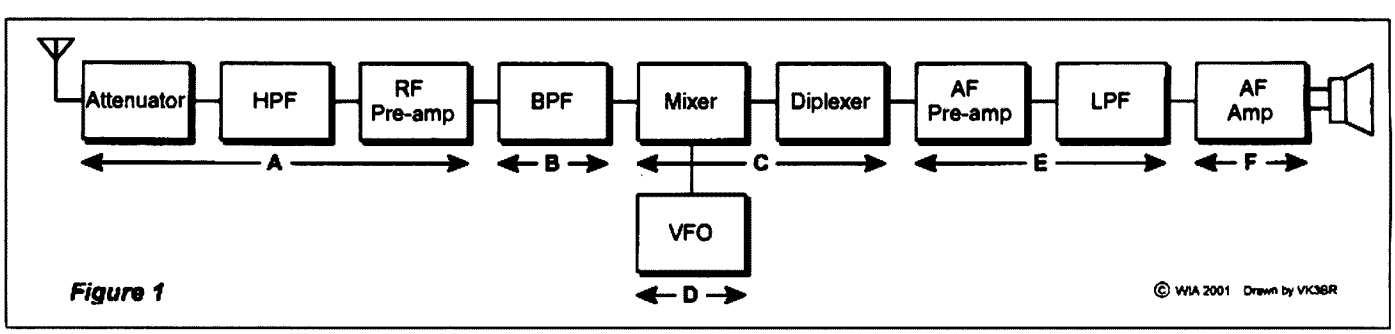


Figure 1. Block diagram of DC 2000

The following account describes the development of the DC-2000. Special attention is given to the consideration of alternative techniques and difficulties encountered. Mention is also made of compromises where these have been made.

Though the DC-2000 performs well, it is not beyond improvement. Ideas on possible modifications are given later.

Module D – VFO/Buffer/ Regulator

The VFO/Buffer (Fig 2) was the first stage constructed. Because the author was more interested in other parts of the receiver, and other builders are likely to have their own favourite VFO circuits, not much time was spent on this section, which came from Reference 1. Suffice to say it provides good frequency coverage with acceptable stability.

The oscillator uses a 3.58 MHz ceramic resonator that is shifted in frequency with a series variable capacitor. In the prototype it covers 3.505 to 3.590 MHz. Because of the harmonic mixing technique used in the mixer, this translates to 7.010 to 7.180 and 14.020 to 14.360 MHz band coverage. The use of a 74HC04 hex inverter chip for the oscillator and buffer also makes it easy to provide two outputs 180 degrees out of phase as required by the IC mixer.

The main compromise with the simple approach used is the combination of a low VFO frequency with a mixer that is designed to work effectively on harmonics. If a tight front-end band-pass filter (selected for the intended band) is not used, there will be reception of frequencies that are harmonics of the VFO's frequency, especially if a non-resonant antenna is used. With the prototype a slight problem was noticed when tuning 14 MHz. Five times 3.5 MHz is 17.5 MHz – near the sixteen metre international short wave broadcast band. At certain times very weak carriers from these stations could be heard while tuning twenty metres with the band pass filter described here. Measures that would reduce or eliminate this unwanted reception include using a 7 MHz VFO instead of the 3.58 MHz ceramic resonator circuit, adding an extra tuned circuit to the front-end band pass filter or installing a 17.5 MHz series tuned trap across the front end. If building a transceiver, connecting the pi-network so that it is common to both transmitter and receiver is another low-cost means of improving filtering and reducing spurious pick-up.

Notwithstanding the foregoing comments, this VFO achieves a lot with few components. However builders wishing for increased frequency coverage and improved dial linearity should use a conventional VFO circuit, using the 74HC04 as the buffer and phase shifter only. For reasons outlined above, a 7 MHz circuit is preferred to a 3.5 MHz design if eighty metre reception is not required.

Those unable to obtain a 3.58 MHz ceramic resonator can obtain one by sending a stamped self-addressed envelope to the author at the address shown elsewhere in this article.

Module C – Mixer/Diplexer

More thought was given to this part of the DC-2000 than any other. Many devices were considered as mixers before the final selection was made.

Though extremely easy to use, the popular NE602 was soon ruled out. This was for several reasons. The dynamic range, though normally acceptable for Australian amateur conditions, falls short of the best obtainable. The NE602 is also only available from a few outlets and is quite expensive. Probably the most compelling reason for not using the NE602 was that its (largely deserved) popularity over the last 10 years seems to have crowded out alternative approaches. The DC-2000 project provided a good opportunity to try other techniques that are not as widely used as they should be.

Other candidates for receiver mixers include the SL6440 and the MC1496. The 6440 is a high level mixer IC that is much stronger than the NE602. It was used in some British designs, but never caught on in Australia or the US, probably because it was never easy to obtain. The MC1496 was popular in 1980s DC receiver designs, but needs many external components to work. The dynamic range limitations of this IC and its susceptibility to AM breakthrough preclude its inclusion in anything but the simplest of receivers.

In discussions on receiver mixers, the terms 'single balanced' and 'double balanced' are often used. The outputs of most mixers contain signals of several frequencies. These signals include the sum and difference of the inputs and the inputs themselves. Singly balanced normally refers to a mixer where the local oscillator output has been suppressed from the output. The output from doubly balanced mixers is even cleaner, with both the local oscillator and incoming signals being nulled out. Thus the only two signals on the output of the mixer are the sum and difference of the input signals. The cleaner output from a properly used balanced mixer is an advantage as the following stages are not 'swamped' by unwanted signals on undesired frequencies. Balanced and doubly balanced mixers also tend to have higher dynamic ranges than non-balanced configurations (Reference 8).

Diode double balanced mixers are popular in high-performance direct conversion and superhet receivers. These mixers can either be built from diodes and broadband toroidal transformers or purchased as a pre-made package (eg SBL-1). Again, like the NE602, they are not widely available and a little costly. Extremely high dynamic range and freedom from detection of AM broadcast signals are the main attributes of diode balanced mixers.

Disadvantages of diode mixers include the high local oscillator drive requirements and the need to provide proper 50 ohm terminations at all frequencies if performance is to be maintained. A high-power local oscillator implies high current consumption, which makes diode mixers less practical for portable equipment, where low power consumption is desired.

Diode balanced mixers also have significant conversion loss (7dB typical), which directly adds to the receiver's noise figure. This means that more gain elsewhere in the receiver is needed to compensate if sensitivity is to be maintained. The required gain can be provided at either RF or AF. More audio gain exacerbates the risk of hum pickup and audio feedback – a real risk in DC receivers. Adding an RF preamplifier compromises dynamic range, one of the main reasons for the diode mixer being chosen in the first place! The most well known direct conversion transceiver that uses diode balanced mixers is the 'Optimised QRP Transceiver' by Roy Lewallen W7EL. This 1980 design quickly became a classic and has stimulated much further amateur receiver development, most notably Rick Campbell KK7B's R1 and R2 receivers.

Another approach that was considered

briefly was the use of four FETs in a double balanced configuration. Reference 8 includes such a design which required at least two watts local oscillator drive and a 22.5 volt supply rail. The circuit was considered impractical for a medium-complexity receiver.

So what ended up the winner in the search for a cheap, easily obtainable mixer with a high dynamic range?

Meet the 74HC4066. It contains four electronic switches that can handle RF up to over 30 MHz. The 74HC4066 is readily available at one-third the cost of an NE602. Its performance when used as a receiver first mixer is impressive. Distortion-free dynamic range can exceed 100 dB over most of the HF range – similar to that of leading brand amateur transceivers. The mixer circuit (Fig 3) is very simple and requires just one broadband trifilar toroid to wind. The drive level required is not high – thus permitting simple, low current VFO-buffer circuits to be used, in contrast to diode mixers with their higher drive requirements.

A further benefit of the 74HC4066 mixer is that it can operate on harmonics of the local oscillator (Reference 2). This is a great advantage because several popular HF amateur bands are harmonically related. Using a 3.5 or 7 MHz VFO, it is possible to construct a multiband receiver by switching in band pass filters for the band of choice. Such switching is simple as it requires just two switch or relay contacts to change bands. This makes a nice change from conventional multiband receiver designs, which are a builder's nightmare because of the need to switch several points of the receiver, such as local oscillators, frequency multipliers, mixers and band pass filters to change bands. As mentioned elsewhere, this multibanding technique has limitations, but these can be overcome by intelligent VFO frequency selection and sharp front-end band-pass filtering. Performance measurements by ZS6BZP show that the 74HC4066 exhibits good performance when used on both the VFO's fundamental and harmonic frequencies, with only a minor degradation of performance as the received frequency rises.

What are the disadvantages of the 4066 mixer? The first is that it needs two VFO inputs – each 180 degrees out of phase with the another. This was resolved

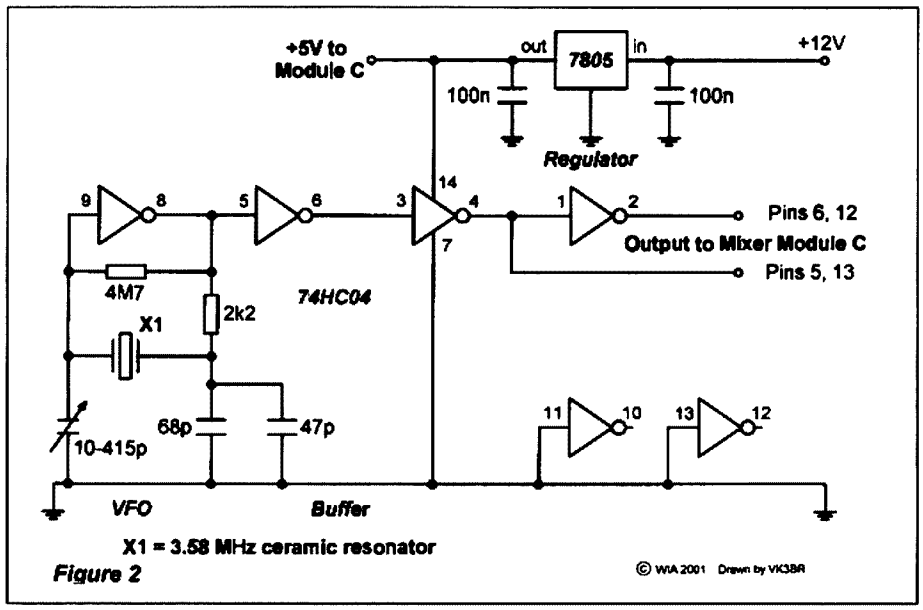


Figure 2. Module D – VFO/Buffer/Regulator

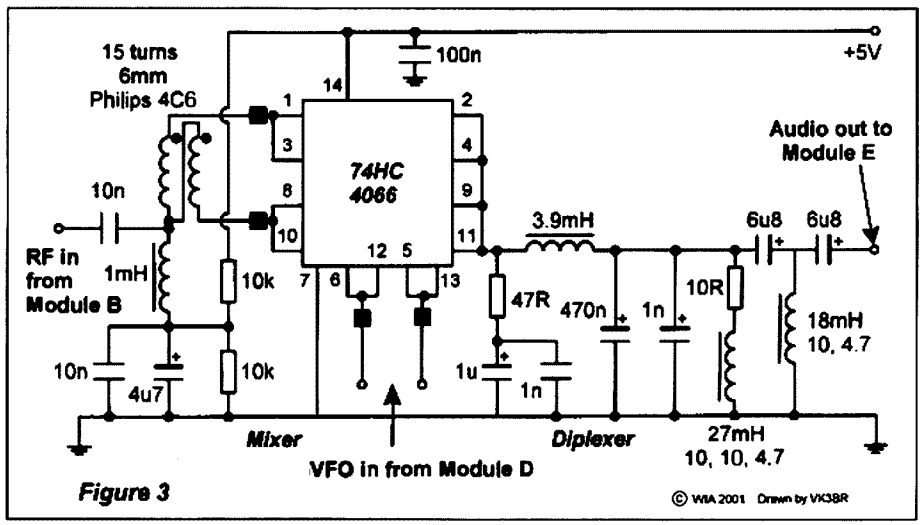


Figure Three: Module C – Mixer/Diplexer

through the use of a VFO/buffer stage based on a 74HC04 hex inverter IC. Though less flexible than other VFO/buffer schemes, it has the advantage of simplicity. Those wishing to use conventional transistor VFOs can still do so, but would need to retain the 74HC04 to provide buffering and the required phase shift.

Most of the other drawbacks are similar to those of diode mixers. These include the need for the mixer to see a 50 ohm load (at all frequencies) to assure peak performance. This requires the use of a diplexer network that is not necessary in simpler circuits. Also the mixer introduces a conversion loss. This necessitates an RF amplifier and/or higher audio gain than in NE602-based designs, where the mixer contributes significantly to overall receiver gain. More gain means more stages and potential hum problems that are harder to track down. This is why beginners are advised to start with NE602-based receivers first before tacking the DC-2000.

As mentioned previously, the mixer's output needs to see a 50 ohm load (at all frequencies) to perform to specifications. A 47 or 51 ohm resistor from mixer output to earth can be made to work, but will degrade the receiver's noise figure (Reference 3). Instead, it was decided to properly terminate the mixer in a diplexer. The diplexer also provides some audio filtering (300 – 3000 Hz band pass) before the first audio stage. Correct termination and filtering is desirable to assure maximum dynamic range and reduce hum and microphonics.

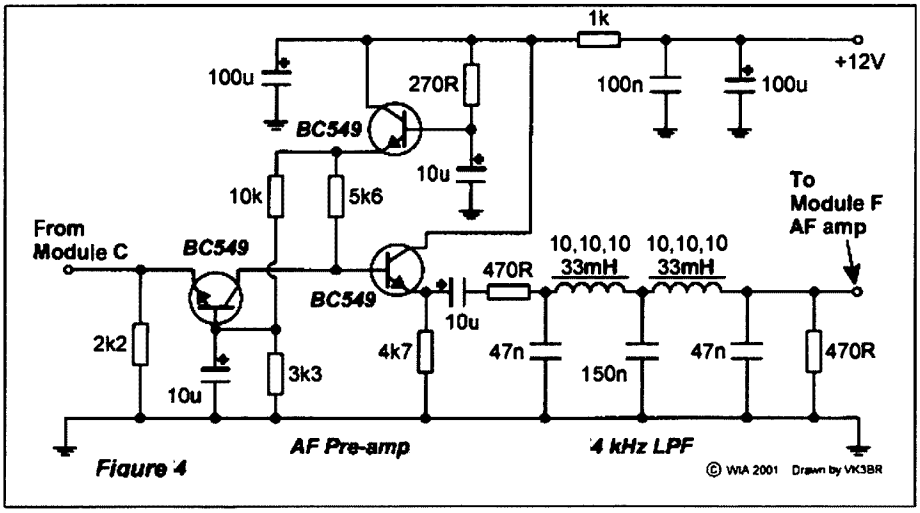


Figure 4. Module E – AF Preamp/LPF

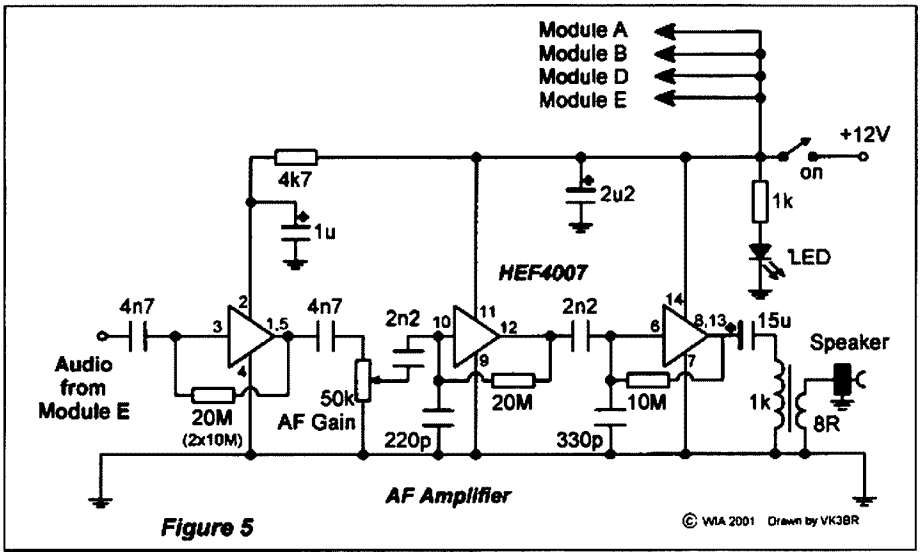


Figure 5. Module F – AF Amplifier

The DC-2000 uses the diplexer circuit of Reference 3, with minor variations in component values to suit parts commonly available. The specified inductor values are labelled 'mH', while the series combinations of chokes actually used are un-notated. Frequencies above 3 kHz are terminated at the 47 ohm resistor. The 3.9mH inductor operates as a low-pass filter at 3 kHz. The 27mH inductor and 10 ohm resistor terminate frequencies below 300 Hz. The reason the series resistor is 10 ohm and not 47 or 51 ohm is that the 27 mH and 3.9 mH inductors have significant DC resistances. The series resistor should be selected so that the total DC resistance of the two inductors and the resistor is approximately 50 ohms.

The original KK7B diplexer design used Toko and HiQ inductors not known to be available in Australia. Commercially-made RF chokes were used in the DC-2000. Often several needed to be wired in series to obtain the odd values needed, especially where the required inductance exceeded 10mH – the highest value obtainable from most sources. Though the values obtained varied by up to ten per cent from those specified, the compromises made worked well. About the only real disadvantage is the cost of purchasing all those chokes at approximately a dollar a pop!

Module E - AF Preamplifier/ Low Pass Filter

This stage consists of a three transistor audio preamplifier and a low-pass audio filter (Fig 4). It is almost a straight copy from Reference 3, except for the use of BC549 transistors instead of the 2N3904s specified.

This stage must be able to provide low-distortion amplification of signals ranging from nanovolts to millivolts. It comprises a grounded-base input stage that is actively decoupled. An emitter follower stage drives the low pass audio filter.

Reference 3 again provided the circuit for the audio low pass filter. It points out that old-fashioned L-C audio filters have a higher dynamic range than more modern op-amp based filters. Information on three filter bandwidths is provided. These are 1 kHz, 3 kHz and 4 kHz, the latter recommended for 'high-fidelity' SSB reception. The two narrow designs were elliptical filters, while the 4 kHz design was a Butterworth filter. Because it was going to be difficult to obtain the exact component values required, it was decided to construct the wider Butterworth filter, as these are more tolerant of component variations.

As with the diplexer, it was not possible to obtain inductors with the correct component value. At times it would have been possible to obtain exact values, but at additional cost to the builder. For this reason, it was decided to use 30mH (3 x 10mH chokes) in place of the 33mH specified – a difference of almost ten per cent.

In practice the filter worked well, with no ringing. The filter skirt appears straight, as one tunes away from the received frequency. The 'ham down the road' with his beam and linear amplifier is most unlikely to be a problem with the DC-2000, provided of course his transmissions are clean.

The 470 ohm resistor should not be omitted, as the filter was designed for a load of approximately 500 ohms. Though removing it marginally increases overall receiver gain, its initial omission was the main cause of an annoying hum that required much effort to track down. Also the filter characteristics will be degraded if it is not terminated with the correct load impedance.

The audio filter's main limitation is its 4 kHz bandwidth. This bandwidth corresponds to an 8 kHz-wide receiver bandwidth in a DC receiver; approximately three times as wide as the receiver in a conventional filter-type SSB transceiver. In practice, the wide selectivity was only really a problem on 20 metres during busy times. However, the wide bandwidth also means that the signal to noise ratio on weak signals is

significantly poorer on the DC-2000 than on a reference HF transceiver.

The wide bandwidth caused by the non-suppression of the audio image (and the 4kHz filter) is the biggest single limitation of the DC-2000. Improvements would include tighter audio filter bandwidths (3 kHz SSB, 1 kHz CW) as per Reference 3 and, for the more ambitious constructor, suppressing the unwanted sideband along the lines of KK7B's R2 receiver.

Module F – AF Amplifier

When one is designing a good receiver, one does not expect to get circuit ideas from books written for twelve year old beginners to electronics. However that's what happened in this case.

The first idea was to use an op-amp audio preamplifier and power amplifier using a BD139/140 pair. It worked, but the audio quality was poor and some feedback problems were encountered. The author's efforts to fix these problems were not successful and it was decided to look to other circuits.

To simplify design, it was then decided to accept a lower level of audio output than is available on most commercial transceivers. Speaker reception of most signals in a quiet room became the chosen goal. Where signals were weak, it was accepted that the user might have to don headphones to receive the signal. Using headphones to receive weak signals is normal practice with weak signals on any receiver, so it was not considered that this is a major disadvantage. Also limited audio output made it possible to keep the receiver's power demands down.

The LM386 is a popular candidate for the audio stages of simple receivers. Like the NE602, they give acceptable performance. Again their sheer ubiquity in amateur designs caused me to consider alternatives for the DC-2000.

Several builders have found the TDA2822 stereo amplifier IC a good choice for homebrew receivers. However given that the prototype was close to being an all-CMOS design, it was decided to try a CMOS audio stage first. This temptation was not diminished by having an already built CMOS audio stage in a homebrew transceiver that was being dissembled at the time.

The CMOS audio stage is based on a 4007 inverter chip (Fig 5). The inverters are biased to linear mode by connecting a high value resistor between input and output. Three stages are used to provide a good level of audio gain. A conventional transistor radio speaker transformer provides 8-ohm audio output suitable for speaker or headphones. Current consumption of this module is low. Though no measurements were taken, signals heard through this stage are pleasantly free of distortion. The stage uses few parts and has proved to be readily reproducible. Again the cost of the CMOS IC is less than the non-CMOS ICs more commonly used in audio modules.

This stage is another example of a technique that is not used as much as it should be in homebrew designs. As far as the author can establish, the 4007 amplifier originated in Reference 4 as an audio amplifier for a TRF receiver available in kit form. The technique re-appeared in the 'Tassie Devil' and 'TDM' QRP transceivers of 1985/6 (Reference 5), but appears to have fallen into disuse since then. However, for its cost the 4007 audio amplifier delivers excellent performance and is a worthy part of the DC-2000 receiver and future equipment.

Module B – Band Pass Filter

All receivers should have a bandpass filter in the front end to ensure that only signals within the band of interest present themselves at the receiver's mixer. The importance of a good band pass filter is magnified in this design due to the use of a mixer that is as efficient on harmonics as it is on the VFO's fundamental frequency.

The circuits used (Fig 6) are based on those that appear in Reference 6. The input and coupling windings were experimented with to reduce filter attenuation. A separate narrow filter must be used for each band covered by the receiver. Relay band switching was used to keep leads short. One DPDT relay is required to accomplish this in a two-band receiver, but more are needed for if extra bands are required.

Module A – Attenuator, High Pass Filter and RF Preamplifier

If building the receiver for 7 MHz only, this stage could possibly be dispensed with. However on 14 MHz the RF preamplifier is needed to overcome the loss in the CMOS mixer.

The circuit eventually adopted appears in Reference 7. Medium power transistors were used in order to provide for a strong front-end, able to cope with large signals (Fig 7). The transistor type used is not critical, and there was little variation in performance between specimens tried. Gain is only just sufficient for 14 MHz – modification of this receiver to cover bands higher than 15 MHz will require higher gain in this stage.

Adding an RF preamplifier to a receiver aids sensitivity, but reduces its ability to cope with very strong signals. This is why most receivers include a means to switch out the RF amplifier or introduce front-end attenuation when strong signals are encountered.

To reduce switching complexities, it was decided to add a 20dB input attenuator rather than switching out the RF preamplifier. Switching the preamplifier would require a three pole, two position switch (switching input,

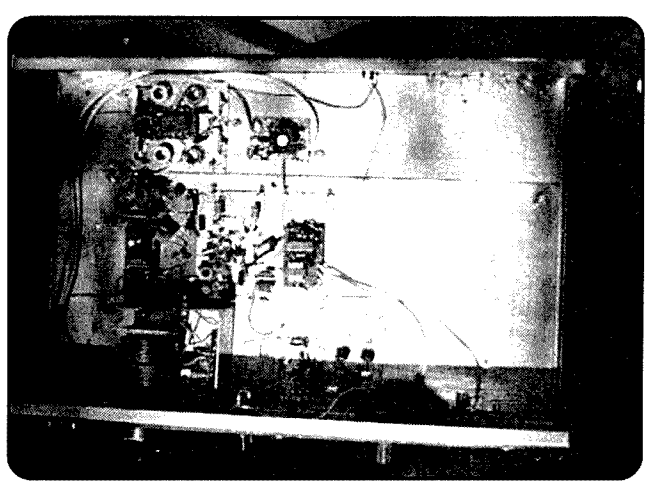


Photo 2: Internal construction of the DC 2000. The VFO/Buffer/Regulator is at the bottom left, near the tuning capacitor behind the partition. The three modules in the centre are (L to R) Mixer Diplexer, AF Preamplifier/LPF, and AF amplifier. Nearest the rear panel is the Band pass filter and one RF amplifier stage. To the right of the VFO is the high pass filter and one RF amplifier module. The attenuator resistors are mounted on the rear of the attenuator switch.

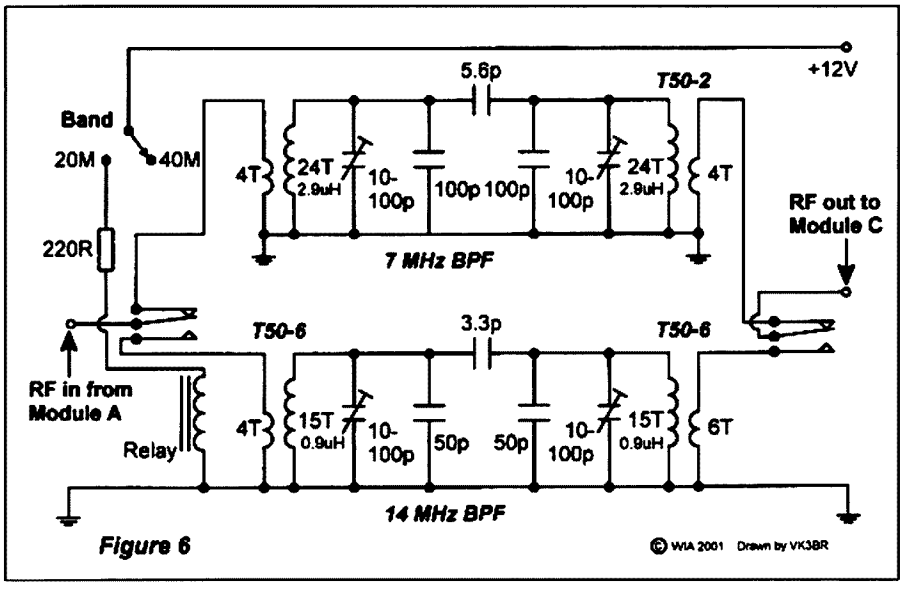


Figure 6. Module B - BPF

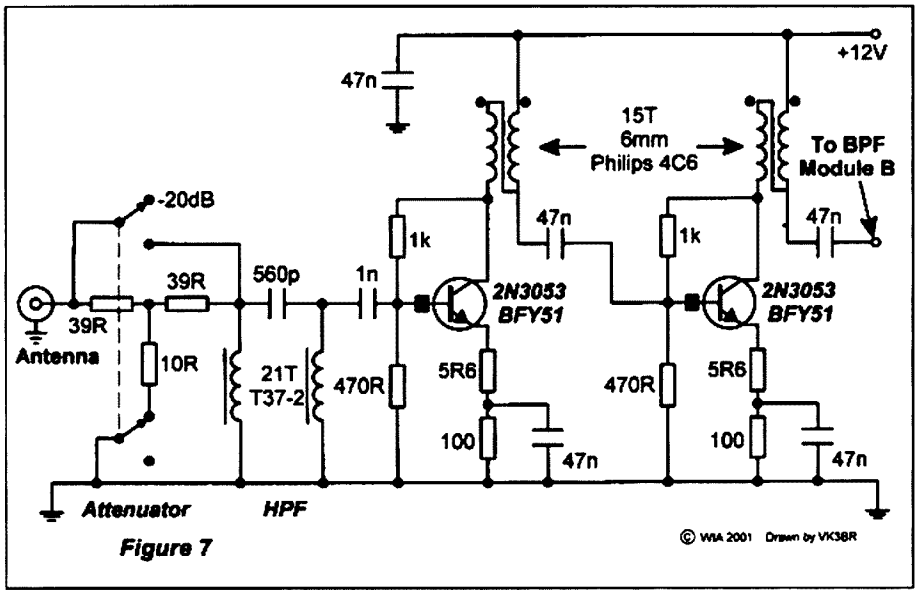


Figure 7. Module A – Attenuator/HPF/RF Preamp

output and power connections), whereas switching in an attenuator needs only a common two pole, two position switch. The main advantage of switching out the RF preamp is for portable use – the preamp module is very current-hungry, and battery life will be extended if used only when necessary.

No front-end preselector was found necessary. However a high pass filter was installed to attenuate signals below 6 MHz. This prevents any breakthrough from nearby AM broadcast stations. A full preselector could be substituted if reception of undesired frequencies (eg 17.5 MHz broadcast signals while tuning 14 MHz) is experienced. A sharp preselector would also be a worthy addition if you intend operating this receiver alongside transmitting equipment on nearby frequencies.

4.0 Construction

Because of the experimental nature of the DC-2000, a case much larger than that required was used to house the project (Photo One). The enclosure previously housed a stereo graphic equaliser – quite appropriate given the new receiver's quality audio reproduction.

The equaliser's aluminium front panel (which held the slide potentiometers) was replaced with a piece of blank PC board material to form the new front panel. This was spray-painted dark green.

The front panel is uncluttered, with only two knobs and three switches (Photo One). At the extreme left of the panel are the on/off switch and on indicator LED. To the right is the tuning dial. Near the centre of the panel are the attenuator and band change switches. The latter switches a relay, so there is no need for it to be located near the band pass filters. Moving along is the AF Gain control and the headphone socket. Adequate room should be provided behind the front panel for the VFO to be mounted in an enclosure.

The rear panel is also sparse. Near the band pass filter is the antenna socket. The 2.1mm 12 volt power socket is on the right.

A large piece of unetched PC board material inside the case forms a base plate for the individual circuit modules, which form the receiver (Photos Two and Three). The PC board base plate is screwed to the inside of the enclosure (copper side up) at several points. The nuts can be soldered to the copper to prevent them becoming lost should the receiver be dissembled.

Circuit modules are mounted on smaller pieces of unetched printed circuit board material. It is a good idea to tin these boards before mounting components. Most modules use 'dead bug' construction, except the RF preamplifier, which is built using 'Paddy board'.

These construction methods are not particularly suited to ICs and relays that are designed for PC board mounting. The modules that include ICs – the VFO/Regulator, Mixer/Diplexer, and AF Amplifier – make use of small pieces of plain matrix board to mount the IC and associated components. These matrix boards use PCB pins as standoffs to separate them from their unetched support boards. The relay used in the Band Pass Filter module is mounted in a similar fashion. All boards are mounted horizontally for easy access, apart from the VFO/Buffer/Regulator board, which is mounted vertically.

The photographs show the variable capacitor and VFO/Buffer/Regulator board (Module D) separated from the other parts of the receiver by a partition made of printed circuit board material. This was adequate in the prototype, but a shielded case for the VFO would have been desirable. Other good practices,

such as the use of a vernier reduction drive, solid mounting of components and the use of voltage regulation, should also be followed. The value of the 68 or 47pF capacitors may need to be altered if the VFO's output frequency is not near 3.500 MHz when the variable capacitor's plates are fully meshed. Because the ceramic resonator VFO tunes in a non-linear fashion, it is convenient to tape a calibration chart to the top lid of the receiver just behind the vernier reduction drive.

Once Module D has been completed, construct Modules C, E and F. In the case of Module C, the small parts surrounding the IC are mounted on matrix board, but the diplexer is soldered to the unetched board. Note the use of ferrite beads to offer some resistance to unwanted VHF/UHF signals, such as from local FM broadcast and TV stations. The input toroid is wound with fine enamelled copper wire on a Philips 6mm toroid, 4C6 material. These toroids were obtained from the CW Operators QRP Club. 10 turns on an FT-50-43 should be a reasonable substitute.

The AF preamp and low pass filter (Module E) is constructed 'dead bug style' onto a piece of circuit board material. It is mounted close to Module C to allow a direct connection via the 6.8 uF capacitor. Longer connections between modules use lengths of shielded audio cable to prevent possible hum and feedback problems.

Module F is again built on blank matrix board. Note that the 20M resistors comprise two 10M resistors in series. Again use shielded cable for the connection to the volume control.

The bandpass filters (Module B) are similar to Module C in that a combination of matrix board and 'dead bug' styles are used. In this case only the relay is mounted on the matrix board. The relay itself is not critical and can be any 5 – 12 volt type. The 220 ohm resistor was selected to provide positive switching when current is applied, yet keep current consumption down if 14 MHz is selected. The compression trimmers used were mounted on their sides, but alternative forms of mounting may be more convenient, depending on the components at hand. The toroids are left free-floating; the gauge of the enamelled copper wire used is not critical (approx 0.5mm), but should be thick enough to support the toroids.

Module A (the HPF/RF preamp) was built in two stages in the prototype, and thus occupies two separate boards. However, this is not necessary, and could be easily constructed as one assembly. As a precaution against oscillation, a ferrite bead is placed on the base of each transistor. The toroids used are the same as used in Module C.

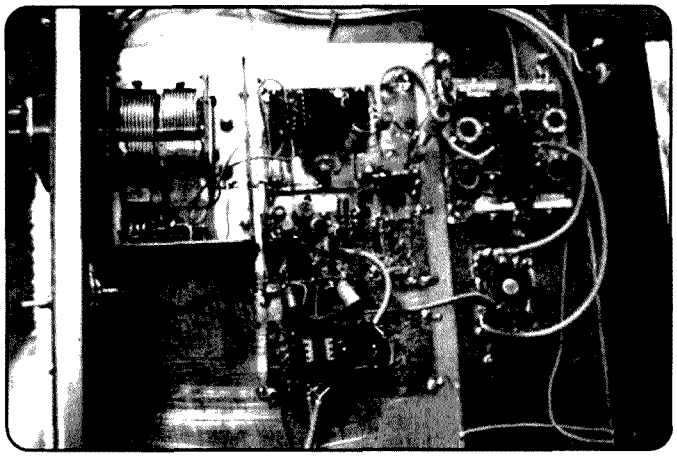


Photo 3: Close-up of the DC-2000 circuitry, taken before Module A was completed.

No attempt was made to build an AC power supply inside the receiver's case, despite there being ample room. If this is done, caution needs to be taken to prevent 50 Hz AC hum interfering with the high-gain audio stages used.

5.0 Operation

Using the DC-2000 is very simple – select the desired band, switch the attenuator off, turn the volume up until band noise is heard and tune around for a signal.

Users will appreciate the receiver's low amount of internally-generated noise and good strong signal performance. Audio clarity is excellent. SSB stations with good transmit audio really stand out on this receiver and CW stations sound unusually pure. Another advantage of this receiver is that the 125mA current consumption is less than for other equipment.

6.0 Further thoughts

Many improvements can be made to the DC-2000. Some of these, including tighter receiver selectivity, a wider range VFO and the use of techniques to suppress the unwanted sideband, have already been mentioned.

Other possibilities include adding binaural reception and increasing the number of bands that the receiver covers. As demonstrated in Reference 2, this is easy to do if coverage of 21 and 28 MHz is required just by adding suitable bandpass filters. Note though that extra RF pre-amplification may be necessary for these higher bands. Coverage of other amateur bands can be achieved by altering the VFO frequency or adding front-end converters. Another worthwhile area for improvement would be to substitute quieter transistors for the BC549s used. This could possibly allow one RF amplifier stage to be dispensed with and permit even better strong signal performance.

7.0 Conclusion

This article has described a direct conversion receiver of better than average performance. Its circuitry is simple, yet use is made of techniques found in leading overseas designs. The absence of specialised RF ICs and the use of inexpensive CMOS chips also mean that component procurement is easier than for other receiver projects.

References

1. Williams L, 80-2-40 VFO, *Lo-Key*, September 1998, p4.
2. Coetzee H, Multi-band Direct Conversion Receiver, *Electronics World*, February 1998, p138.
3. Campbell R, High Performance Direct Conversion Receivers, *QST*, August 1992, p19.
4. Smith D, *Funway into Electronics Vol 2*
5. Smith I, TDM 80 QRP Transceiver, *Amateur Radio*, January 1987.
6. DeMaw D/Hayward W, *Solid State Design for the Radio Amateur*, ARRL, p216
7. ARRL, *ARRL Handbook 2000*, p17-83
8. Hawker P, *Amateur Radio Techniques Seventh Edition*, RSGB, p123, 135.

ar

ARDF

Jack Bramham VK3WWW

Busy time for fox hunters

Over the past couple of months it has been a busy time for Foxhunting and ARDF. Back in June over the Queens Birthday weekend, the Australian Foxhunting Championships were contested in Mount Gambier. For the first time ARDF was added to the program, as this was the first time for most VK5's, most VK3 competitors had a distinct advantage, having said that there was some very hot competition coming from VK5ZMG it is a shame only the first 3 places are recognised during these championships. Following the ARDF event were another 10 events, challenging teams on 80m, 10m, 6m, 2m, 10cm and 23cm.

Scoring is: First, 3 points. Second, 2 Points and 3rd 1 Point. Final results are:

VK3YDF 17, VK5ZMG 16, VK3YQN and VK3WWW 12, VK3OW 9, VK5AXN, VK3JMD and VK3XAJ 3, VK5XSO 2 and VK3BLN 1. These are only the teams or individuals who managed to place in the first 3, what the results don't show is that most of the teams are only minutes or even seconds separating them. Congratulations to the VK3YDF team making it two in a row.

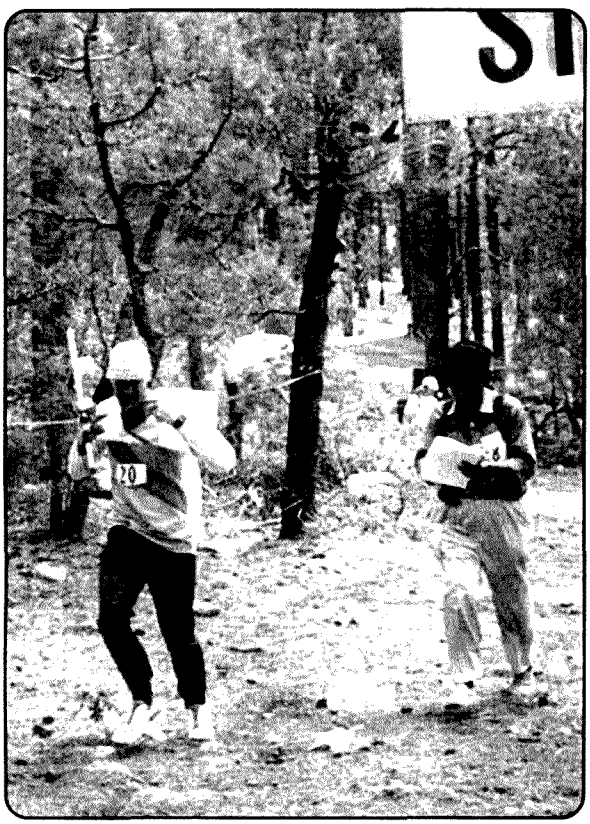
Some of you may be aware that some VK3 ARDF enthusiasts have taken off overseas to compete in 4 international events. As I compile this report Bruce VK3TJN and Adam VK3YDF have competed in the Region 2 ARDF Championships held in Albuquerque New Mexico, and VE7 Victoria British Columbia Canada for the Friendly Amateur Radio Games. For these events I do not have the official results but here are the results as Bruce and Adam see them.

Region 2 Champs 2m event: 1 Ukraine, 2 Ukraine, 3 WIA (VK3TJN), 6 WIA (VK3YDF) 80m event: 1 Ukraine, 2 Ukraine, 3 ARRL, 4 WIA (VK3YDF), 8 WIA (VK3TJN).

FARS 2m results: 1 WIA (VK3TJN), 2 WIA (VK3YDF), 3 ARRL.

For the boys this is a real whistle stop tour, they must leave Canada one day after their event to be in Germany for the All German Championships in 2 days time. After leaving Germany they will fly to Beijing and meet up with Bryan VK3YNG, from here they will board the Trans Siberian Express and alight at Ulaanbaatar Mongolia, (JT1) here they will contest the region 3 (our region) ARDF Championships.

If you would like to read a more comprehensive report and see some pictures point your Browser at: http://streeto.cable.nu/bruce/ For more information regarding ARDF try: www.ardf.org.au



Photos, clockwise from above: Region 2 Championships Alberquerke, New Mexico, Bruce VK3TJN in the 80m event; Championship competitors; Adam VK3YDF and Bruce VK3TJN

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Active Door Loop Receive Antenna

An interesting receiving loop antenna was described in Rad Com May 2001 by Ed Chicken G3BIK. The antenna is mounted on an internal house door and is oriented by opening and closing the door. This minimises the space taken up by a receiving indoor loop antenna. A simple tuned loop amplifier is used to enable the loop output to be taken by coaxial cable to the receiving position.

A loop has a bi-directional pattern and so rotation through 180 degrees is sufficient for full coverage. This will not be achieved with most doors but can be very close. Even a lesser swing will give useful results. The idea is to maximise signals and minimise noise. The nulls are very useful for minimising noise signals.

Full coverage from long wave frequencies together with all HF bands can be covered. This requires the use of alternative loops and amplifiers. However the parts are all readily accessible and adjustments can be made easily.

Loops are wound on the door using stick on plastic hooks at the corners and at the amplifier connection point. A suitable layout is given in Fig 2.. A variety of loop sizes can be accomodated. Loops ranging in size from 600 mm wide and from 300mm to 1.75m high can be accomodated. The number of turns used can also be varied as required. The loops are wound using 7/0.2mm plastic covered hook up wire. While specialised wire types such as Litz may be desirable for highest Q at long wave the wire used is quite useable and is readily obtainable. The layout using the hooks is given in Table 1 for various sizes of loops.

The frequency ranges for various loops wound with 7/0.2mm plastic covered wire is given in Table 2.. These frequency ranges are for the loops using the amplifier shown in Fig 3. with a 2 x 126 pF tuning capacitor. The 2 x 126 pF tuning gang is a type used in the UK for AM/FM tuners and may be available locally. Wider ranges could be covered using one of the old style 400 pF per section AM Broadcast radio tuning gangs.

The loop amplifier is given in Fig 3. A balanced FET amplifier is used to minimise loop loading and this is followed by an NE602 used as an amplifier with a transformer output to coaxial cable. The output transformer is wound on a ferrite toroid type FT37-61. This is 0.37 inches outside diameter and uses number 61 mix. The winding uses solid core PVC covered wire such as that used in telephone cable. The amplifier was built on strip board but ugly construction on a scrap of PCB would be OK.

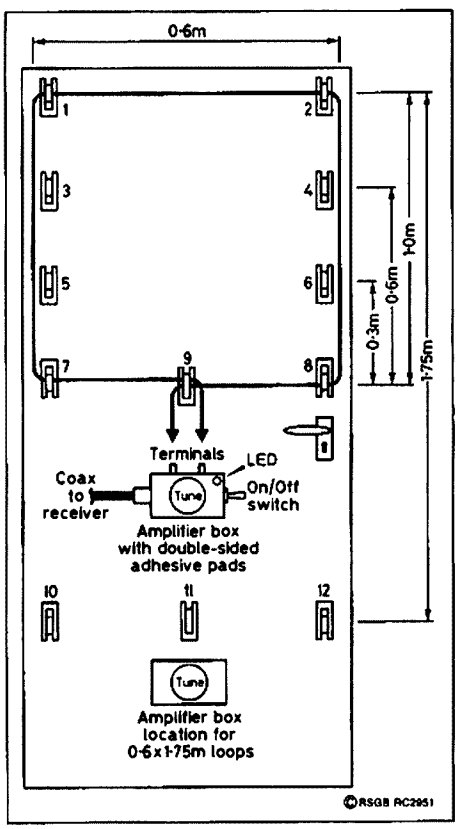


Fig 2. Door with Placement of Hooks, Amplifier, and Tuning Capacitor.

Table 1. Loop Size Hook Layouts

Loop Size		Use Hooks	Start/Finish at Hook No.
Width m	Height m		
0.6	0.3	7,5,6,8	9
0.6	0.6	7,3,4,8	9
0.6	1.0	7,1,2,8	9
0.6	1.75	10,1,2,12	11

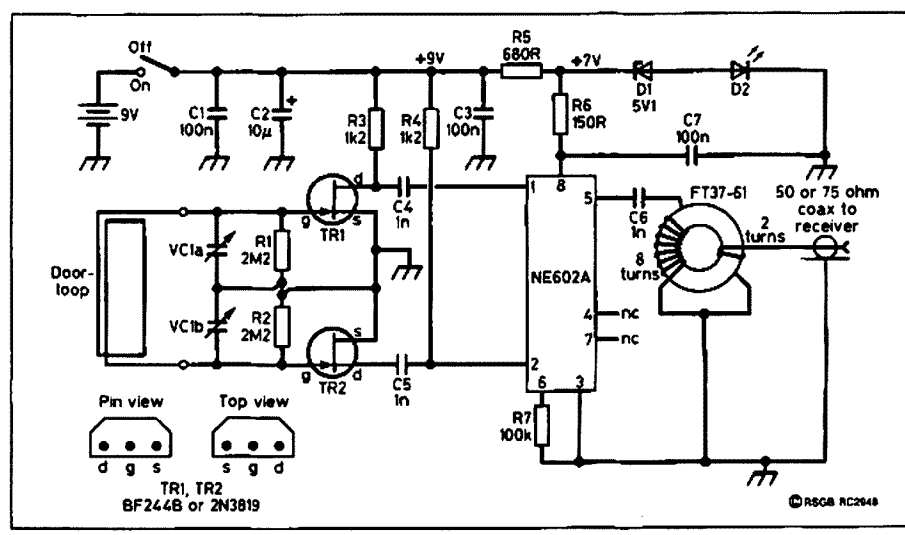


Fig 3. Circuit Diagram of Loop Antenna and Amplifier. For HF VC1a,b = 2x126 pF variable. For 136 kHz VC1a,b = 2x500 pF variable and C4, 5, 6 = 10 nF.

Technical Abstracts

continued

For Low frequency use on long wave use a dual gang 400 to 500 pF per section capacitor and change the values of C4,C5,&C6 to 10 nF. Use a 1.75m by 0.6 m loop of 20 turns. This is for the UK 136 KHz band and other frequencies may need some adjustment. The loop had an inductance of 1.8 mH.

Table 2. Loop Frequency Ranges based on 7/0.2mm PVC covered Hookup Wire and a 2 x 126 pF variable capacitor.

Loop Size m	One Turn L æH	f mHz	Two Turns L æH	f MHz	Three Turns L æH	f MHz	Four Turns L æH	f MHz
0.6x0.3	2.4	11.9-30	8.0	6.3-13.2	15.4	4.4-8.7	24.3	3.4-6.4
0.6x0.6	3.2	10.2-24.3	11.1	5.3-11	23	3.5-6.2	39	3-4.3
0.6x1.0	3.9	8.6-21.2	15.3	5.6-8.4	31	3-5.2	52.6	2.2-3.6
0.6x1.75	7	7-16.2	23.1	3.5-5.9	47.8	2.3-3.6	83.7	1.7-2.7

Cloud Warmer NVIS Antenna

In CQ May 2001 Arnie Coro CO2KK describes , in the regular Antennas column, an antenna system used during a hurricane net. The requirement was for good communications over an extended local area. The area was from 30 to 500 km from the base control station. The antenna design is for forty metres but a similar design can be employed on eighty metres by scaling the dimensions. A similar effect is achieved by the use of low slung dipoles or inverted vee antennas.

The design maximises radiation upward and the signal is then reflected by ionospheric layers and returned over a wide area around the station. This is ideal for emergency base stations or for nets. The technique is called Near Vertical Incidence Skywave or NVIS for short. You may have used it unintentionally but a little attention to the antenna system can maximise the results obtained.

The antenna is shown in Fig 1. Credit for Fig 1 from the CQ article is given to Olga Dalmau. The antenna consists of an Inverted Vee shaped folded dipole erected above a reflector element. The close spacing causes the basic dipole feedpoint impedance to fall to the 10 to 15 ohm region and the use of a folded dipole brings this back to between 40 and 60 ohms. A balun should be used and an air cored balun would be suitable. The reflector element is erected a minimum of 1 metre above ground and a 2 metre height is preferable. But check the EMR issue.

As the reflector is close to ground and is also very close to the dipole element you will need to tune it. This can be done simply using a dip meter lightly coupled to the reflector. Adjust the length to a frequency 5 % lower than the operating frequency. For an operating frequency of 7.1 MHz the reflector should be tuned to resonate at 6.745 MHz. You can couple to the centre of the reflector by making a small temporary coupling loop at the centre of the reflector element. A one turn 25mm diameter loop will have minimal effect on the result.

The feed to the folded dipole can be coax and a balun should be used. An air core balun is simple to make and cheap. An air core balun will also not suffer from the effects of saturation of the core which can affect the operation of baluns using ferrite or powdered iron cores. An alternative is to use open wire line for the feeder with an antenna tuner. This may help with frequency excursions and allow operation on 10 MHz if required.

EMR considerations may cause you to mount the reflector at a height above ground of between 3m for 3.5 MHz to 3.5m for 10 MHz operation for a 100 W SSB station using a speech compressor. For 400 W increase the height by another 1m to 1.5m. The closest approach here is to the back of the beam and hence more than 45 degrees off boresight and 2m is allowed for the height of a person. The upside of this is that people will not be tripping over the antenna. The dipole centre point would also need to be increased over that shown in Fig 1 to allow for the added height of the reflector. Alternatively restrict access to the antenna but this will require restricting access to a rectangular piece of land around the antenna. It may be easier to go up.

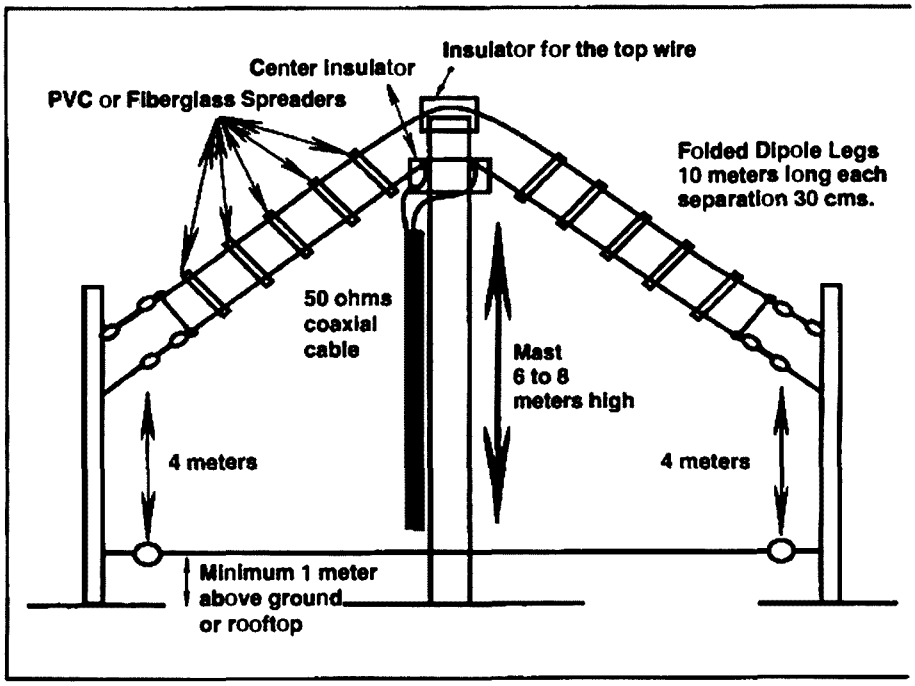
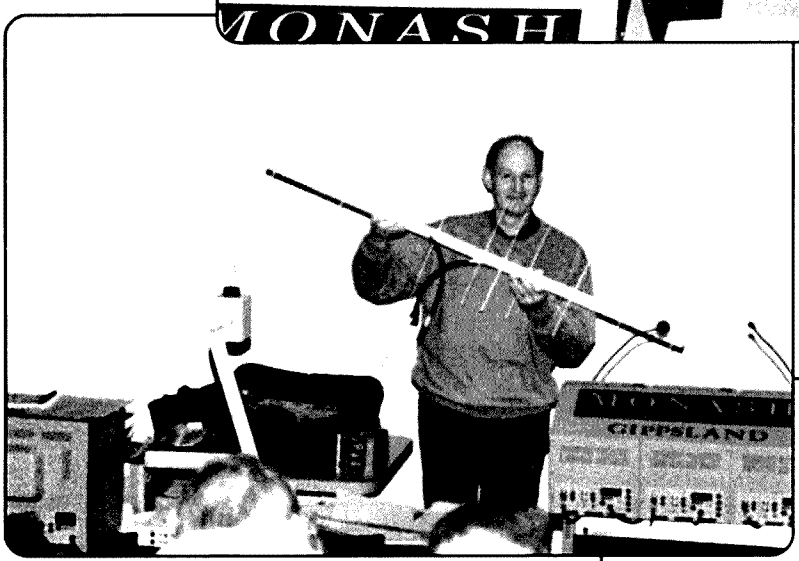


Fig 1 CO2KK's NVIS Antenna From CQ May 2001 drawn by Olga Dalmau.

GIPPSTECH in pix

Gippstech 2001 Technical Conference, July 7 and 8

Presentation of Ron Wilkinson Achievement Award. From left: David Minchin VK5KK, Russell Lemke VK3ZQB, Trevor Niven VK5NC, Colin Hutchesson VK5DK



Ron Cook VK3AFW discussing antennae

Peter Freeman VK3KAI, organiser of the Conference

Photographs by Ron Fisher VK3OM

SCOOP PURCHASE!

All-mode operation on the HF, 6m, 2m, and 70cm bands with full satellite capability...

Yaesu FT-847 'Earth Station'

Ready for action on SSB, CW, AM, FM and digital modes, the FT-847's compact size makes it ideal for a variety of portable/mobile applications as well as for serious base station operation. You get a solid 100W output on the HF and 6m bands, 50W output on both 2m and 70cm, dual fan cooling and a rugged diecast chassis. Plus, the ultra-quiet HEMT receive pre-amp on 2m and 70cm contributes to the FT-847's amazing sensitivity figures. Advanced Digital Signal Processing (DSP) circuitry enhances received signal/noise ratio for easier copy of signals under marginal conditions through the use of 16 selectable noise reduction algorithms, while the Bandpass and Auto-notch filters aid the IF based Shift and Noise Blanker circuits in reducing interference on crowded bands.

The FT-847 is ready for satellite operation, with crossband full duplex operation, normal and inverted VFO tracking of the satellite uplink/downlink, as well as 12 special satellite memories with alpha-numeric tags. Also provided is a low-noise Direct Digital Synthesiser (DDS) that provides tuning steps as small as 0.1Hz, plus there's an adjustable DSP bandpass filter as narrow as 25Hz for exceptional weak-signal CW performance. You can also install optional Collins® mechanical filters in both the transmit and receive chain for enhanced SSB operation, as well as a 500Hz Collins® filter in the receiver side for CW. An effective speech processor with adjustable frequency shift voice tailoring is also provided to add punch to your SSB transmissions. The FT-847 is ready for data modes, with a rear panel Data In/Out socket and a packet socket for 1200/9600 baud VHF/UHF operation. Other features include extended receive operation (36-76, 108-174, and 420-512MHz), a high-speed computer control interface, 10-key keypad for band/frequency entry, and a shuttle-jog tuning ring for fast QSY. Also included are encode/decode CTCSS and DCS operation, selectable channelised steps for FM operation, FM narrow/wide modes for 29MHz use, and a large LCD screen with adjustable backlighting.

Each transceiver is supplied with a hand-mic, DC power lead and a comprehensive instruction manual. Call us for a copy of Yaesu's 6 page colour brochure to learn more about this incredible value 'Earth Station' transceiver.

D 3425

2 Year Warranty

$2995

SCOOP PURCHASE!

SAVE $441

Offer expires 31/10/01

DICK SMITH ELECTRONICS

That's where you go!

SOLID PERFORMANCE!

VX-5R pictured showing large frequency digits

VX-5R 6m/2m/70cm Deluxe Handheld

Tiny, yet incredibly rugged, the VX-5R provides 6m, 2m and 70cm amateur band operation with 5W output as standard (4.5W on 70cm), made possible by a unique PA design, super high-capacity 7.2V 1100mA/H Lithium-ion battery, and a diecast metal case. Plus, ultra-wide VHF and UHF as well as medium-wave* and shortwave reception facilities are provided.

Another really useful feature is the large backlit dot-matrix LCD screen that can be configured to suit your operating needs. You can choose large frequency digits, dual line displays (VFO 'A' and 'B' frequencies, VFO 'A' frequency and battery voltage and even VFO 'A' frequency as well as other data such as recent Tx/Rx times or transceiver internal temperature), or even 8-digit alpha-numeric memory labels. All this in a diecast aluminium enclosure just 58W x 87H x 28D mm (w/o knobs or antenna)!

Other features include:

- Tx: 50-54, 144-148, 430-450MHz
- Rx: 0.5-1.8MHz, 1.8-16MHz, 48-729MHz, 800-999MHz (cellular blocked)
- Full feature keypad, CTCSS encode/decode, Digital Code Squelch
- Comprehensive menu system
- Over 200 regular memories, plus 10 pairs of 'Band limit' memories
- Fast battery charging from the supplied AC adaptor
- 5 battery saving systems, plus Tx/Rx usage monitor.
- Spectra-Scope™ for monitoring adjacent channel activity
- Comes with FNB-58LI 1100mA/H Lithium-ion battery, flexible antenna and AC adaptor/charger

D 3670

*10kHz steps only.

2 Year Warranty

$599

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

Offer expires 30/12/2001.

PHONE FAX AND MAIL ORDERS

direct link

PHONE: Within Australia: 1300 366 644
(Local call charge)

FAX: (02) 9642 9155 within Australia and
(+612) 9642 9155 from outside Australia

Visit our web site at
http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 500,
PO Box 500, Regents Park DC NSW 2143 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 30/12/2001. All prices shown are in Australian dollars and are inclusive of GST.

3258D DPS spot col

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Ernest Hosking	VK1LK

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Bill Riis	VK4YCU
Secretary	Bruce Jones	VK4EHT
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	David Minchin	VK5KK
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@linet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http://www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $70.00. Without *Amateur Radio* $48.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $83.00 Pensioner or student $71.00. Without *Amateur Radio* $52.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $67.00 Pensioner or student $61.00. Without *Amateur Radio* $36.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $52.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

The guest speaker at the general meeting on 27 August, was Peter Illmayer (VK2YX).

Peter is one of the driving forces behind the Internet Radio Linking Project (IRLP). He goes round the various amateur radio clubs to talk to this subject. He explained how to set up for IRLP and what you need to do to make it work for you. It so happened that the August issue of Amateur Radio carries a detailed article on this subject (Novice Notes) written by Peter Parker (VK3YE) and David Cameron (VE7LTD). So, for some of us who had read the articles, Peter confirmed what we already knew, IRLP is a very useful new way of communicating with amateurs around the world using a computer and a transceiver. One important requirement is that a node has to be established that uses a local repeater for its operation.

The time available to attend local meetings has been reduced considerably for our treasurer, Ernie Hocking (VK1LK), now that he has been promoted to President of the WIA. The committee is looking for a replacement Treasurer as Ernie wants to concentrate on federal matters exclusively. For those with ambition, put in a stint as Treasurer, and, before you know what's happening, you become president of the WIA.

The next Trash & Treasure event is to take place in the Scout facility car park, on Saturday, November 24, 2001. Sellers are to park their cars with the boot facing the centre of the car park from 12.00 pm. Buyers are let in at 1.00 pm. Foldup tables (3) can be hired for $10 on the day. The Farrer hamshack will be open for inspection at the same time.

The next General Meeting will be held at the Scout Hall, Longerenong Street, Farrer, at 8.00 pm. See you there.

VK4 Notes

Qnews

From Alistair Elrick VK4MV

Teletext pages

Those on the Teletext linked packet system, (P29/ZL/VK/ZS), should check out the experimenters' section on index page 102. Here you'll find 'heaps' of interesting home brew items such as: - Antenna & General Formulae, SWR Bridge for QRP work, Grid Dip Meter, DIN plug soldering made easy and a microphone for hands free use. Almost 80 items you'll discover. Just connect to a Teletext supported BBS and type TT then page 102.

Stations without teletext can obtain pages automatically.

Send a personal message to VK4WIE: -

address: sp ttupd@
VK4WIE.#BNE.QLD.AUS.OC

title: request (has to be lower case!)

body: PAGE NUMBER(s) YOU REQUIRE
1 PAGE PER LINE
3 REQUESTS PER MESSAGE
/ex

Radio scouting

JOTA/JOTI-October 20 & 21 2001!
http://jota.scouting.net.au
VK4 Coordinator Email to rosstutin@bigpond.com

Amateur Radio operators should now be receiving calls from their adopted Guide and Scout groups throughout Australia regarding participation in JOTA/JOTI 2001. VK4 area groups confirmed as participating so far are

Alice River Scouts VK4SAR with Don/VK4MC and MATMAN at Camp Gedling, Herveys Range

Bluewater Guides with Ian/VK4ZT, Wayne/VK4YWG and Phil/VK4HSV at Guides Camp, Bluewater.

Bluewater Scouts VK4SBW with Iain/VK4IGM and Sheila/VK4PAL at Camp Tarmaroo, Bluewater.

Kirwan Scouts VK4SCK with Gavin/VK4ZZ, Mark/VK3TCD and Jessica at Mount Elliot National Park-Alligator Creek

new *Mighty Burdekin River Aitkenvale and Ingham Scout Groups with Mario/VK4MS* at Broadwater State Forest near Ingham.

new *Milchester, Richmond Hill and Wulguru Scout Groups VK4SCT* with Bob/VK4WJ at Bivouac Junction near Charters Towers, on the banks of the Mighty Burdekin River.

Groups who have so far notified that they still want operators are Pimlico Mundingburra Scout Group and Rasmussen Scout Group. If you are a ham who is eager to participate in this worldwide event, contact your local Amateur Radio Club or Area Co-ordinator.

In the air on the air

VK4's Redcliffe & Districts Radio Club Inc. ran a radio link, at the request of Redcliffe City Councillor Ian Poyitt, from an aircraft to Redcliffe Radio Station 99.7 FM. The Link commemorated the 70th anniversary of the Tiger Moth. There were approximately 100 old aircraft participating in this rare flypast.

A hand held scanner's audio was fed directly into the mixing desk. A 2 metre radio using a quarter wave antenna from the aircraft, then a crossband link to take the 2 metre signal from the aircraft and re-transmitted, this on 70cm using the clubs new YASEU FT-847.

The flight went off without a hitch with Steve Harris VK4HRS as the

continued

(Aeronautical Mobile Announcer) having flown for the first time and enjoyed himself immensely. Well done Steve and all at the Redcliffe Club.

Fishing in space

A 'pop-up' satellite tag retrieved by a beachcombing dog has recorded the 1100-kilometre journey of a black marlin tagged last November off Cairns (VK4). The tag washed up at Brunswick Heads in northern New South Wales and was posted back to CSIRO Marine Research at Hobart for analysis.

The tag was attached to the fish for a month, before becoming automatically detached. The tag showed that the 80-kilogram marlin swam southeasterly with the East Australian Current, and rarely dived deeper than 120 metres.

Pop-up tags transmit details of diving patterns, water temperatures and daily locations to satellites, after they have become detached from the fish. The volume of data they transmit is limited by battery power. A full record of the fish's movements can only be recovered in the rare event that a tag is returned. In June last year a black marlin tagged near Cairns four years earlier was recaptured after a 14 000-km journey to Costa Rica.

3RTF beacon

Bob VK4GX reports on a 'beacon' operating on 28.400 MHz. He'd like to hear from others in the Pacific region who can copy it. The format is 28.400 USB signing 3RTF then a long carrier with a 50 second or so break then starts up again. Bob is copying it at about strength 5 at his location NorthWest of Brisbane. Info to chipman1@dingoblue.net.au

Rescue Radio VK4

This year the Sunshine Coast Club had another successful Lighthouse activity weekend at the Double Island Point. For those that remember last year they rescued a young couple that took their 4WD for a major swim! Well this year 2 young couples borrowed Mums Nissan 4WD took it through a rough bush track and ended up hitting a tree at a great rate of knots! The amateur radio crew all chipped in with some panel beating and got them back to Elanda Point some 60 km away... me thinks next year, stay away from Sunshine Coast... or at least don't step on a black cat!

VK4DX

Although not the official WIA site, you might like to check out this newly updated page. http://www.vk4dx.net Mike VK4DX says it includes an international HF radio contest calendar with contest rules and a new software links page, with download links.

73s from Alistair

VK7 Notes

QRM

Following the inauguration of Tasmania's first IRLP mode operations by our No 1 experimenter Tony, VK7AX early in September the bug has bitten quite a few of our amateurs. Tony has been activating this mode on our three 2 metre repeaters in the Northern part of the State, VK7RMD (Mt. Duncan), VK7RNW (Lonah) and VK7RAA on Mt. Barrow. Congratulations go to Al, VK7AN for making the first call–to Darwin starting a procession of contacts around the globe. We expect to see, or should I say hear, a lot more activity from now on.

If you haven't heard our Spectrum broadcast this month there's a simple explanation–it has not been on !. Tony is at present enjoying a well earned holiday on the island up north but assures us "Spectrum" will be back later in the month–wait for it.

As all knowledgeable amateurs know Tasmania in at the forefront for renewable energy and our hydro is now branching out into wind power with the construction of three wind turbines at our windiest point, Cape Grim. Our north-west branch's treasurer is in a management position and at this month's meeting presented a brilliant inter-active CD presentation of these turbines. They're BIG–each weighing about 150 tonne, the three blades have a turning diameter of 66 metres (200 feet!) and the turbine nacelles would accommodate over 100 people standing up. Each produces 1750 kW. of power. We were IMPRESSED. We now wait to be able to see them in action.

Cheers for now

Ron, VK7RN

Bill Magnusson VK3JT

Updated InstantTrack Version 1.51 Released

Paul KB5MU, reported last month that InstantTrack 1.51 has been released. This is a free update for users of version 1.50. The main features in the new release apply to AO-40 attitude support. AO-40 has its 'antenna-farm' on the opposite side to previous phase-3 satellites and up to now, this has necessitated a small manipulation of the attitude data to make it work.

The new version accepts the data as-is without any adjustment. Just be careful though as some sources list the Bahn co-ordinates in the reverse order to the way InstantTrack expects them. The numbers are entered on the same line, Lat first then Lon with a comma separating them. Going back to the early days of AO-10 these figures were given the names 'alat' and 'alon' to distinguish them from the navigational parameters Latitude and Longitude. This worked well until some sources of information began referring to them as Bahn latitude and Bahn longitude or blat and blon for short and ... listed them in the reverse order with a slash separating them instead of a comma. All a bit confusing really and it remains so today. So you need to be careful when entering the numbers to make sure they are entered in the correct order.

All this will be irrelevant if the 3-axis stabilisation system works as expected on AO-40 (see below). Under on-board-computer control, the speed of the three momentum wheels will continually be adjusted to cause the spacecraft antennas to point towards the centre of the Earth.

The old attitude figures won't mean anything any more. The new update of InstantTrack has a feature to take care of this too. You can enter an attitude of "local-vertical" in the attitude column or just "L" will do. The program will show the squint angle and "best-comms-footprint" under 3-axis control.

You can also use this setting to simulate the situation with the UoSat satellites which are stabilised by the "gravity-gradient-boom" method. This is a very simple method of satellite attitude control involving a system which, once deployed, is entirely passive. Wouldn't it be nice if the designers could have used it on AO-40? Unfortunately it's a method only suitable for satellites in a low-earth-orbit. Look on the SSTL web site for more details of this interesting method of attitude control.

Momentum wheels require precision engineering to produce and are costly pieces of machinery ... and they require motive power. The wheels on AO-40 are breaking new ground in using magnetic levitation instead of mechanical bearings. Providing lubrication to rotating momentum wheels has been the bane of satellite designer's lives. The MIR space Station had to have new momentum wheel assemblies shipped up via supply rocket every few months. They were very unreliable due to the difficulty of effectively lubricating the bearings in zero gravity. They were shipped up in batches and often the attitude control of MIR became critical as one by one they would fail. If you plan to use AO-40 you should have this new version of Instant Track. Visit http://www.amsat.org/amsat/instanttrack/beta.html to download a copy.

Minimum Cost Satellite Station

With AO-40 turning on some excellent performances during the transponder tests, quite a few people have been turning their minds to putting together a set of equipment for AO-40 which would not cost the Earth. There has been lots of discussion around this topic on the AMSAT-BB. Howard, G6LVB, has reported that he built an entire AO-40 station for under $500 U.S. and (as if that wasn't enough) he pointed his antennas out of the window of his basement apartment and made some contacts on AO-40. If you would like to see how he did it, have a look at his web site, www.g6lvb.com/el/index.htm . You can view a description of Howard's entire station and see how you, too can be part of the AO-40 experiment without breaking the bank.

More Success with Momentum Wheel Tests

AO-40 command station members Stacey Mills, W4SM, and James Miller, G3RUH, conducted another momentum wheel testing session during orbit #365. Once again the tests proved successful. The wheels were spun up to 100 RPM and were left at this speed for some 30 minutes. Telemetry before and after the spin-up was nominal. Following this second successful series of tests the control stations are quietly confident that we have a working 3-axis control system. More tests will be done over several weeks before the spacecraft will be transferred from spin stabilisation into 3-axis stabilisation mode. The AO-40 team will use the reaction wheels to

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC.
All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141,
Adelaide, SA. 5001.

Graham's email address is:
vk5agr@amsat.org

aim the satellite's antennas and, (when they are unfurled), its solar panels. The latest testing has paved the way for deployment of the solar array. As those already listening or using AO-40 can testify, signals are already very strong on S-band. Given a fully deployed solar array and 3-axis stabilisaton, signals on the ground can be expected to rise to their design level. This situation should usher in an era of smaller and simpler ground stations unheard-of in previous Oscars. We live in exciting times.

Eclipses begin for AO-40

AO-40 has entered a long period during which (for the satellite), the Earth eclipses the Sun near perigee. The eclipses began around the end of August and they will rapidly increase in length. The eclipse situation will continue until the middle of 2002. During September 2001, eclipses were due to peak at around 85 minutes in duration and at times like this alterations need to be made to transponder scheduling. In order to conserve the batteries the S-2 transmitter, and the middle beacon will need to be turned off from time to time. The on/off times will be adjusted slightly as the eclipse times alter. Keep an eye on the AMSAT BB for the latest on transponder scheduling.

Try this simple test device

I must caution that I haven't tried this yet myself as my S-band dish is undergoing mods. It's so simple that it's worth a try. Please let me know if it works for you.

Getting hold of a reliable signal source for S-band testing has always been a hassle. This item appeared on the Amsat bulletin board a few weeks ago under the pen of Barry Hawkes, N1BAN. He does not claim originality but has developed the design to work with a ten metre transceiver rather than the 6 metre device originally proposed. Here is Barry's (slightly edited) post.

"I read somewhere .... that a 2400 MHz signal generator for AO-40 could be made by connecting two, 2 watt resistors and a 1N4005 diode in parallel across a coax connector. In turn the device was connected to a 50 MHz transmitter running at 2.5 watts. The 48th harmonic of 50.0 MHz is 2400 MHz. A caution was to not have the signal generator touch the S-band antenna". Barry continues, "I made up a similar device and operated it using a ten metre transceiver. I was able to get S9+ signals from the ten metre harmonics as described below. A ten watt resistor and a 1N4005 were soldered in parallel across the center terminal and mounting hole of a SO-239 panel jack. This was connected by a short length of coax to a 10 metre transmitter running about 5 watts in CW mode. The device is placed within a few inches of the S-band antenna", (or a short distance in front of your dish).

Barry listed several frequencies in the 10 metre band which have very close harmonic relationship to the S-band beacon, for example, the 84th harmonic of 28.5875 MHz will produce exactly 2401.350 MHz. Barry tried several harmonics and each produced S9 readings on his 821H with a no-signal noise level of S2. I'd like to hear from anyone who tries this simple device. I'll certainly give it a go when my dish mount mods are finished.

Tiungsat-1 celebrates first anniversary on 26th September, 2001

Sangat, 9M2SS, from the Malaysian control centre for Tiungsat-1 announced recently that the satellite was one year old and invited comments from amateur radio users. He also stated that application had been made for an "oscar" number for Tiungsat-1.

During its first year of operation, Tiungsat-1 has been an excellent performer. It is only the second amateur radio satellite (after UO-36) to boast a 38400 baud download speed and user-switch-on for the downlink transmitter. The signals have been very strong from day-1 and a download efficiency of 100% is indicated for most of every pass. My best total digital download ever was from a pass of Tiungsat-1 during its first month of operation. The pass yielded over 2.8 megabytes of data including telemetry and housekeeping. This is very close to the theoretical maximum for an overhead pass. Hearty congratulations to all concerned with building and operating Tiungsat-1.

Yet another Starshine

Starshine is a NASA educational project in which over 25000 school students from 21 countries have taken part. Twenty-four Australian schools are involved in the current Starshine-3 project.

The Starshine satellites take the form of a hollow aluminium sphere about a metre in diameter. They are built at the US Naval Research Laboratory and are designed to be launched from the Space Shuttle. The outside surface is covered with small mirrors and a couple of other experiments. Student involvement in the project includes polishing the mirrors, recording the telemetry on 145.825 MHz and predicting times when sunlight can be seen reflecting from Starshine's mirrors (and of course, verifying the predictions by actual sightings).

Along with the APRS satellite, PC-Sat mentioned in last month's column, several other small satellites will be launched on the same rocket from Kodiak, Alaska, hopefully before you read this column. Starshine-3 is one of them, the Kodiak launch affording the opportunity to bring it forward rather than waiting for a ride on the Space Shuttle. No doubt keps will be available shortly after launch and you can take part by listening for and recording the telemetry or by visual sightings. You will need a tracking program like SatSpy for example, which is excellent for predicting visible passes of satellites, or you can use the www-based site http://www.heavens-above.com/ . If you do record the telemetry you can send it to the control team by email. Any search engine will find the address.

The telemetry will be reading the rate of reduction of the spin rate of the satellite. This drop in spin-rate is mainly affected by eddy-currents in the aluminium sphere caused by interaction with the Earth's magnetic field. It is very difficult to calculate and the telemetry will shed new light on the problem. The visible flashes from Starshine are about as bright as the 'top' star in the Southern Cross (Gamma Cruxis) and the flash rate depends on how fast the satellite is spinning.

Starshine-2 (somewhat out of sequence) will be launched in Dec 2001 from the Space Shuttle and two more, Starshines 4 and 5 are due for launch in 2003, both of which will have a means of altering the spin rate as part of the experiment.

Modification of D4825 6m half wave vertical for 50.110 MHz

Peter Blundstone VK7KPB
'Barclay', Whitemark
Flinders Island TAS 7255

This half-wave vertical antenna, as bought from Dick Smith Electronics, part number D4825, resonated on 53 MHz. However, I required it to work well on the 50.110 MHz call frequency.

Contact with the manufacturer, D & G Antennas, suggested two modes of modification:

(a) Lengthen the vertical element; or

(b) Modify the loading coil.

I opted to modify the loading coil. Here are the steps I followed.

First, I drilled out the pop rivets carefully with a 1/8th inch drill. The top one is aluminium and the bottom one stainless. Both rivets are hidden under the labels (see Fig 1).

There are two "O" rings inside the casing. I pushed the stub down into the base about 1½ inches and then pulled it back up. The rings could then be rolled off the stub, but it was very firm!

The stub then slid down through the base. I attached a PL259 plug to the base to make it just a bit easier to get a grip.

Inside the base was a connecting wire from the coil to the aluminium radiator, soldered to lugs (see Fig 2). I extended it by 3 cm, but it probably could have been 4cm to bring the SWR even lower. According to the manufacturer, on the phone, extending this connecting wire has an effect five times greater than extending the radiator. That is, extending the connecting wire by 1 cm has the same effect as extending the length of the radiator by 5 cm.

I then slipped it all back into place without the "O" rings and, with two very small self-tapping screws in place of the rivets, I checked the result.

When it was adjusted to my requirements, I used a smear of Vaseline on the "O" rings, and sealed the aluminium joints with silicon (tape probably would have been just as good) to keep the water out.

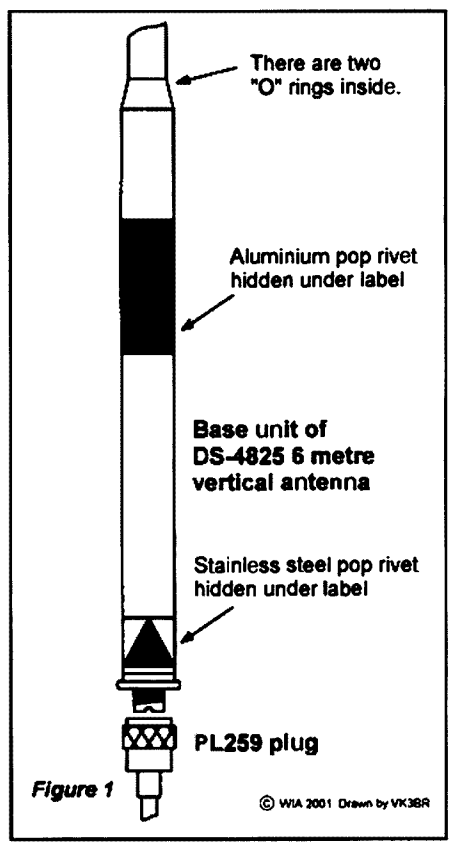


Figure 1

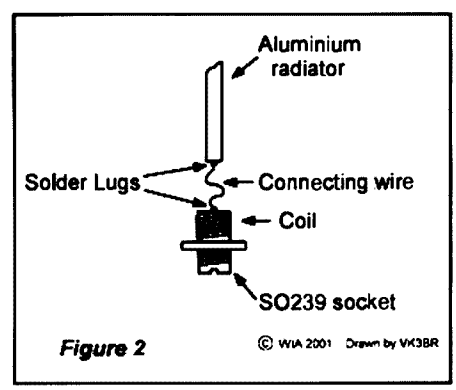


Figure 2

AMSAT continued

AO-40 K-band transmitter test successful

Yet another successful test has been announced by Stacey Mills on behalf of the AO-40 control team. On Orbit 396 during the period MA 118 to MA 138, the K-band (24.048 GHz) transmitter was activated. The passband and beacon were first detected by Petra G4KGC (operating the radio) and Charlie G3WDG (operating the dish) at 1930 UTC, ie. MA 122. Shortly thereafter the beacon and passband were also detected by Michael, OH2AUE. Petra and Chas used a 22 cm offset dish and reported signals 6 dB above the noise floor. Michael used a 60 cm dish and reported that the beacon was 7 dB above the noise floor under less than ideal conditions with overcast skies and occasional rain (see note below). Both used linear feeds and reported good, stable signals except for cyclic deep fades due to the linear polarization of the K-band transmitting antenna, the linear polarization of their feeds, and the rotation of AO-40. A circularly polarized feed should eliminate these spin fades and if 3-axis stabilisation comes about should disappear altogether.

Stacey reported that the command team was delighted by the news and we can expect details soon of more tests on K-band and further details of the equipment used on the ground. Communication via K-band raises some very interesting potential problems. The frequency is close to the natural resonance of the water molecule and for this reason any communication over distance on this band is fraught with difficulty. It will be fascinating to see what operating procedures are developed to cope with the very high rate of doppler and the vaugeries of K-band.

Congratulations to the control team and to Petra, Chas and Michael for breaking new ground with AO-40.

ar

By Robin L. Harwood VK7RH

Mixed reception

In September I was up in Queensland holidaying with some friends and relatives and have not been doing much listening on the radios. I did bring my small Chinese-manufactured Digitor synthesized portable. It is very basic and also very wide.

What has been very surprising is that how different reception can be between various locations. For example on the Sunshine Coast, I was staying in a high-rise apartment block and the higher frequencies between 15 and 21 MHz were excellent but it is a very different story down at Beenleigh, which is approximately half way between Brisbane and the Gold Coast. Here the lower bands are excellent particularly in the evening hours. Stations in the Pacific Islands and Nuigini come in very well. I am hoping that I will be able to eventually get a decent receiver at this locale to do some real monitoring.

I have noticed that the BBC is much harder to hear in SE Queensland since they stopped broadcasting to Australasia. Yes there are domestic stations relaying the "Beeb" here in Brisbane at odd times, particularly 4RPH on 1296 kHz. Down in Tasmania, it is much easier to find them on shortwave, which I expect has a lot to do with the latitude. It is also interesting that daytime propagation on 9 and 11 MHz, which is common down there, is a rarity. This will change at the daylight lengthens. Also the lower frequencies will clearly become unusable in the afternoon and evening hours because of the constant atmospheric noise from lightning and storms. At the present time, SE Queensland is pretty dry and they are predicting a drought. It is unclear whether sufficient rainfall will be generated during the cyclone season. It is quite usual to see lightning flashing on the horizon up here, particularly in the evening hours, although the storms can be very far away.

Web 5, SW nil

There are rumours that more major broadcasters will be scaling back their shortwave operations in favour of a web-based delivery. The Swiss now only broadcast to Africa and Asia on shortwave and no longer employ any senders from Switzerland. The Belgians are likewise shutting down their Wavre complex, relying on facilities elsewhere in Europe, namely in Germany, the CIS and French Guiana. Radio Austria International in Vienna, drastically scaled back their operations and commenced leasing their senders to other broadcasters such as Adventist World Radio. Also the external service was merged with the domestic Austrian networks, which will see them increasingly relayed in preference to specialised programming for international audiences.

Digital shortwave?

Also the future of digital radio on shortwave is still up in the air. Although the Germans recently trialed DRM on MW in Berlin, the results were mixed. No commercial receivers are readily available and it seems that it is the politicians and bureaucrats who are driving it and not the marketplace. DRM is supposed to be on shortwave as from 2002 but it is primarily the Germans and the Dutch who seem keen. The "Eureka" DAB concept has largely been abandoned although it is in very limited operation within the UK. Again sets capable of decoding the format are available but not in commercial quantities being so expensive in comparison to analogue models. Other European nations decided not to use DAB in favour of DRM. The Americans are not interested in either format being market-orientated.

Clandestine transmissions

There also has been a dramatic escalation in clandestine broadcasting especially on shortwave, particularly in the Middle East. Iran and Iraq seem to be the primary targets as well as Palestine. America, Israel and Russia seem to be the main backers but surprisingly the French are starting to get involved. Recent clandestine transmissions on 17520 kHz are believed to be coming from Issoudoun in France. It may have been a satellite switching error that saw these transmissions emanate from France or a more direct involvement. Many seem to emanate from hired senders in Germany or the CIS although Merlin is known to be broadcasting clandestine Nigerian programming.

Merlin, which was born out of the break-up of the BBC World Service and is primarily responsible for the operation of shortwave senders, has itself become a major operator of many international senders on contract, hiring airtime to maximize their usage. Recently Merlin entered into an agreement with the United Arab Emirates (Abu Dhabi) to manage their senders, which saw the utilization by several religious outlets, provided they were not in Arabic or target specific regions. Merlin also act as brokers for other broadcasters who are trying to acquire senders for their programming, in a similar manner to Deutsche Telekom. It was Merlin who found the overseas relay facilities for Radio Australia in Taiwan and the UAE.

Don't forget that on the last Sunday of this month, Europe, North America plus the CIS (former Soviet Union) revert to their standard time. This will mean that there will be considerable frequency adjustments to take account of the alteration in propagation from the Northern summer to winter. Here in Australia we also move our clocks forward the same weekend in NSW, Victoria, the ACT and South Australia. NZ and Tasmania went to Summer Time on the first weekend of the month.

Well that is all for this month. Good monitoring and 73,

Robin L. Harwood.

ar

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

Don't forget those ALARA Contest logs

It was marvellous to have such support, including so many OMs who were there for the whole time. Logs can be sent by snail mail to VK3DMS QTHR the callbook, or by email to gdsyme@hotmail.com. Please use MS Word or MS Excel or plain text.

If you have not already applied for an ALARA Award, now is the time. You need just 10 contacts with YL ALARA members from at least 5 Australian states. Many of the participants this year will have achieved this, as there were stations from all the states (except, maybe VK8) at some time or another.

All you need to do is to send your log into Jean Shaw 10 Huntingfield Drive, Hoppers Crossing, 3029 Vic., with $3A or 4 IRCs. The certificate will be an attractive addition to your shack decoration.

The Lighthouse Weekend

This is the report from Susan VK7LUV.

We arrived at Low Head Lighthouse on Friday afternoon, having seen snow on the mountains all the way, to be greeted by the most horrendous gale force winds! As Alan (VK7JAB) and son, Jade, attempted to get a 15m dipole up into the air it decided to rain as well, though as a spectator I confess to being rather amused by the sight as the wind was blowing the rope, wire (fishing sinker!) and all sideways while they wanted it go upwards in the tree. However, after about 2 hours we had the 15m dipole and a wire for 80m 'up in the tree' as it were to provide us with antennas for operating from the cottage. Incidentally, the cottage we stay at is at Low Head Pilot Station and a great place to stay if anyone travels down here on holiday!

The bonus to our operating conditions for the ILLW 2001, as compared to ILLW 2000, was that we had 240v power which meant we could operate anytime, day or night, for as long, as we liked without having to worry about flattening the car battery and enabling us to use more than 40 watts! Most of our contacts were actually made from the car parked beside the lighthouse with vertical whip antennas for 10m, 15m and 20m (but with the 240v power). I must admit though, that my nerves are not as strong as those of my OM and the wind rocking the car at times worried me!

However, all in all a great time was had, though the 3 children spent most of the weekend inside the cottage with games, books, television, etc. Between the 2 of us we made approximately 135 contacts into 19 countries with 21 lighthouses around the world, including Northern Ireland, Belgium, U.S.A., Sweden, as well as Australia and our neighbours New Zealand. We have already booked in again for next years ILLW on 17-18 August 2002 and for anyone who is interested they can have a look at the list of this year's participants, as well as those booked in already for 2002, at http://www.vk2ce.com/ as Kevin, VK2CE is the Australian co-ordinator for this special event.

Visitors from interstate

Recently Marlene VK3WQ and her OM Jim VK3DL visited Adelaide. Marlene was there to attend a school reunion at Immanuel College. It must have been fun to meet all those boys and girls you went to school with fifty years ago.

While they were in VK5 we took the opportunity to have a luncheon for them. The VK5 girls do this as often as they can when they know there are interstate visitors around.

This time the lunch day coincided with a regular lunch for AHARS so in all there were there were 14 OMs and 4 YLs present. Meg VK5YG, who suggested the luncheon, was joined by Maria and Christine to meet Marlene. Maria's OM Keith, who does not usually come to these luncheons came along to renew the friendship he and Jim have developed through their many caravan trips. Unfortunately, Jean VK5TSX, the VK5 State Rep was away on a caravan trip!! Several others also made the effort and Dave VK5NU called in especially to see them.

We YLs thoroughly enjoyed the few hours together. It is most assuredly a great hobby we share. We may not meet often, and may only hear each other on the radio but when we do meet it is as if we last saw each other a few days ago.

Would you like to join but don't know how?

If there are any YL readers who want to know more about ALARA or who would like to join us there are several ways to do so.

If you are at a Hamfest and meet some YLs why not ask them about it? They may direct you to your State Rep or may give you our distinctive bright yellow application form on the spot. Or you could write directly to our Treasurer Bev VK4NBC. It is only $12 a year. For this you become part of a worldwide association of women who are interested in radio. You do not have to be an operator to be a member. We have a number of ladies who have been members for many years without becoming operators.

We have members from many countries. In fact approximately half our membership are DX members. Many of these are sponsored by a VK YL or VK member. When you sponsor someone into ALARA you are often given reciprocal membership of their YL association. BYLARA is the UK group, CLARA is the Canadian, YLRL is from the USA and WARO is from New Zealand. Most groups have a magazine or newsletter. As a member you will receive a copy several times a year to allow you to catch up with what is happening somewhere else in the world.

ALARA publishes a Newsletter four times a year. In it you will hear news from all over and read about the places people have been. It also keeps you up to date with forthcoming activities including all the YL contests held throughout the year.

The State Reps for each state are:-

For VK2/1	Dot VK2DB
For VK3	Judy VK3AGC
For VK4	Margaret VK4AOE
For VK5	Jean VK5TSX
For VK6	Poppy VK6YF
For VK7	Susan VK7LUV

Please join, I am sure you will enjoy it.

ar

Pounding Brass

Steve VK2SPS

More internet treasures

Over the past few weeks I've been investigating a number of interesting Internet sites on telegraphy and electronics. The amount of information contained within these sites is absolutely astounding. As much as I would love to take it all in its just impossible especially with family and work commitments at the moment, its just a matter of sifting through each site in turn and absorbing the information relative to your needs.

So let's continue on with the July column in relation to interesting telegraph Internet sites.

Dxer.com-Morse code (CW)

Address: http://dxer.com/cw.html

This is just a brief overview of Dxer.com site; it's worth looking at.

This site contains a number of links to other telegraph societies from around the world. Some of these societies are as follows:-

1. EHSC – Extremely High Speed Club.
2. HSC – High Speed Club.
3. SOWP – Society of Wireless Pioneers.
4. Vibroplex – Vibroplex Collectors Page.

Moving along will have one of the best sites so far found on the Internet.

PA3BWK's Ultimate Morse Code Website

Address: http://www.morsecode.dutch.nl/index2.html

This site is absolutely amazing and contains the following:-

1. CW Links This contains commercial software and links to other telegraph sites.
2. Morse Code Dr. This is a question and answer forum.
3. Morse Code Clubs Current clubs from around the world.
4. Art Page This contains artwork, poems and comics with a telegraph theme
5. Various Contains such things as PDF Library, CW Study Tips and Building

Projects

Let's have a look at "Building Projects"

Opening Building Projects you are give a Project List that contains such things as:-

Antenna's, RX, TX, Amps, Morse Circuits and a wealth of other technical information for the home brewer. Under each of these headings you are given a list of projects to build. For example looking at "Transmitters" we have at least 10 different projects to construct, some of these include the following:-

1. QRP HF TX.
2. 250mw HF CW TX.
3. 1 Valve CW TX.
4. QRP SSB HF TX.

I would rate this site as excellent and strongly recommend it to you.

Moving along we have,

Morsum Magnificat The Morse Magazine

Links to other web sites of Morse interest.

Address:-http://www.morsum.demon.co.uk/links.html

Again another excellent site to visit with a wealth of historical and technical information. This site contains a number of main headings and under each heading is a particular topic relating to that heading.

The main headings covered here are as follows:-

1. Samuel F.B. Morse
2. Morse Telegraphy–articles and online information
3. Telegraph Museums and Collections
4. High Speed Morse contests
5. Clubs and Organisations with an interest in Morse
6. Morse for the disables
7. Maritime Morse
8. Morse Miscellany
9. Morse Practice Schedules
10. Morse Programs Available
11. QRP (low power operating)
12. Suppliers of Morse equipment

Let's take an example: "Morse Programs Available"

Under this main heading we have about 14 different Morse related programs from around the world, some of these programs are:-

1. G4ZFE CW Pile Up Simulator
2. Morse Code – From Canada for beginners and experts
3. NuMorse – a shareware Morse tutor for windows.

It would take many a long hour to go through all of these programs but I'll give it a go and report my findings in later issues of this column.

Other sites on the web are:-

1. **NW7US Morse Code Radio Center**

Address: http://cw.hfradio.org/

2. **VK3NDS Amateur Radio Website**

Address: http://www.tbsa.com.au/~dsimp/cw.htm

3. **Morse Code Practice Oscillator by Tony Van Roon – Using the common IC 555 Timer Chip**

Address: http://www.uoguelph.ca/~antoon/circ/morse1.htm

4. **Last is the Morse code pileup trainer for sound blaster compatible sound cards**

Address: http://packages.debian.org/stable/hamradio/pileup.html

Well this concludes telegraph Internet sites for the time being or until I come across one of interest and of course I will let you know.

My email address is in doubt at the moment as I am with one.net. Temporary e-mail address is: vk2sps@yahoo.com

See you next month

Steve VK2SPS

ar

David A. Pilley VK2AYD
davpil@midcoast.com.au

Another quiet month with not too much to report. If you have news from overseas that you would like to share with our members, please snail mail or e-mail me. Thanks.

New amateur satellite to link remote APRS nodes

A new Amateur Radio tracking and communications satellite called PCSat is scheduled to launch September 1 (0100 UTC) from Alaska. PCSat will augment the existing Amateur Radio Automatic Position Reporting System (APRS) by providing links to the 90 percent of Earth's surface not covered by the terrestrial network.

Designed and assembled by midshipmen at the Naval Academy in Annapolis, Maryland, PCSat's first mission was to provide practical hands-on experience in support of the students' aerospace curriculum. The midshipmen worked under the guidance of Academy Senior Project Engineer Bob Bruninga, WB4APR—the acknowledged "father of APRS."

"We hope that PCsat will be a new direction for amateur satellites by serving the communications needs of travelers with only mobile and hand-held radios anywhere on Earth," Bruninga said. PCSat will be the first satellite to report its exact position directly to users via its onboard GPS. This means that whenever the bird's in view, users won't need tracking software to determine its position.

According to Bruninga, the satellite will demonstrate vehicle tracking and communication for GPS-equipped remote travelers—including Naval Academy vessels at sea, cross-country travelers, expeditions or anyone far from the existing APRS terrestrial tracking infrastructure <http://web.usna.navy.mil/~bruninga/digis.html>

In addition to its APRS capabilities, the satellite will offer 1200 and 9600-baud packet operation on VHF (145.825 MHz) and UHF (435.250 MHz). For APRS digipeating, the satellite will use the recognized North American APRS frequency of 144.39 MHz.

Bruninga said that PCsat should make a great classroom tool, since its telemetry can be received by any hand-held packet radio for display to students on their PCs. "And with the Internet connectivity of ground stations worldwide," he said, "classes are not limited to observing passes only over their school, but anytime PCSat is in view of any other participating school."

PCSat was deemed spaceworthy last month. Bruninga left this week for Alaska and the launch preparations. PCSat will be one of four satellites in the Kodiak Star payload, and the only one with Amateur Radio capabilities. The others are Sapphire, Starshine III, and PicoSat.

For more information, visit the PCSat Web site, <http://web.usna.navy.mil/~bruninga/pcsat.html>

(From ARRL N.L. 10/8)

German amateur receives high award medal

On July 12 Eberhard Warnecke, DJ8OT received from the German Government, one of the highest medal award, the " Bundesverdienstkreuz". He received this medal for his service to Amateur Radio and his contribution towards international friendship. Eberhard is a founding member of the DIG, "Diplom Interessen Gemeinschaft "(Award interest group). This group has 6000 members in over 120 countries.

(From dl-qtc 8/01 via vk4bdq)

SMS messages for amateurs

Two-way radios, including selective call facilities and pagers, have started to become obsolete and beginning to disappeared in the age of mobile phones and SMS messages. It is not a new idea to use SMS messages together with amateur equipment.

Around the year 1995 at a conference, Guenter, DK7JW introduced this as a general concept. In 1997 the German amateur radio club recommended a suitable frequency in its band planning. The frequency chosen is on the 70 cm band, 439.9875 MHz. Some students at the University of Kaiserslautern built a small transmitter for study purposes. Klaus, DL3KBH wrote a thesis on this subject. In the process a small transmitter had been built and installed at the DB0XO digipeater.

The basic idea was to transmit alarm and status information to the Sysops. At that time there was no intention to extent the project, or look at network capabilities.

During 1998, Klaus finished his thesis and the discussion started about the creation of a network. The first two transmitters were built, based on a 80C31 controller, RAM, ROM and a few analog components for the modulation part. Information being transmitted via packet radio protocol and the controller translated this into the POCSAG format.- POCSAG is a protocol to encode and decode pager messages in accordance with the CCIR 418–1 recommendations. A lot of groundwork, in software and hardware, has been covered between 1999 and 2001.

Since June this year the latest software release has been available (use your search engine and type POCSAG).

What can be done with a system such as that? The server can address any pager known in its database. If the MyBBS address of the pager owner is known, any message can be passed on immediately. If a network is created, any message can reach you countrywide without knowing the digipeater. For people using DX clusters there is no need to use a PC, they will be informed on the spot. Some work still has to be done to integrate and adapt the software to the different Mailbox systems. On the hardware side very little is required, changing a crystal and shorting a filter.

(from DL-QTC 8/01 via VK4BDQ)

Beyond Our Shores

Discovering Amateur Radio

Not really news but I thought it was amusing and may cause a smile on your face.

Reported in the Aug 17 ARRL News Letter

We've never heard this one before: ARRL staffers have heard a lot of stories from members about how they became interested in Amateur Radio, but, as Assistant Circulation Manager Kathy Capodicasa, N1GZO, says, "We've never heard this one before!" As she relates the story, she spoke to a mom who had placed an order on behalf of her young son for Now You're Talking and ARRL's Tech Q&A. "When I asked her how her son found out about these titles, she informed me that they had been at the dump and her 11 year old son started snooping around among the magazines and newspapers dropped off for recycling, and he came across the July issue of QST," Capodicasa said. "She told me that he hasn't been able to put it down since." Of course, an easier—and less messy—way to find out more about Amateur Radio.....!

HF Pack

Over the past few months I have been amazed at the number of QRP stations I talk to overseas. Pedestrian Mobile, Bicycle Mobile, all with good signals and running 5 watts or less. Perhaps it's the innovation of the Yaesu FT-817 that has been the inspiration. In September QST, Roger Burch, W4FN, wrote an interesting article on HFPack. Back in November 2000 Roger started a group called HFPack expecting possibly 50 to 100 members. Today it has a membership over 1,000. Common calling frequencies for SSB are 14,345.5, 21,437 and 28,337 kHz. (Though most of my QSOs have been on CW). If you are interested and have internet capabilities, try: groups.yahoo.com/groups/hfpac/

(from Sept QST).

LF Pack

As well as the movement to QRP, there is also a movement to the Low Frequency band between 160-190 kHz. Amateurs spanned the Atlantic Ocean last year and this year the Pacific Ocean was spanned with a transmission from ZL6QH being received by VE7SL in British Columbia, Canada, on 184.4 kHz. A path of 11,709 km. Seven New Zealand stations and one Australian took part in the test. Zl6QH transmitted dual frequency CW with two minute elements. One frequency representing dits, the other dahs. The ARRL has petitioned the FCC to authorize allocations at 136 kHz and in the 160-190 kHz band. The petition is pending.

(from Sept QST)

Novice Study

The Novice licence in the USA was first introduced in the 50s as a method for people to enter the Amateur Radio Service. As you are no doubt aware, the Novice licence was retired in the USA a while back. However, there are still some 40,000 Novice licences still existing, declining at about 6,000 per year through non-renewal and up-grading.

The ARRL has created a study group to determine what to do with the current HF Novice frequencies which are now seldom used. Bands involved are 80, 40, 15 and 10 metres. We'll keep an eye on the conclusion and let you know their outcome.

(from Sept QST).

WRTC-2002

The latest news is that the USA have now finalized their 10 teams and the UK have selected their one team to compete in the World Radiosport Team Championships to be held in Finland in July next year during the IARU Contest. It would be great to see an Australian Team participating. We were well represented at the '96 and '00 Championships. If you are interested in this world competition check www.wrtc2002.org/

ar

Club News

AHARS Notes

The last meeting of AHARS was addressed by Grant VK5ZWI who told us about all the changes that have taken place in the mobile phone industry within Australia since the first such phones came onto the market. There have been some massive changes and there may be some changes in the future but they will probably not be a disruptive as the change from analogue to digital (and CDMA) systems was.

Grant has been involved in the mobile phone development almost since its inception so was well qualified to give a very clear and informative talk. We all learned something new that night.

General Meetings of the AHARS are held on the third Thursday of each month and visitors are always welcomed. Please contact Geoff VK5TY or Alby VK5TAW if you are in Adelaide at that time of the month.

ar

Ian Godsil VK3VP

Contest Calendar October–December 2001

Oct	6/7	Oceania DX Contest	(SSB)	(Sep 01)
Oct	6	European Sprint	(SSB)	
Oct	13	European Sprint	(CW)	
Oct	13/14	Oceania DX Contest	(CW)	(Sep 01)
Oct	20/21	Worked All Germany DX Contest	(CW/SSB)	
Oct	20	Asia-Pacific Sprint	(CW)	
Oct	27/28	CQ WW DX Contest	(SSB)	
Nov	1-7	HA-QRP Contest		
Nov	3/4	Spring VHF Field Day		(Oct 01)
Nov	4	High Speed Club CW Contest		
Nov	9-11	Japan International DX Contest	(SSB)	
Nov	10/11	WAE RTTY Contest		
Nov	10/11	OK/OM DX Contest	(CW)	
Nov	17/18	LZ DX Contest	(CW)	
Nov	17/18	All Austrian 160m DX Contest	(CW)	
Nov	17/18	IARU 160m Contest	(CW)	
Nov	24/25	CQ WW DX Contest	(CW)	
Nov	24/25	CQ WW SWL Challenge	(CW)	
Dec	8-9	ARRL 10 Metres Contest	(CW/SSB)	
Dec	15	OK RTTY Contest		
Dec	15-16	Croatian CW Contest		
Dec	15-16	International Naval Activity	(CW/SSB)	
Dec	26	Ross Hull Memorial VHF Contest begins	(CW/SSB/FM)	(to Jan 13, 2002)
Dec	29	RAC Canada Winter Contest	(CW/SSB)	
Dec	29	16th Internet CW Sprint Contest		
Dec	29-30	Original QRP Contest	(CW)	
Dec	29-30	Stew Perry 160 Metres Distance Challenge	(CW)	
Jan	12/13	Summer VHF Field Day		

Greetings to all readers.

I hope that your station is standing up well and that all is ready for the Oceania DX Contest about the time that you read this.

I urge you all to be careful about checking your logs before sending them away. It is easy to make mistakes of interpretation in scoring systems (*will we ever have the perfect wording?*), but please be vigilant about typing and arithmetical rectitude.

Also, please do not forget your name and address, even if you are sending your entry via e-mail.

I mention these points because there have been logs arrive for contests that have not always fulfilled all entry requirements. I confess to being guilty in one instance by not splitting my entry into separate logs for CW and Phone – hence my log was rejected, and rightly so.

Log Checking

These days most logs for larger contests are checked by computers, hence the growing popularity of submission by e-mail and the American Cabrillo format. Probably this method of checking is not so widespread in Australia, but I think it is good to see an increased use of e-mail for log submissions. I would urge you all to make use of modern technology, as it is not something to be afraid of, but rather yet another aid to plying our hobby.

Results

By now I had hoped that you would see the results of two of this year's local contests; however, there has been a slight delay.

In saying thank you to the managers of these events, I would draw your attention to the very small number of entries in the Novice Contest.

Our sincere thanks to all those who took part and submitted their logs, but by any standards this is most disheartening for the Westlakes Club which supports the event, and the Manager who finds himself with little to do. Contrary to many peoples' feelings, Managers do like to have lots of entries, for they see who supports their contest.

In contrast to the Novice Contest, the Manager told me that Westlakes runs a CQ Repeater Contest around Christmas which can generate 50 or 60 logs! Any thoughts on how contesting in Australia can be enlivened will be most welcome.

Summer Contests

Summer will soon be with us again (and that wretched Summer Time to upset us all), but by no means does that mean that Australian contests now knock off for the year. Please check your station for the

VHF events listed in the Calendar. These can be quite interesting, especially if you have time to go to a good high vantage point for a while whilst the family goes walking.

Have you thought of operating from the car or a van in a field day, or even just an hour or so each day whilst on holidays? It really is another perspective on ham operations, and will show you some techniques of setting up that you may not really have tried before.

The Ross Hull Memorial VHF Contest is an excellent opportunity to try something like this. Give it a go! Also, the Spring and Summer Field Days make a good opportunity to get out of the shack and try a park, or high hill somewhere for a few hours. Look forward to hearing you!

Good contesting and 73, Ian Godsil VK3VP

Spring VHF-UHF Field Day 2001

John Martin (VK3KWA), contest manager

The next Spring VHF-UHF Field Day will take place on the weekend of November 3 and 4, 2001.

I have not made any rule changes this time but I would appreciate your comments on several questions:

1. The 6 hour single operator section is now far more popular than the 24 hour section. Should the 24 hour section be dropped, reduced to say 12 hours, or left as it is?
2. Should there be a six hour section for multiple operator stations?
3. Lately the biggest scores have gone to grid-hopping ("rover") stations because of the bonus points for each square activated. It is possible to win the contest with a comparatively small number of contacts as long as you stay on the move. Should the locator grid points be reduced, or are you happy with the existing scoring?

I have only received a few comments on these points so far, and they have fallen equally on both sides of the fence. So over to you - please include some comments with your log.

Dates

November 3 and 4, 2001. Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday. Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

A: Portable station, single operator, 24 hours.

B: Portable station, single operator, any 6 consecutive hours.

C: Portable station, multiple operator, 24 hours.

D: Home station, 24 hours.

Single operator stations may enter both Section A and Section B. If the winner of Section A has also entered Section B, his log will be excluded from Section B.

If two operators set up a joint station, they may enter Section C under a single callsign, or sections A/B under separate callsigns. If they enter Sections A or B, they may not claim contacts with each other. Stations with more than two operators must enter Section C.

General Rules

One callsign per station. Operators of stations in Section C may not make contest exchanges using callsigns other than the club or group callsign. Operation may be from any location, or from more than one location. You may work stations within your own locator square.

A station is portable only if all of its equipment, including antennas, is transported to a location which is not the normal location of any amateur station.

Repeater, satellite and crossband contacts are not permitted. No contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for any contest activity. Suggested procedure is to call on X.150 on each band, and QSY up.

Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator.

Repeat Contacts

Stations may be worked again on each band after three hours. If the station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Scoring

For each band, score 10 points for each locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x1	x3	x5	x8	x10

Then total the scores for all bands.

Scoring Table

You can obtain a cover sheet and scoring table, ready to print out and fill in, from the e-mail address given below. Otherwise please follow the following format. In this sample the operator has operated from one locator and worked four locators on each band:

Band	Locators Activated	Locators Worked	QSOs	Multiplier	Band Total
6m	10	+40	+40	x1	=90
2m	10	+40	+30	x3	=240
70cm	10	+40	+20	x5	=350
Overall Total					=680

Logs

For each contact: UTC time, frequency, station worked, serial numbers and locator numbers exchanged, points claimed.

The front sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Entries

Paper logs may be posted to the Manager, Spring VHF-UHF Field Day, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au.

The following formats are acceptable: ASCII text, Office 97 RTF, DOC, XLS, MDB, or PUB, or Works 99 WKS. If you use Office 2000, please save the files in Office 97 format.

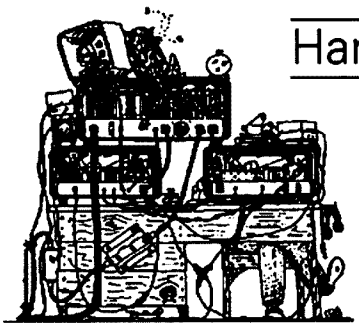
Logs must be received by Monday, November 26, 2001. Early logs would be appreciated.

Reminder: Summer Field Day, January 2002

The next Summer VHF-UHF Field Day will be held on January 12 and 13, 2002.

ar

Part 7
HTML



Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Thousands of Radio Amateurs have developed their own Internet Web Sites for pleasure, or to promote a particular AR interest amongst a much wider audience. These amateur "Webmasters" offer free software, file downloads, tips and advice, links to other places of interest on the Internet and much more. They each contribute to the AR richness of the Internet.

Web Space

A typical "account" with an Internet Service provider usually includes about 10MB of hard drive space on your ISP Internet server. This means that you can store hundreds of files on the ISP server for other Internet users to see, and interact with at their leisure. Each of these files is called "pages" which can include pictures, animated motion graphics, and of course the written words. It can easily be done in brilliant colour at virtually no cost to the designer.

MS FrontPage Express

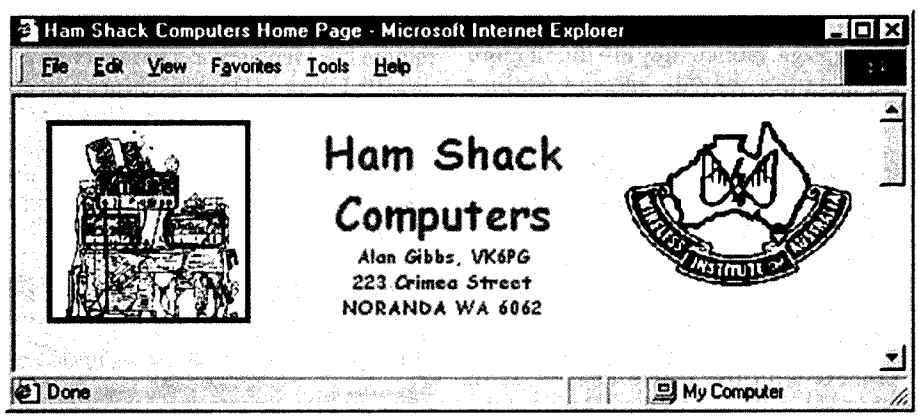
The Windows 98 CD-ROM comes with FrontPage Express free of charge, and is a first class program to use for designing your own Web Pages. If you can use a regular word-processor like MS Word, then you will find FrontPage Express just as easy to use.

The computer language used to compile pages is called **H**ypertext **M**arkup **L**anguage (HTML), and requires a myriad of special computer code (called tags) to complete the pages ready for uploading into your ISP server. As an example, open any Web Page in your browser and select **View**, then **HTML**. You would be confronted with a huge list of complex HTML tags – enough to frighten the newcomer to Web Page development.

Well, help is to hand without knowing any of the HTML jargon by using Microsoft FrontPage Express (FPE). It's like a word processor that automatically inserts all the HTML tags for you.

FPE is a "what-you-see-is-what-you-get" (WYSIWYG) when the page is saved then viewed in Netscape or Microsoft Explorer.

The writer has set up a small Web Site especially for **Ham Shack Computers**, being a simplified example of how this is done. For readers already on "The Net", "click" onto the following hyperlink: http://www2.tpg.com.au/users/vk6pg and you will see the following screen:



Try "clicking" onto each hyperlink listed on the page to see just how versatile a very simple page can be. Next, select **V**iew and then Sour**c**e. Notepad will open and display the hidden HTML used to make the display in your browser look stylish and colorful. If you are serious, printout the Notepad file and use it as a guide to learning some of the basics of HTML coding.

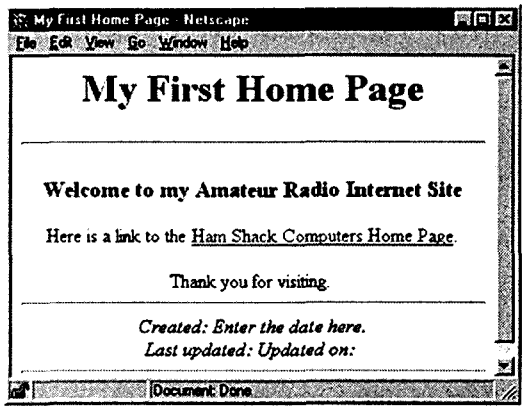
A Simple Exercise

Try this simple example to build your very first Home Page. Open up a new document using Notepad and carefully type in the following HTML commands:

```
<html>
<head>
<title>My First Home Page</title>
</head>
<center>
<body>
<h1>My First Home Page</h1>
<hr>
<h3>Welcome to my Amateur Radio Internet Site</h3>
Here is a link to the <a href="http://www2.tpg.com.au/users/vk6pg/">Ham Shack Computers Home Page</a>.<p>
Thank you for visiting.
</body>
<hr>
<address>
Created: Enter the date here.<br>
Last Updated: Updated on:<br>
</address>
</center>
<hr>
</html>
```

Next, Find a spare folder in My **Documents** and Save the new Notepad document with the name: **index.htm**

Open your browser program, select **File**, Open File and Choose File. Use the Browser option to locate your new index.htm file and Open the file to display your handiwork on the screen. It may look dull and plain but it does work!



Home Brew Pages

FPE inserts the HTML commands automatically. Colorful pages with links and images are a breeze just by using some listed menu commands. The inserted HTML code is transparent to the user although you can edit the raw code if needed when doing some page trimming and fixing up small problems. If you printed out the Notepad file, with a pencil mark up the special tags, compare these common tags from viewing the Ham Shack Computers Home Page. Notice they are much more complex but they do become familiar as you gain experience.

Open FPE, select **File** then New and try the Personal Home Page **Wizard**. Fill in each of the boxes with your own information until the **Finish** prompt. Save the file, open your browser and check that everything is correctly displayed. Open a new page in FrontPage Express and use the same process with the Home Page Wizard. Work through each of the options at the top of the screen. Try blocking and holding text, insert a bulleted list or numbered list. Indenting and highlighting looks good as does columns like the pages of this magazine. Cutting, copying and pasting works the same as most word-processors so you should feel quite at home with FrontPage Express. After a short while you will have developed your own style to your page. Keep the pages simple, clear and easy to read. Try adding a hyperlink to a popular site, include your own email address. Hyperlinks can be added to open other pages in your site, and you may end up with dozens of pages – where each page is rather like a chapter in a book. Include links to jump back to your Home Page to see the "menu" again. All this without knowing or understanding HTML technology! Avoid using WebBots that are peculiar to Microsoft compatible products and don't always function correctly in Netscape or other browsers.

Site Design

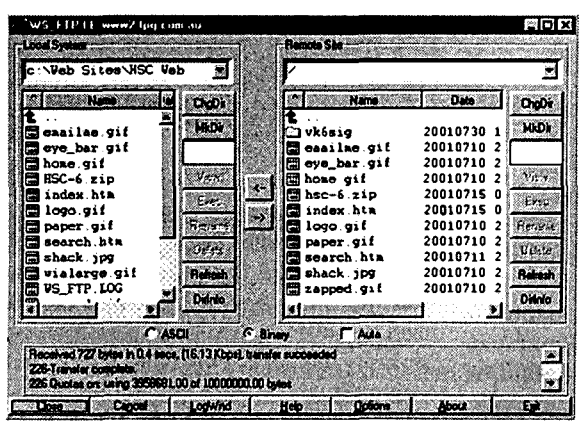
Once you are familiar with Web Page design, work on paper and plan the outline for your new site. It's rather like drawing the block diagram of a superhet communications receiver only easier!.

Common choices and names are:

1. Home Page. index.htm
2. Links Page. links.htm
3. Search Page. search.htm
4. My Station Page. station.htm
5. Club Details. club.htm
6. Newsletter. news.htm
7. FAQ Page. faq.htm
8. Odds and Ends oddends.htm

and so on ...

Notice that ALL FILENAMES are in lower case and use the eight by three convention ready to upload onto a remote ISP Web Server. These servers are usually Linux or Unix machines and are case and file size sensitive. This is why most web addresses and email addresses are all lower case. Callsigns can be the exception where uppercase is the convention.



For The "HTML Hackers"

HTML Writer by Kris Nosack (1) is a first class freeware Windows HTML Editor intended for the more experienced Web Author who likes to do some serious hacking. Authors have total control over all HTML insertion when designing pages. Highly recommended software and a "must have".

Uploading Pages

WS-FTP is one of the better file transfer programs, and it's freeware too!. It has two windows, on the left your own computer files and the right window displays the remote server files.

Your ISP will advise you on establishing your own server directory. Once done, the WS-FTP program "connect" menu can be set up to display the appropriate directory. Files can then be uploaded to the server by selecting the file in the left window and "clicking" the right arrow. Downloading is the same but the left arrow is used instead. It's really very simple to use. See the WS-FTP display at the bottom of this page

Test Everything

Once you have written your pages, uploaded them to the Web Server at your ISP, test everything in Netscape and Microsoft Internet Explorer BEFORE you announce to the world that you are now on the Web. If errors are found, correct the errors, FTP again and test accordingly until everything is sweet.

Summary

For the more experienced readers, my apologies for simplicity, but our target is to promote AR interest in the use of the Internet and not frighten away those who are willing to learn new technologies. That's the name of the game if Amateur Radio is to sustain it's long term future.

Ham Tip No. 7

For Web Page graphics try: http://www.bellsandwhistles.com/

Ham Shack Computers, Part 8

Beam Rotation looks at installing multiple communication ports, building and using Rotor EZ kits from Idiom Press in California. For the AR operator who thought he/she had everything, Hi

(1). HTML Writer by Kris Nosack: http://hometown.aol.com/Bottger/

(2). Ham Shack Computers: http://www2.tpg.com.au/users/vk6pg

73's de Alan, VK6PG
ar

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Psst...have you heard...?

There have been rumours doing the rounds for quite a while regarding a new amateur HF allocation at around 5 MHz in the USA.

The ARRL recently issued a news release giving details on their recent proposal to the FCC for access to a band around 5MHz for domestic use only. Apparently "the ARRL have been running an experimental station, WA2XSY, on this frequency since 1999. Their results indicate that this frequency would 'fill the propagation gap' between 80 and 40 metre amateur bands and would provide a useful emergency communications service by allowing nationwide disaster relief communications in times of disasters e.g. hurricanes etc. As a secondary measure it would also alleviate the congestion on the 80 and 40 metre bands.

The FCC has begun taking comments from amateurs and commercial users of this part of the spectrum so hopefully the wheels of government have at least begun to revolve. The ARRL's proposal suggests a 150 kHz band (5250 – 5400 kHz) where operation of CW, phone, data, image and RTTY be allowed. If the band is eventually allocated on a secondary basis then US amateurs will have to contend with interference etc from commercial and industrial users as they currently do on the 30 metre band. This is good news and would be the first new HF allocation since the 'new' WARC bands were introduced in the nineteen eighties. Maybe we should be petitioning our ACA for a similar allocation? For some time now most European countries and New Zealand have had access to a LF band while we in VK have, so far, missed out. Are we falling behind in the allocation stakes?

Electronic QSLs

I received an email from Ken Fuller, VK4KF regarding electronic QSL cards. He asks why a system for Internet delivery of QSL cards has not been established. Ken says that it would be much cheaper, quicker and more efficient than via post or the bureau (it would also free up a good number of QSL bureau volunteers!). I made a few inquiries and found that there are a few electronic QSL card programs around, eQSL etc, all offering various features. However, unfortunately none of them are recognised for award purposes, such as DXCC.

But, after sending off a reply to Ken, I found out that there is a scheme currently under development that has the approval of the ARRL and eventually should meet the scrutiny of most other award authorities. It is called 'Logbook of the World' (LOTW) and it has recently been given the approval of the ARRL board of directors. In a recent ARRL News release, that also included a simple description of the project, the software development team say they hope to have the system up and running by mid 2002. Software will soon be released to logging software writers to incorporate into their newest versions for evaluation purposes. Most importantly, LOTW has been designed to be secure and to minimise or eliminate bogus claims. If you want more information on LOTW have a look at http://www.sourceforge.net/projects/trustedqsl or contact Wayne Mills, N7NG. The LOTW sounds like good news for those of us who gather awards, it may also prove to be the first stepping stone towards a 'reliable electronic QSL bureau' for exchanging QSLs between average operators.

October sees JOTA weekend again. This is a fun event and the scouts, guides etc have a great time on the air having a nervous and shaky chin-wag with their like minded peers. If you hear them on air give them a quick call, it helps out the volunteer operators as well.

The DX

3B8, MAURITIUS. Jose, ON4LAC says he will be active from Mauritius Island (AF-049) between the 16th of October and the 6th of December 2001as 3B8/ON4LAC. He will be using SSB and possibly Pactor and RTTY. QSL direct only to ON4LAC. [TNX ON4LAC and 425 DX News]

5W, SAMOA ISLANDS. Atsu, JI3WLT/5W1SA is heading back to Apia in the Samoa Islands (OC-097) for two years beginning the 22nd of August 2001. QSL via JH7OHF. [TNX JI3WLT and The Daily DX]

8Q, MALDIVES. Pierre, HB9QQ will be active as 8Q7QQ from Gan Island, Maldives (AS-013) beginning the 31st of Oct until the 12th of November. He intends to concentrate on 6 metres this trip but HF action will also take place. He will run a beacon on 50.098 MHz, so have a listen and you might be surprised. QSL via HB9QQ either direct or via the bureau. [TNX OZ6OM and 425 DX News]

FR/T, TROMELIN. Jack, FR5ZU, is travelling to the islands weather station and expects to be there from the 6th of Sept until the 5th of Oct. Activity will be on SSB running 100 watts to vertical antennas. Jack suggests trying around the following frequencies; 3773, 3795, 14256, 14274, 18145, 21205, 24945 and 28470 kHz. QSL via JA8FCG. [TNX FR5ZU and OPDX]

TI, COSTA RICA. Bill, AK0A, will be operating from the QTH of Henry, TI2HMG using the callsign TI2/AK0A. Activity will run from the 25th of Sept until the 9th of Oct. He hopes to be active on all bands using RTTY, PSK, MFSK, CW and SSB in that order. QSL via his home callsign via the W0 Bureau. [TNX AK0A and OPDX]

V6, MICRONESIA. Sho, JA7HMZ and Hisa, 7L4IOU are heading to Pohnpei Island (OC-010) for a Digital mode DXpediton beginning on the 28th of Sept until the 4th of Oct. They intend to run RTTY, SSTV and PSK31. Their callsigns will be Sho, V63DX and Hisa, V63XC. QSL direct via their home callsigns:

JA7HMZ-Shoji Igawa, 17 Shirogane, Yokobori, Ogachi, 019-0204 JAPAN and 7L4IOU-Hisami Dejima, 2-11-13 Minamikoiwa, Tokyo, 133-0056 JAPAN. The pair also intend to participate in the CQWW RTTY CONTEST as V63XA. The QSL route for this call is via JA7AO: Tokuro Matsumoto, 3-62 Okachimachi, Yuzawa, 012-0856 JAPAN. [TNX JA7HMZ, 7L4IOU and OPDX]

V7, MARSHALL ISLAND. Jeff, KA1GJ, will be on Kwajalein Island, RMI (V73) for a three year assignment. He does not know exactly when he will arrive but it will be soon. His call will be V73GJ. [TNX KA1GJ and OPDX]

VK9, NORFOLK OSLAND (OC-005). Wojtek, SP9PT and Jerzy, SP9EVP will be active from here beginning on the 20th of Oct until the 4th of Nov. They will be on all bands using CW, SSB and RTTY. Callsigns will be VK9KNE and VK9KND. [TNX SP9EVP and 425 DX News]

VP8, SOUTH GEORGIA (see Round Up). Mike, GM0HCQ is heading back to South Georgia (VP8) with a possible trip to South Orkney (VP8) as well. From the 10th of October he will be on the air from aboard the Royal Research Ship Ernest Shackleton using GM0HCQ/MM. Once the ship reaches Falkland waters he intends to use the call VP8CMH/MM. Mike has supplied two Internet addresses for those who want further details of his trip, visit http://www.qsl.net/gm0hcq for his itinerary and http://www.hfdx.co.uk once he is underway. QSL direct to Mike Gloistein, 27 Stormont Way, Scone, PH2 6SP, Scotland. [TNX GM0HCQ and The Daily DX]

XP, GREENLAND (OX). The callsign XP1AB will be heard once again on the air. This call has not been heard since the 1960's and a group of Danish operators plan to activate it again from Sondrestrom on the west coast of Greenland during the CQWW SSB Contest. The contest runs over the weekend of the 27th and 28th of October. XP1AB is in CQ zone 40, ITU Zone 5 and IOTA reference NA-018. A large group of OZ operators are planning on arriving on the 24th of Oct. They will be assembling the equipment together for the first few days getting ready for the contest on the weekend. After the contest, if they have time, they intend to operate with their own calls/OX on all HF bands and 6 metres. They may be active on CW before and/or after the contest depending on the time available. The group expects to leave Greenland on the 31st of October. Jorgen, OZ0J comments 'during the OX2K DXpedition in May June 2000 we have put up an operating room to be use radio amateurs all over the world. We have also made a local club up there and the call sign will be XP1AB'. Good on them and we should all thank them for the opportunity to work this rare call area. The QSL Manager is OZ1ACB and QSL is direct only to OZ1ACB. See at http://www.qsl.net/ox2k for more information or Email Jorgen, OZ0J, at xp1ab@qsl.net. [TNX OZ0J, OZ1JSH, VK5UE and 425 DX News]

XU, CAMBODIA. Alain, F6BFH says he will be on the air as XU7ABW from the 22nd of Oct until the 10th of November. He intends to concentrate primarily on 6 metres. [TNX F6BFH and The Daily DX]

XU, CAMBODIA. Claude, F9LC (ex FF8AK) has retired and has taken up residence in Phnom Penh, Cambodia. He is operating under the call XU7ABN. He prefers working PSK31 and RTTY on 15 and 20 metres. QSL to Claude Laget, P.O. Box 1373 G.P.O., 99999 Phnom Penh, CAMBODIA. [TNX F9LC and The Daily DX]

YI, IRAQ. G0TLC hopes to back in Iraq by late September and will be active as YI1BGD. He will be using the club station in Baghdad. He hopes to be on the air at approx. 1400Z on various bands including WARC, 6 metres is a possibility as well. The QSL route for QSOs with G0TLC is only via G0MMI. [TNX G0TLC and The Daily DX]

YM, TURKEY. Mill, LX1CC will be active as YM3CC from the 16th of Sept until the 6th of Oct. He will be using SSB on all bands including WARC. QSL via his home call. [TNX LX1CC and OPDX]

Z2, ZIMBABWE (QRP Safari Op). Harry, W6DXO, thanks the Zimbabwe Amateur Radio Society for their courtesy in helping him organise his operation as Z2/W6DXO. He will be active from the Linkwasha Wilderness Camp and the Victoria Falls Hotel from the 27th of Sept until the 5th of Oct. He says working conditions will be most conducive to QRP operation so don't expect big signals. Most operation will take place on 20 metres. QSL via W6DXO direct only. [TNX W6DXO and OPDX]

ZC4, U.K. SOV. BASES AREAS ON CYPRUS. Steve, ZC4BS expects to remain here for another year or so. He is active on all bands 160 – 10 metres and all modes, but says most of his activity takes place on the 15 and 20 metre bands. [TNX ZC4BS and OPDX]

Special Events

The members of the Central Arizona DX Association will be running a special event operation in honour of the late Senator Barry M. Goldwater over the weekend of the 20th and 21st of October. They will operate as K7UGA on all bands 160-6 metres SSB and CW. QSL via the W7 bureau or (for the special commemorative card) direct to KC7V. Any and all proceeds from this event will go to the CADXA Scholarship fund, administered by the ARRL. Senator Barry Goldwater performed a lot of good work in the American Congress in aid of amateur radio, a pity we don't have someone like him in the Australian government to champion our cause. [TNX K8BN and 425 DX News]

Dxpeditions

3D2, CONWAY REEF. Raymundo, YS1RR, says the mostly Yugoslavian team, headed by Hrane, YT1AD, expects to be back on the reef between the 1st and the 10th of October. The team will include YT1AD, YU7AV, YZ7AA, YU1AU, YU1DX, Z32ZM, RZ3AA, K1LZ and possibly YT6A. There will be two stations active on all bands 160 – 6 metres on CW, SSB and RTTY. The two stations will have separate callsigns, one for CW and the other for SSB and RTTY. The pilot stations for the event will be YU1AA and VE3EXY. For more information visit http://www.kragujevac.co.yu/3d2. The QSL route for CW QSOs is via YT1AD, Hrane Milosevic, 36206 Vitanovac, YUGOSLAVIA while SSB and RTTY go via Z32AU, Dragan Kostevski, P.O. Box 35, 6000 Ohrid, MACEDONIA. [TNX YS1RR and The Daily DX]

3DA, SWAZILAND. A German team comprising Siegfried, DL7DF, Frank, DL7UFR, DL7KL, DL4WK will operate as 3DA0DF and 3DA0FR from Swaziland between the 30th of Sept and the 13th of Oct. They intend to be active on all HF bands plus 6 metres using CW, SSB, RTTY and PSK31. The equipment list is quite impressive with three transceivers, two linear amplifiers, beam antennas, a Titanex V80 low band

vertical plus and a variety of other antennas. Online logs will be available at http://www.qsl.net/dl7df as well as up to date information on the operation. QSL is via DL7DF. [TNX DF3CB, DL7DF, OPDX and 425 DX News]

ZK1, NORTH COOK ISLAND. The planned operation from Manihiki (OC-014), North Cooks has been confirmed. The dates of operation are from the 18th of Oct until the 1st of Nov. The operators will be Ralph, VE7XF/ZK1AKX; John, AA7PM/ZK1APM; Bob, W7TSQ/ZK1ASQ; Roger, W7VV/ZK1VVV; Victor, ZK1CG and Tuatai, ZK1MA/ZK1CY. They will take part CQ WW SSB DX Contest as ZK1CG. After the contest the team will travel to Rarotonga (OC-013), South Cooks and operate from the 1st until the 13th of Nov. Activity from both sites is expected on all bands from 160 – 2 metres (except 30 metres) on CW and SSB. [TNX The Daily DX and 425 DX News]

GJ, JERSEY ISLANDS. Chris, G0WFH, intends to make a last trip to Jersey using the call GH4BJC/P over the period of the 17th until the 31st of Oct. He will concentrate on 160 metres SSB. His scheduled operating times are as follows;

Oct 18, 23:00–03:00z
Oct 21, 19:00–24:00z
Oct 22, 23:00–05:00z
Oct 27, 23:00–06:00z
Oct 28, 22:00–04:00z
Oct 29, 22:00–02:00z

Chris advises that if operating times extend beyond 24:00z / 00:00z then the ending time is on the following calendar day. The equipment will be an Icom IC-756, ALS500M 400W amplifier, 160/80m vertical ("Battle Creek special"). Batteries, a charger and a generator will provide power. If you want a sked then contact Chris at chris.g0wfh@btinternet.com.[TNX G0WFH and The Daily DX]

9G, GHANA. Dick K5AND; Arliss, W7XUand Ed, W0SD are travelling to Ghana, West Africa. The team will be active from Elmina, approximately 100km southwest of Accra. Elmina is on the coast so this should be an aid propagation. Maidenhead Grid square is IJ95. Equipment will comprise two FT-100D's, a 3CX800 amp, a 7element (27 foot long boom) beam and a 25 foot rotating mast. We will also have HF equipment (100 watts) for 28.885 / 14.345 and a beacon-mode keyer etc running. QSL details to be finalised. [TNX K5AND and OZ50MHz Bulletin]

Round Up

A note from Chris Wright, VK2UW, and Karen Wright, VK2HKW, letting us know of their **Pacific DX Net** that runs on 14240 kHz +/- QRM from 11:00 UTC until either conditions or the net controllers decide to call it quits. Chris and Karen say DX stations will have preference over regular / local stations and that there are lots of new DX stations and rare islands logging onto the net while others are always encouraged to join the net. They have also enlisted the help of Doc, AF4MI, who acts as net controller on the far side of the Pacific if conditions or propagation deteriorate. [TNX VK2UW and VK2HKW]

Mike, GM0HCQ, plans to be back in the South Atlantic for a period of time late this year and early next year. He plans to operate as **VP8SGK** from King Edward Point, Cumberland Bay West, **South Georgia** and as **VP8SIG** from Factory Cove, Borge Bay, Signy Island, **South Orkney Islands.** Dates for both calls are as follows;

VP8SGK	November	24–30	2001
	January	10--11	2002
	March	4–6	2002
VP8SIG	November	17–22	2001
	January	5–8	2002
	January	28–30	2002
	February	27 until	
	March	2	2002

Keep an eye on http://www.qsl.net/gm0hcq/vp8sgk&.htm for the latest word. [TNX GM0HCQ and The Daily DX]

TT, CHAD. Chris, TT8DX has just returned to Moudoun in southern Chad after holidaying in France. He plans to be active from here (grid square JJ88aa) for another year. Equipment includes and HF transceiver with dipoles for 10, 12, 15, 17 and 20 metres, an HFV2 for 30, 40 and 80 metres and an AL-1500 amplifier. For 6 metres Chris will use a transceiver / amplifier combination providing about 400 watt to a 2-element HB9CV. QSL via F5OGL either via the French REF bureau or direct to Didier A. Senmartin, P.O. Box 19, F-35998 Rennes Armees, FRANCE. [TNX TT8DX and The daily DX]

T30, WESTERN KIRIBATI. Eric, N1JSY is a member of the Peace Corp and will be active as T30ES from Butaritari Island during his off duty hours. Eric is kept very busy during the day as he is involved with a variety of local projects, e.g. developing the country's infrastructure, providing assistance to the people in a number of areas such as rain water collection, women's medical issues and being an advisor to the school's gardening club. However, thanks to the help of the Candlewood Amateur Radio Association (CARA) in Connecticut, Eric has access to a TS-430 (100 watt) and two G5RV antennas positioned separately, for 80-10 metres. Power is primarily supplied from batteries charged from a solar collector so power is extremely limited. He will operate for a few hours each day using a car battery in his hut (this is recharged during the day). As Eric is new to HF and DX operations CARA members will help by providing Net Control assistance and as a QSL manager for his operation. For those who are lucky enough to work Eric a QSL can be sent to W1QI: C.A.R.A., Post Office Box 3441, Danbury, CT 06813 U.S.A. An Internet site is available at http://people.mags.net/boem/kiribati1.htm for up to the minute information. [TNX N1JSY, KZ1Z and OPDX]

A station has been heard recently signing **3A0FC** and calling himself Mike, G4IUF and giving Mike's callsign as QSL info. **This is definitely a pirate, Mike adds "I have never been to 3A**, and this guy has been giving me grief for years". [TNX G4IUF and 425 DX News]

Band conditions are beginning to improve and there is a lot of DX and Dxpeditions available so don't let them waste their time, get on the air and give them a call.

Sources

There is a lot of interesting information in this months edition of DX Notes and as always our thanks go to those stations, organisations and publications that make it all possible. These include ON4LAC, JI3WLT, OZ6OM, FR5ZU, AK0A, JA7HMZ, 7L4IOU, SP9EVP, GM0HCQ, OZ0J, OZ1JSH, VK5UE, F6BFH, F9LC, G0TLC, LX1CC, W6DXO, K8BN, YS1RR, DF3CB, DL7DF, PA7DX, K5AND, ZC4BS, TT8DX, N1JSY, KZ1Z, VK2HKW, VK2UW, G4IUF, OZ50MHz Bulletin, The Daily DX, 425 DX News and OPDX

ar

Repeater Link

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
will2@iinet.net.au VK6UU@VK6BBR

User pays

The past year has seen a trend towards many repeater sites costing us a lot more in access fees. Repeater managers are receiving requests for payment at sites we share with commercial and Government organisations that are just not sustainable.

There appears to be a fundamental shift on the way all users on repeater sites are being charged, and that being to up the fees by as much as ten times. In VK2, fee charges in the thousands per site per year have been requested. Repeater groups are endeavouring to negotiate these costs down to what amateurs can afford to pay. If this proves unsuccessful then the sites may well have to abandoned.

In VK6, one such site that we have had a two metre repeater on for almost twenty years, received a request for payment per year of almost ten times what is being payed now. Unless this figure can be reduced substantially, other alternatives will have to be looked at. This could well lead to the repeater closing down for good.

I believe that VK3 could well be in a better situation, due to the status of their repeater networks having some standing with the civil emergency organisations, but this may or may not have any value for the rest of Australia.

It could well be that the owners of sites like this are unaware of amateur usage and that no income is derived from such repeaters, but we will have to wait and see. This move to increasing the site rental is of considerable concern and perhaps should be tackled on a national front rather than each repeater group being forced to defend their costs on a stand-alone basis.

Computers Again

It has been a while since I have had a whinge about computers, but it does one good to get the odd story told. This one involved fitting a network card. All went smoothly, loading the drivers from the supplied floppy, until the computer asked for the Windows 98 CD. Well as it happened I did not have the Windows 98 disk with me so the only option was to hit the cancel button. Big mistake. On re booting the computer, all sorts of files were missing, along with much of the computer's basic set up. In fact after several re-boots the computer did not function well at all.

Now this begs a question or two. Would you not think that a cancel button means just that, cancel, not "if you select this option your computer will be screwed up." Perhaps the software developers never actually tried the cancel button but all options should be tried, it is called software testing.

The only way out was to reformat the hard drive and start again. Armed with the Windows 98 CD all went well this time. Be warned of the cancel button when installing a network card.

Printer Cartridges

And yet another computer story, re-inking printer cartridges. The purchase of a new printer and the inevitable need to replace the expensive ink cartridges leaves you wondering why the cartridges are a third of the total price of the new printer. One could even come to the conclusion that printer cartridges are a rip off, as re inking can be done at a fraction of the cost of new cartridges.

Despite all the warnings from the printer manufacturers, that re inking can lead to all sorts of problems, a friend had been re inking his printer for about two years with no problems and a saving of almost $1,000. Any problems that re inking may cause can be off set by just buying a new printer with a saving like that.

However my printer is lot smarter at frustrating the re inking process. The near empty cartridges were re inked, but the computer reported the ink was still low and would not allow the printer to print. All efforts like leaving the printer over night and re booting would not change the situation; the printer reported low ink and would not print.

A phone call to the retailers of the ink explained all, well in part at least. The print cartridges contain a smart chip that monitors the ink as it goes down. If the cartridge is re filled at any point the chip ignores the extra ink. As far as the cartridge is concerned the ink can only go down not up. I don't know if the chip simply reports the lowest point and only continues reading any lower level once the replaced ink has been used down to the same point. However if the ink reaches the no ink level the printer will not work, and refilling the cartridge will not work. But there is a software program that you can download from the Internet that re sets the chip in the cartridge. The ink suppliers forgot to tell me this. Running the program worked, and the cartridges now show a full ink level and the printer works.

I'm sure the printer manufacturers are working on an even smarter chip to prevent re inking of printer cartridges. I can't help but feel this is unfair, particularly as re inking of printer cartridges, at a considerable saving works, despite all the warnings from the printer manufacturers.

ar

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of AUGUST 2001

L31558	MS J MCDONELL
L31559	MR P HANAFIE
L31560	MR W QUAYLE
VK2XES	MR D E CURRY
VK3KEV	MR K DUNHAM
VK3LCW	MR C WILKINSON
VK3TEB	MR T BUTTERFIELD
VK3XJL	MR J P LONGWORTH
VK3ZVY	MR P B SIMONS
VK5AAW	MR L E GEERING
VK5ATT	MR K R DE VORE
VK6IG	MR G E WATTS
VK6SA	REV M G SUTER
VK7KRR	MR R E RICHARDS
VK7ZBB	MR B BASSTIAN

VHF–UHF: an expanding world

David K Minchin VK5KK
Postal 10 Harvey Cres, Salisbury Heights, SA, 5109
E-mail: tecknolt@arcom.com.au
Web page: http://members.ozemail.com.au/~tecknolt
Fax +61 8 82924501 NEW FAX NUMBER
Phone 0403 368 066 AH ONLY
All times are in UTC.

WSJT Meteor Scatter Software

Ian VK3AXH reports, "Having now had some very recent success with WSJT (a meteor scatter program) has prompted me to seek comment from reflector members and others regarding a suitable frequency for this mode of operation. This morning whilst tuning around two metres I heard this program running and promptly sent a reply during the off period, which proved to be successful. This subsequently led to an SSB contact where the frequency issue was raised.

Having been involved in early beta testing of the software and following the comments on the MS Reflector it seems that hams in the USA and Europe are making big gains with grid square numbers by using this program. So all you grid square hounds should get fired up to improve your numbers!

It might also be useful to include this activity prior to, during or after the Wednesday night 144.150 MHz SSB net held in VK3 and run by Rob VK3EK. If this idea sounds good it may help overcome some of the frustration some hams experience when attempting QSO's over long distances i.e. VK3 to VK2 and VK4. It would also enable contacts to be made for those hams not normally able to make contacts via aircraft enhancement. For those not familiar with the program it is available from http://pulsar.princeton.edu/~joe/K1JT. The author Joe Taylor reports that good 6 and 2 metre contacts have been made using MS over 800 to 2200km on bands that had been reported "dead". If some consensus can be reach albeit by gentleman's agreement, perhaps a submission could me made to the WIA bandplan group for recognition. I hope I have not overlooked an existing designated frequency for this activity.

Those who I know that have the program running are VK3's AUU, CJS, KQB, AXH and VK4AKM. There are bound to be many others as well"... Ian VK3AXH.

Two Metre Activities in Singapore

From Jaya 9V1VS editor of Singapore "Groundwave" publication, as reported in the West Australian VHF Group September 2001 Bulletin. The following is an excerpt from the letter "Almost all traffic on 2m in Singapore is FM, with a rare Packet access to a packet BBS. The only SSB traffic is from satellite users. All mode 2m transceivers are very expensive compared to FM rigs. One way out is perhaps by using transverters. The power limitations for terrestrial and satellite operations are different. For terrestrial we are limited to 10 watts E.R.P. (!). Some of the personalities in the licensing authority were of the opinion that 2m band is for local communication and not DX! Also they seem to be oblivious of the effect of Sporadic E on 6m communications. Hence, it may not be easy to obtain permission of multi band transceivers that include 6m in their range of frequency bands. So the IC706 and similar rigs are not approved.

There are two 2m repeaters on 144.625 and 145.625 MHz. The inputs are –600 kHz. Several kilometres to the north there is a Malaysian repeater on 145.725 MHz with a callsign 9M2RGP and fitted with CW ID and power output of 25 watts. 9M2RGP is sited atop a hill, Gunong Pulai, on which there are a number of antenna's. It is near Senai Airport in Johor. I can copy the repeater with a handheld from my QTH on the East coast of Singapore.

We have never, to my knowledge approached the licensing authority for a license for a beacon. We are permitted 144 to 146 MHz. There are non-amateurs in YB-land operating from 137 – 160 MHz. So you may here them on FM node chatting non-stop!"

Up coming 24 GHz EME activity

From Barry VE4MA .... Al Ward W5LUA & VE4MA are planning a period of 24 GHz EME activity that will permit other stations to listen and hopefully even result in new contacts (WA7CJO & AA6WI?).

We are planning to use 2.5 minute sequencing for the following skeds:

October 9 @07:00 W5LUA-VE4MA 24192.100

October 10 @ 08:00 W5LUA-VE4MA 24192.100

The choice of these dates was made to avoid the contest weekend and give a good visual moon for tracking. With visual tracking, we hope to avoid the usual 10 GHz practice of pausing at the 1-minute point in a sequence for antenna peaking.

Al and I are within 5 kHz of agreement on the frequency, but we will keep our echoes close together. The Doppler shift can be very high (up to 70 kHz) so please be aware that there are dramatic differences in the calculated Doppler between the various programs. Al & I are both using W9IP's "Realtrack"... Barry VE4MA

Emil Pocock W3EP reports in his "World above 50 MHz column in QST" ....VE4MA used a 2.8-metre offset dish, a 1.6 dB noise figure receiver, and 70W from a Varian traveling wave tube (TWT) amplifier in the shack. Feed was accomplished via a wave-guide. W5LUA had a 3-metre prime focus dish, a 1.75 dB noise figure receiver, and a Thompson TWT that delivered 80W to the feed horn.

WA7CJO and AA6IW are close to finishing their EME-capable 24 GHz stations, and others in Europe, including CT1DMK and G3WDG, have receive capabilities. Nevertheless, it is unlikely that 24 GHz EME will become popular very soon. Water-vapor absorption losses are significant at 24 GHz, and the technical challenges involved in

generating sufficient power to overcome atmospheric attenuation will probably limit the number of amateurs willing and able to duplicate this feat, at least in the near future. The best locations for 24 GHz EME might turn out to be high deserts, arctic regions and other areas of the world where atmospheric moisture is generally low. ... Emil Pocock, W3EP.

Microwave Primer Part Seventeen:

Packaging the Portable Microwave Station

Last month we looked at considerations for packaging the various modules and the combined station. This month we will look at the portable dish, tripod and engineering frequency considerations.

What may seem to be a trivial issue at first, is not. The way in which you package the "portable " station can either make a very usable system or a very hard to use system. The ability to transport and then quickly deploy a station is important when propagation can appear or disappear in a very short time. Waterproofing is required, to some degree, as climate conditions on hills from 300 – 1000 metres can change quickly! And to be able to take a fair amount of bouncing around in the back of a vehicle yet still work on frequency first time is most important.

There are many ways to arrange a station; the first picture shows a number of 3GHz to 24 GHz portable stations built by various VK3 & VK5 microwave enthusiasts. All have similar layouts using old surveyor tripods and 600mm diameter prime focus dishes. Almost all use a system where the tripod is attached to a base plate or frame, which supports the chassis of the transverter. The dish is then attached to the front of this arrangement. The feed is then attached via semi rigid coax or waveguide via a central connector.

The fact that Russell VK3ZQB's two closest units look almost identical is no co-incidence. Both units use the same frames so the transverter and feed components are interchangeable for 3, 5 & 10 GHz. This makes quick band changes possible using a common dish/ frame/tripod. This reduces the amount of equipment to be carried around by more than 50%. The type of transverter chassis has been touched on before but perhaps a comment on the size is relevant at this point. Allow more than adequate room around all modules so the unit is serviceable. Again, if you are planning to build more than one band, some commonality between units will save time.

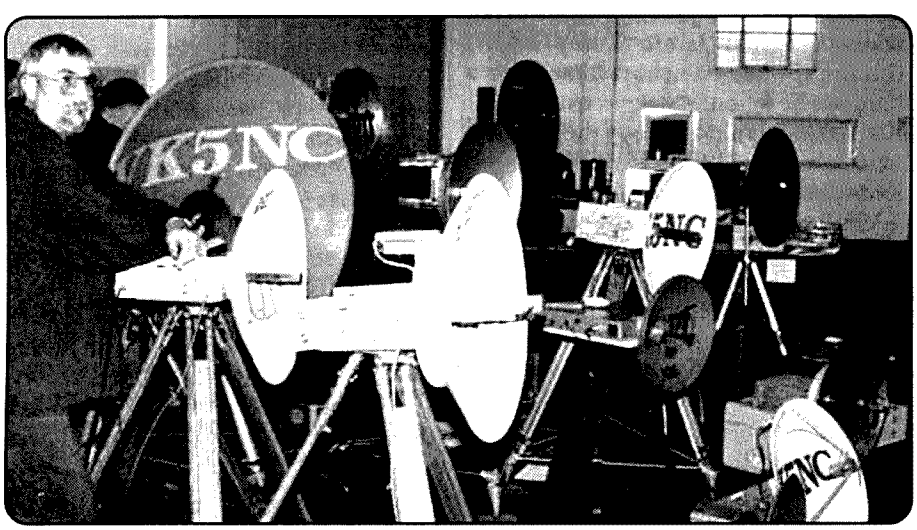
When I started making my current batch of transverters, in 1990, I settled on Horwood style boxes (150 or 200 mm wide, 75 mm high, 250 mm deep). Many of the transverter kits developed for the ESC were designed to go into these boxes. These transverters were all 100mW – 500mW output. All had similar layouts and had ample room for the current, at the time, developed modules. My 10 GHz 1 watt transverter, contained in a 75 x 150 x 250mm box, is quite compact!

The major problem that appeared when upgrading the boxes a few years later, with new Power Amplifier's (1 – 10Watts) and pre-amps, was room. I have now made the conscious decision to start with a new (larger) formatted box. Rather than cannibalize the old transverters I am building new ones. I have updated minor aspects of the old transverters (lower noise Rx and frequency stability) so they can be lent out. As a recommendation, for a typical Microwave 1 – 10W transverter, a box around 300 x 300 x 100mm is recommended. The box can have a dividing partition but should have both top and bottom access.

It is possible to build more than one band into a single box making dual band operation only a matter of changing the dish feed. Alternatively, if you use a dual band feed and a relay, you can change bands by simply flicking a switch! Dual band feed designs exist for 2/3 GHz, 3/5 GHz and 5/10 GHz. A word of warning some earlier design multi-band feeds have been found to be good as dummy loads and not much else! The best designs are dual mode can type feeds with separate feed points. The popular triband PCB design in QST years ago is OK on 2 & 3 GHz but has been found to be poor on 5 GHz. In all cases, a single band feed will always outperform a multiband unit.

In earlier parts, mention was made of using Offset feed type dishes, as typically used with K-band satellite units (Foxtel, Optus, etc). Mechanically they are harder to arrange but the plus is the increased efficiency for the same size dish. The most common approach is to mount the entire dish assembly at the balance point of the feed support tube, above the transverter box. The feed is then about 300mm max in front of the transverter. The system ends up being quite a bit taller than a prime focus dish system but at least the centre of gravity is over the pivot point. The other challenge is to accurately allow for the offset by tilting the dish down by 26 – 30 degrees. Please refer to earlier parts for various methods to find the horizon

The last issue is keeping the dish and tripod standing! The sail area of a dish is substantial enough that in a 16 km/h or higher wind, things will start to move. I use a short piece of rope tied around a loop at the apex of the tripod. The other end of the rope is usually tied around a 12V 40 Ah battery directly underneath the tripod! The other method is to use tent pegs (big ones!) at each tripod leg. Gable ties looped around each leg

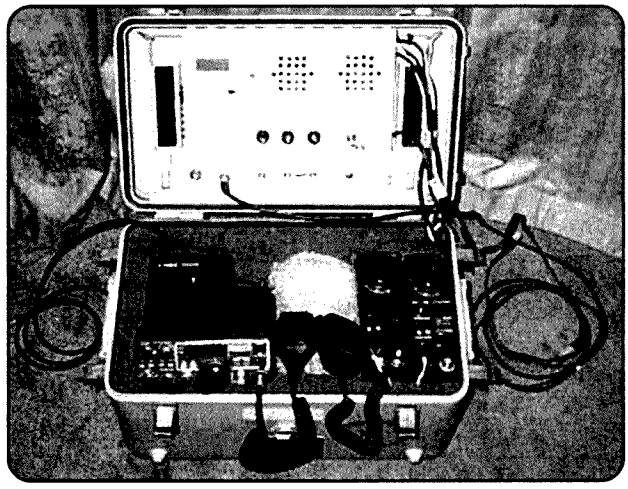


Russell VK3ZQB with a collection microwave systems!

provide a quick means of tensioning up the pegs. The other alternative is to attach the tripod to a fence or other piece of structure that may be available. A dish blowing over in wind is not fun. Usually the equipment survives, but the dish gets bent and coax and DC leads are stretched. Panel beating a 10 GHz dish in the field usually doesn't guarantee restoration of full performance!

All the ancillary equipment like transceivers and DC power can be contained in another box for easy transport. The second illustration shows VK5KK's portable IF box, previously described. The box is an ex military test equipment transport box that is water and airtight when closed. It actually floats!

One of the transceivers is used for what is called the "engineering frequency". Invariably 144 MHz SSB is used. When you are portable, 25 watts and a 6-element beam will suffice for distances up to 400-500km with some lift. For greater distances, a bigger beam and/or more power may be needed. If the hill is a good Microwave site, it should be more than a good site for 144 MHz. However, on more than one occasion signals have been better on the uWave band being used than 144 MHz! Importantly, if you can't talk on 144 MHz you will be traveling blind. In the SE areas of VK3/VK5 FM repeater coverage is quite good so over shorter paths the local repeater can be used. This also gets other people involved, on more than one occasion I have had curious local amateurs turn up on a portable site, as well as normal curious onlookers.



VK5KK's uWave IF box with 144 & 432 MHz IF and 144 MHz SSB with internal DC Power

Next week we are having a complete change of pace with a look at Microwave ATV, including recent work on 10 GHz over 85km paths, home QTH to home QTH, 24 hours a day!

In closing

I will be in the Middle East and UK in late September/Early October, so I hope to bring some extra news from the European scene for next month. Local propagation news has been limited in the last month with only limited winter tropo and few reports of 50 MHz activity other than to the North from VK4 & VK8. A reminder that the Spring Field Day will be held over the weekend of the 3rd and 4th of November, 2001.

I'll leave you with this thought, ... "Remember when the moon just affected tides, not taxes?""

ar

Education Notes

Brenda M Edmonds VK3KT
PO Box 445, Blackburn VIC 3130

How basic is a basic licence?

Thank you to all those who have responded to my earlier comments about a lower level entry point to amateur radio. There does seem to be a groundswell of opinion in favour of there being a lower level.

I am at present contacting a number of other national bodies to find out the details of their lowest entry points, and the privileges offered for that level.

My personal opinion is that we are not yet ready to approach the ACA about such a licence, as we currently have five levels of licence, which is quite enough for anyone to get their head around. However, it does seem likely that after the WRC in 2003 the mandatory Morse code requirement for HF may become an option, at which time we will have only two levels of licence. That would seem an opportune time to ask for another level. But there is nothing stopping us from making plans and discussing the options before then.

If the mandatory Morse code qualification becomes optional, should we put something else in place of it? If so, what? A speed typing test? A more detailed examination of some of the newer modes? A practical construction project? There are many possibilities. Perhaps the Morse code could remain as one of a number of options leading to an advanced licence. We need to make a detailed assessment of just where we are going and what we want to put into amateur radio as well as what we want to get out of it. We have muddled along for years with one system. A full scale review would not hurt us.

One matter which is open to discussion is the privileges which should be accorded such a licensee. Several possibilities have been canvassed, from a section of 70 cm to part or all of the HF bands. It would need to be exciting enough to encourage activity and the further study required for upgrading.

It is assumed that a basic licence would not allow any experimentation with transmitter circuitry - in effect it would be a licence to operate a "black box" - and ancillary equipment such as antennas would need to be put up under the guidance of a more qualified person.

I welcome further input on this topic so that I can present a balanced report to next year's AGM.

On a totally different topic, I have reported elsewhere on the amateur radio stand at the Great Australian Science Show. One thing that stood out was the number of children fascinated with the Morse keys. We gave out more copies of the Morse code than any other handout. Is this a good sign for our future?

ar

HF Predictions

by Evan Jarman VK3A
34 Alandale Court Blackburn Vic 3

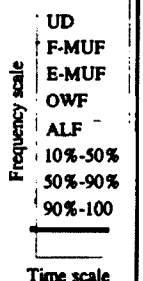
These graphs show the predicted diurnal variation of I frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

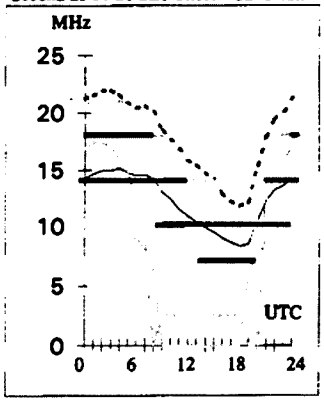
Shown hourly are the highest frequency amateur bands ranges between these key frequencies, when usable. The p propagation mode and Australian terminal bearing are also gi for each circuit.
These predictions were made with the Ionospheric Predict Service program: ASAPS Version 4

October 2001
T index: 105

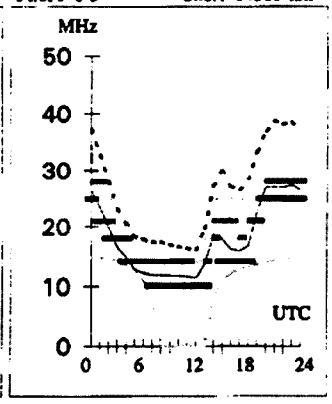
Legend



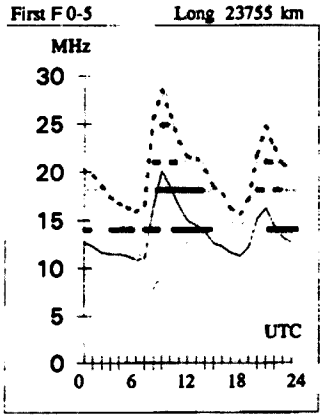
Adelaide-Auckland 104
Second 2F14-20 2E0 Short 3241 km



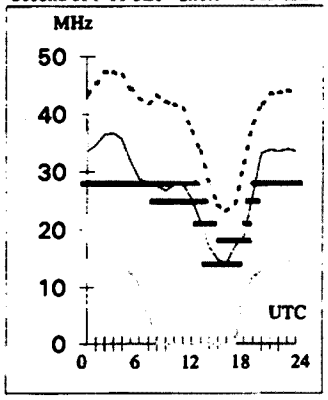
Brisbane-Chicago 57
First F 0-5 Short 14361 km



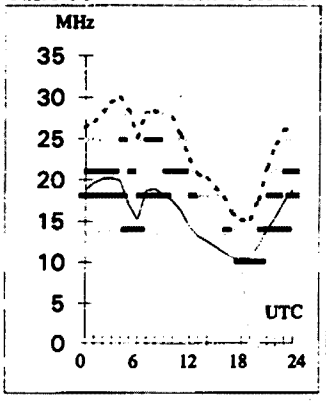
Adelaide-London 132
First F 0-5 Long 23755 km



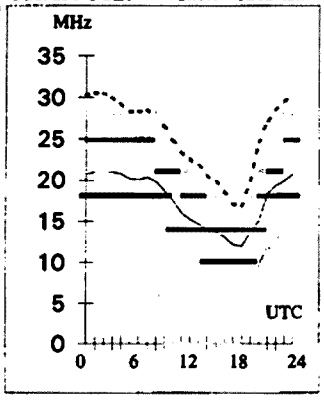
Brisbane-Honollulu 49
Second 3F5-11 3E0 Short 7569 km



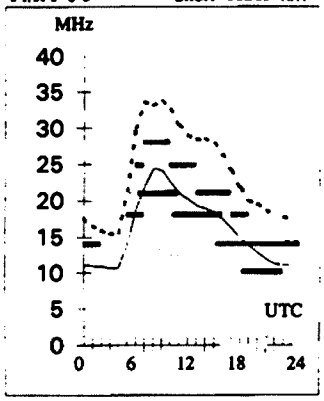
Canberra-Dakar 214
First F 0-5 Short 17361 km



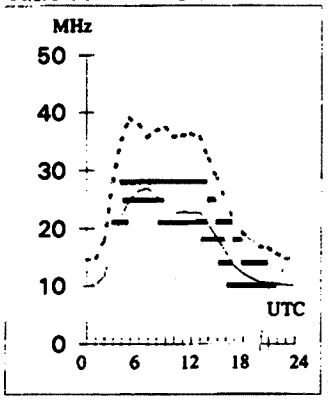
Darwin-Christchurch 139
First 2F5-8 2E0 Short 5282 km



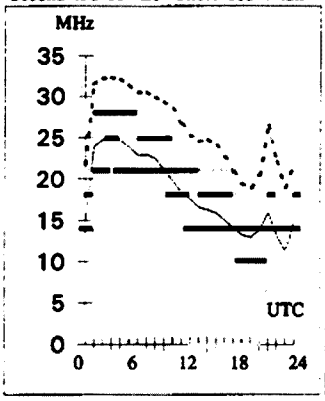
Adelaide-London 312
First F 0-5 Short 16269 km



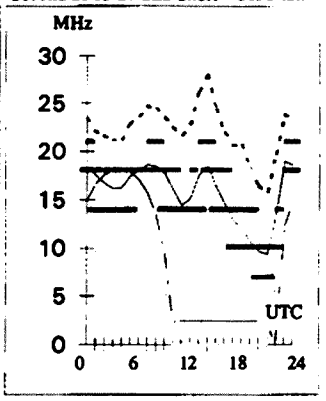
Brisbane-Moscow 321
First F 0-5 Short 14071 km



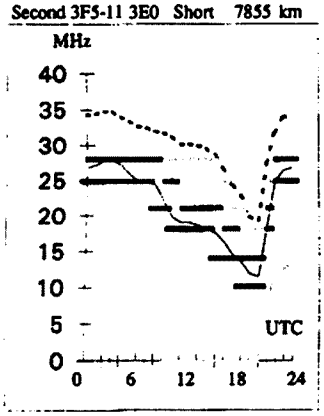
Canberra-New Delhi 303
Second 4F5-11 4E0 Short 10347 km



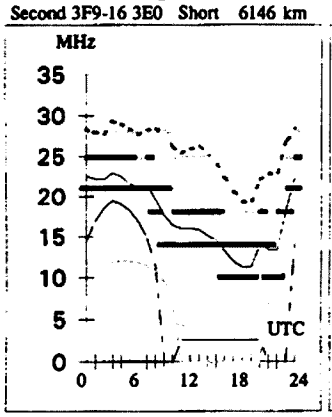
Darwin-Manila 340
Second 2F13-27 2E2 Short 3196 km



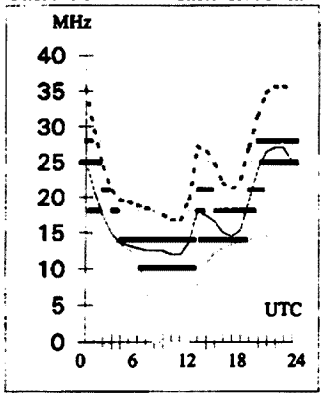
Adelaide-Tokyo 1
Second 3F5-11 3E0 Short 7855 km



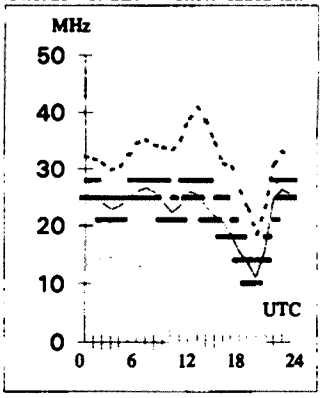
Brisbane-Singapore 293
Second 3F9-16 3E0 Short 6146 km



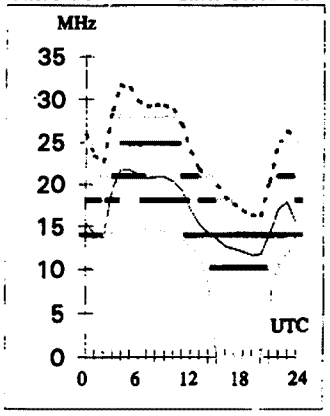
Canberra-Washington 70
First F 0-5 Short 15938 km



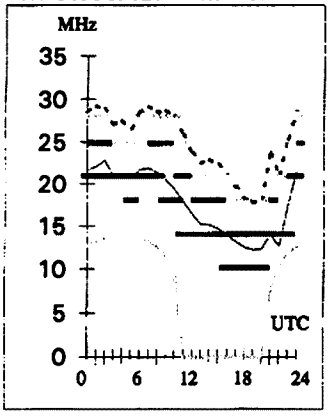
Darwin-Osaka 5
First 2F4-13 2E0 Short 12212 km



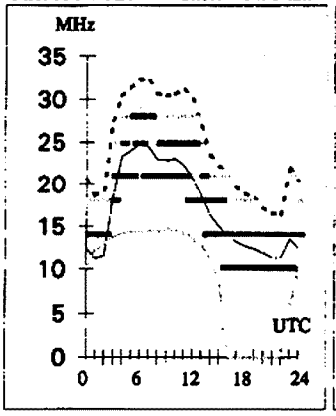
Hobart-Amman 283
First F 0-5 Short 14002 km



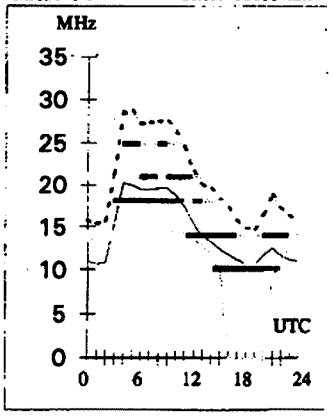
Melbourne-Bangkok 312
Second 3F6-13 3E0 Short 7372 km



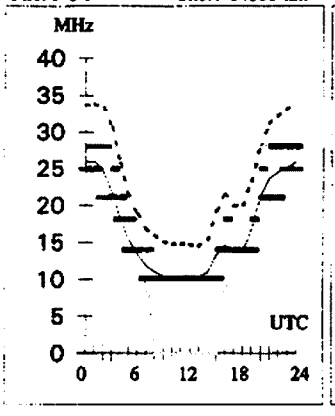
Perth-Harare 257
First 3F3-7 3E0 Short 8496 km



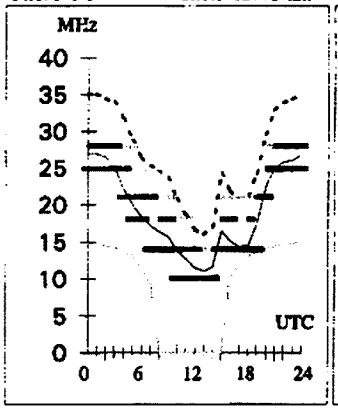
Sydney-Johannesburg 230
First F 0-5 Short 11035 km



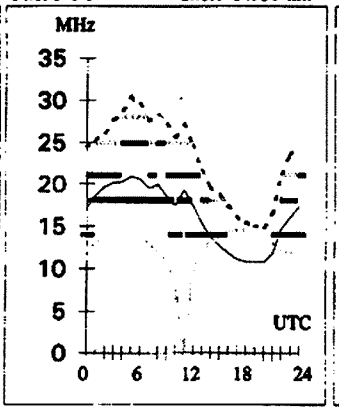
Hobart-Calgary 51
First F 0-5 Short 14086 km



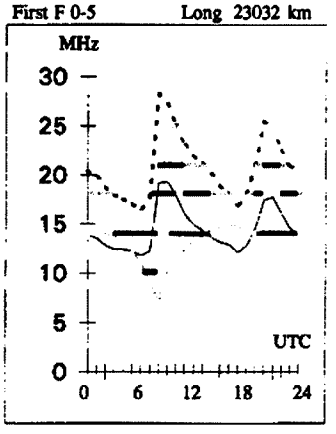
Melbourne-Los Angeles 65
First F 0-5 Short 12771 km



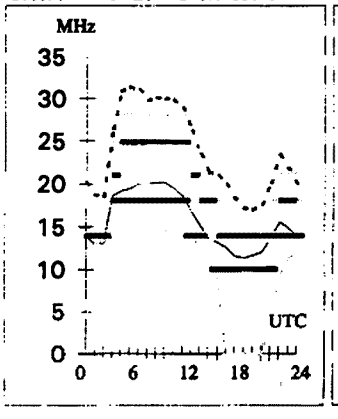
Perth-Lima 162
First F 0-5 Short 14930 km



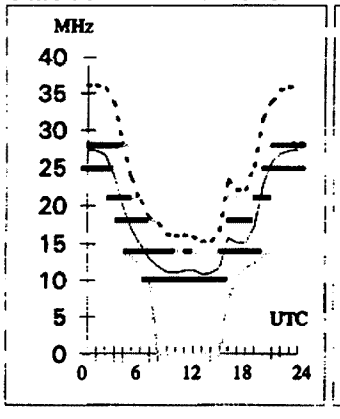
Sydney-London 139
First F 0-5 Long 23032 km



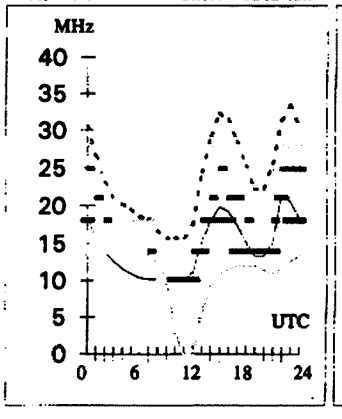
Hobart-Lusaka 239
Second 4F4-8 4E0 Short 11045 km



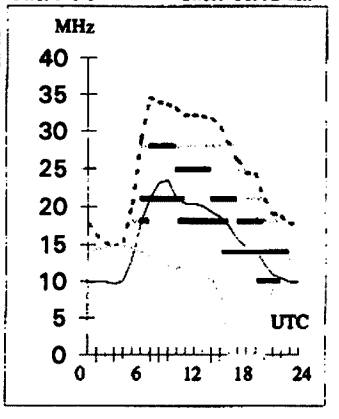
Melbourne-Seattle 50
First F 0-5 Short 13178 km



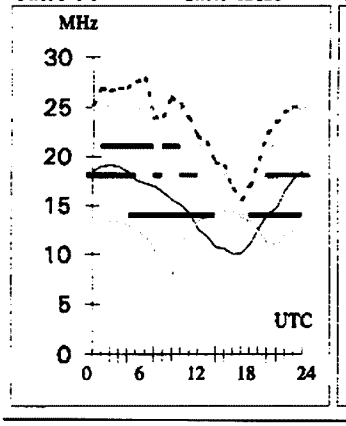
Perth-Ottawa 30
First F 0-5 Short 18212 km



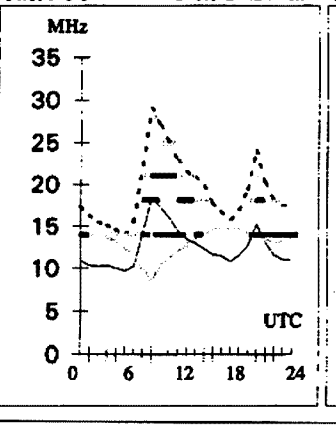
Sydney-London 319
First F 0-5 Short 16992 km



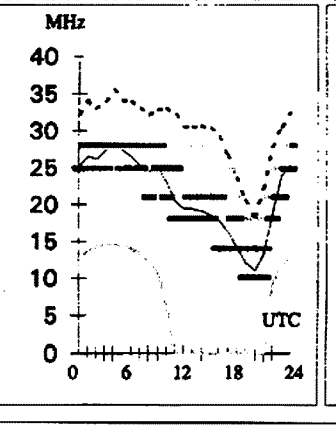
Hobart-Rio de Janeiro 169
First F 0-5 Short 12620 km



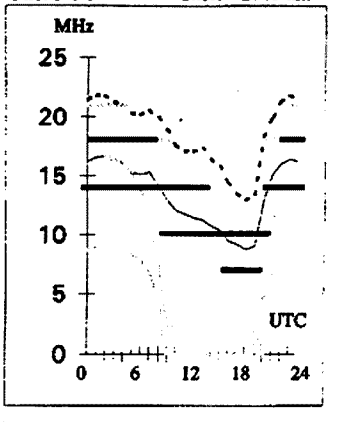
Melbourne-Stockhobn 140
First F 0-5 Short 24424 km



Perth-Tokyo 20
Second 3F4-11 3E0 Short 7923 km



Sydney-Port Moresby 351
First F 0-5 Short 2740 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE ACT

• SIEMENS HF & LF communications receiver. Model 745E. Ranges 1.5 - 30 MHz and 255 - 525 kHz. Including Morse Code printer Model S-11 Schriber F, plus spare parts and valves. Inquiries: Max Phone 02 6292 6327 or Peter VK1CPK Phone 02 6231 1790

WANTED ACT/NSW

• TOWER, crankup, tilt over. In good condition, will dismantle if required. Contact John VK2KJB Phone 0408 994 955, QTR Phone 02 6284 2742 johnb2@bigpond.com

FOR SALE NSW

• JRC NRD 545 RECEIVER. Keen SWL now has an amateur license, and has bought a Kenwood TS 2000. Unfortunately, negotiations with XYL have not been totally successful, and the NRD 545 has to go. This is a great receiver, fully digital IF, great sensitivity, selectivity and dynamic range. Synchronous detection is wonderful for reception of SW stations in difficult conditions. Continuously variable bandwidth, passband shift, notch, digital noise reduction, etc. Original packaging and bits and pieces. Better HF receiver than in the TS 2000. Help me get out of purgatory before Wyong 2002! 2 years old, immaculate condition. Currently retails at around $3700. Yours for $2,200. Chris, VK2XCD cdevery@goulburn.net.au

• DUAL TRACE OSCILLASCOPE "KIKUSUI" model COS 5020 20MHz exec cond. $350. KENWOOD TS-440S TRANSCEIVER sn 7060271 $750. VK2EHZ Phone (02) 6655 0893 email bedwell@midcoast.com.au

• GELESO: tuning dial scale, lens and escutcheon only, showing 10 through 80m frequencies, bandspread. As new. COMMAND SCR-274N: Rxs, Txs, modulators, racks, mounts, remotes, some complete setups as used in WWII operations. Brian, VK2GCE, Phone 02 9545 2650 or [preferred] brianclarke@telstra.easymail.com.au

WANTED NSW

• TRANSCEIVER high frequency, valve or solid state, working or not, by pensioner wanting to become active again on air. Anything considered. Must be inexpensive. Please contact Norm VK2ZG QTHR Phone 02 4965 7923 or normvk2zg@optusnet.com.au

• Two MOTOROLA MIXERS IC1496/1596 or Fairchild 796HC to complete a project begun 25 years ago. Vince VK2ALZ, QTHR. Phone 02 6947 2198

• Hi MOUND PADDLE, not iambic, Ray VK2FW, QTHR. Phone 02 6365 3410

• MOTOROLA MX-300 BATTERY CHARGER and accessories. RACAL MODULATION METER 409 documentation - maintenance and operation. ARC-5 12-pin CONNECTOR for Tx rack to modulator. Brian, VK2GCE, Phone 02 9545 2650 or [preferred] brianclarke@telstra.easymail.com.au

• Fabric for ww2 U.S.A. Navy Life Boat TX Box Kite. B Slarke VK2ZCQ

FOR SALE VIC

• FT 767-GX all-mode, all-band TRANSCEIVER, serial no 8L200533 $2000, exc cond. Licensed amateurs only. Ike Smit VK3CVD. Phone 03 5234 6115

• ICOM IC-T81A HANDHELD, current model, 4 band, 6-2-70-23. Has desktop charger model BC119, case, speaker mic, spare batt, quad band gain antenna. In mint condition hardly used. You can pay $1375.00 for a new one, or you can buy mine for $600.00 S/N of Radio is 01029. VK3GV. QTHR or Phone 03 9560 3773. or valentine@unite.com.au

• YAESU FL2100Z LINEAR AMPLIFIER S/No OC 010346, with manual.VGC. $600. Contact Rex VK3MW. Phone (03) 5978 7177 or email: jandrg@alphalink.com.au

• VALVE TESTER TAYLOR Model 45C with handbook and valve data. $130. COMMS RECEIVER LAFAYETTE HA 600A, 150 kHz - 30 MHz, fully solid state, 12 VDC operation with TX/RX switching. $90. Terry VK3ZXY QTHR. Phone 03 9592 3514 email vk3zxy@leithy.com

WANTED VIC

• Manual and/or wiring diagram for a UNIDEN 2020 TRANSCEIVER. Ian VK3JQ QTHR Phone 03 5428 7364 (H) 03 9338 0344 (W) email vk3jq@arrl.net

• ICOM EX243 ELECTRONIC KEYER for Icom 735 transceiver Kevin VK3HKW. Phone 03 9836 1587

FOR SALE QLD

• FOR SALE: ICOM IC471H 70cm all mode & IC-16 Satellite I/F $900; TOPWARD TAG403 AUDIO GENERATOR sine/sq $80; MICRONTA & REACE HF SWR/PWR meters $25 each; GME GX284 Marine CB and new Antenna $50. All ono. Plus F/G pipe 4m, degaussing coil, Packet sw box, heat gun, CB ant splitter, horn speaker, 4 station intercom, phone extn bell, phone extn lead, 2 pair I/C cable, ceramic guy insulators, fixed and var TX caps, 2 x Reg 13.8v p/s 1.5A & 3A with spkr, H/B tester for hi pwr transistors, ALL OFFERS. Contact Dennis VK4ADY, QTHR. Phone (07) 4639 2369, Packet VK4ADY@VK4WIL.#GGR.QLD.AUS.OC, Email dennisa@hypermax.net.au

• KENWOOD TS180S HF TRANSCEIVER. Analogue & digital VFO. Digital readout. CW filter. 100 watts. $350. VK4AR, QTHR. Phone 07 3353 1695.

• POWER SUPPLY. Dick Smith Lab Power Supply K3206, variable to 40 volts (-20, 0, +20) 3 amps. Adjustable current limit. Volts & current meters. Works well. As new. $250. VK4AR, QTHR. Phone 07 3353 1695 (AH).

• ATLAS Model 350-XL TRANSCEIVER with power supply, all transistor. 200 watt output. No WARC frequencies. In good working order. Includes manual and schematic diagrams. Reasonable offers invited around the $500, preferably by email. Address: rhvette@gympie.big.net.au Ron Vette VK4AJV Phone 07 5488 0268

WANTED QLD

• EDDYSTONE COMMUNICATION RECEIVERS Model nos 880, 880/2, 880/4., also 680, 680X. Ray VK4FH Phone 07 3299 3819, fax 07 3299 3821, PO Box 5263, Daisy Hill Qld 4127.

• COLLINS and HALLICRAFTERS (USA) made radio equipment by avid collector/restorer, not for resale, but to display, use etc, spare parts, accessories, owner's manuals, working or not. Spotters' fee paid on successful purchase. John Abbott pukapan@yahoo.com or VK4SKY, QTHR. Phone 0417 410 503

• FM MODULE for IC551 or IC551D 6 metre transceiver. VK4AR QTHR, Phone 07 3353 1695 (AH).

FOR SALE SA

• YAESU FT77 HF rig 100 W, WARC, mint condition, original packing etc $400. SHINWA 1005 RF filter 500W $25. Ray, VK5AVR, QTHR. Phone 08 8762 2034

• Deceased Estate: KENWOOD TS-180S with operator's manual $500. FUKNER COMMANDER ROTATOR with control box, power supply and spare rotator $100 (needs attention). Paul VK5MAP, QTHR. Phone 08 8651 2398

WANTED SA

• Two metre 70 cm one antenna operation radio. Really good working order. M Gell VK5ZLC QTHR 08 8294 6906 evenings.

• MOTOR for JANOME TL-603A overlocker required for urgent domestic project. VK5RG, QTHR. Phone 08 8379 1889

• BATTERY CHARGER for a MOTOROLA HT-220 (slimline) handheld. Hank, VK5JAZ, Phone 0403 285 940 or vk5jaz@hotmail.com

MISCELLANEOUS

• THUNDERBIRD 3 ELEMENT ANTENNA (10,15 & 20 m) atop of fixed 32 ft tower. All yours if you dismantle and take away. Also Model BN-86 Balun. Agree if antenna only required. VK5AGX, QTHR. Phone 08 8258 0412

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

FOR SALE ELECTRONIC VALVES

If you are looking for valves you can contact, Gamini Liyadipitiya at email: gamini@ee.unsw.edu.au Small negotiated fee — first come first served.

AMIDON FERROMAGNETIC CORES:

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please. 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports.

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura: Tower Communications, Perth: Haven Electronics, Nowra

Whale Island Expedition

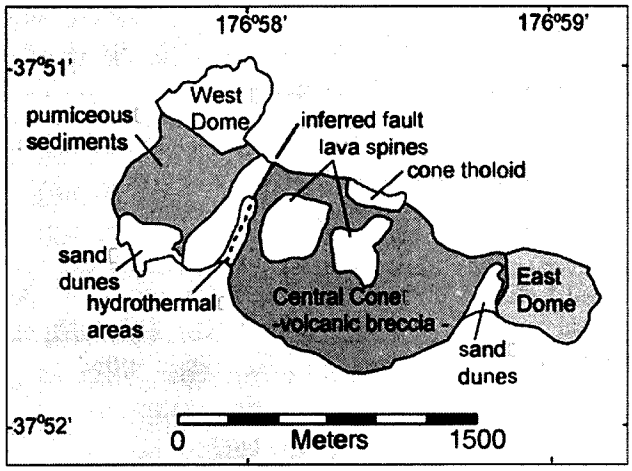
During November this year (2001), a small number of NZART branch 33 members (Rotorua) are to go to Whale Island for a little radio-activity. The dates planned are for the DX expedition 23rd to the 26th of with operations on all HF bands to take place over the weekend NZ local time.

The location of Whale Island is in the Bay of Plenty which is the coastline North East of the centre of the North Island. Whale island is a small island located some 16 km off shore from the nearest town Whakatane in a nor westerly direction. It should not be confused with the active volcano of White Island a much larger neighbour to the north east

Whale island is presently managed by New Zealand's own Department of Conservation and access to the island is very limited with strict controls for any who may be lucky enough to be allowed a short visit.

Being an island of IOTA interest it is hoped that this expedition will generate many contacts for the amateurs who will be participating. The special callsign of ZL6WI is being applied from the MED (NZ's Licensing Bureau) and it is hoped that the IOTA committee would give consideration to an unique reference number Details will be released as they come to hand.

Frank May ZL1FMA



RADIO OLD TIMERS CLUB OF SA

Annual Luncheon

Thursday 25th October 2001

Noon for 12.30pm lunch,
Marion Hotel,
Marion Road, Mitchell Park.

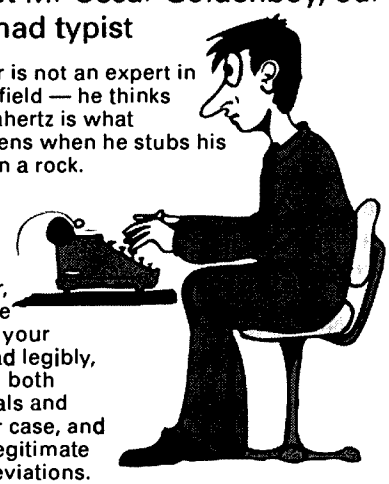
Bring Seniors Card. Bus 243 Stop 24.

RSVP Jack VK5HT 82952209,
Ray VK5RK 82715401 or
Ron VK5RV 82966681

PLEASE BE KIND TO OSCAR

Meet Mr Oscar Goldenboy, our Hamad typist

Oscar is not an expert in your field — he thinks Megahertz is what happens when he stubs his toe on a rock.



To help Oscar, please write your hamad legibly, using both capitals and lower case, and use legitimate abbreviations.

This will reduce the chance of errors being published, which incoveniences everyone.

ADVERTISERS INDEX

Hams, exams and tim tams

By Ian Jackson VK3BUF

Recently I was asked to address a group of Scouts who were trying to attain their communications badges. The topic was centred on Amateur operator license types, callsigns, frequency spectrum...you know the sort of stuff. The group was pretty attentive, keen to know the sorts of things that Amateur Radio can provide beyond the Internet and cell phones. One scout, perhaps 13 years old put up his hand and asked 'Wouldn't it be too hard for me to get a license?' A simple question. The reply that surfaced through my mind was 'sorry mate, you're buggered. Unless you want to study electronics each night for a year, or you're already a certified genius, you have as much chance of surviving the ordeal as a Tim Tam in an ant farm.'

Instead I smiled and said: 'Yes I guess it is a *bit* tricky, but if you try really hard, maybe you could get it one day.'

Now, I am not usually the one to preach doom and gloom...but I will anyway. Amateur radio is rapidly sliding into the sort of oblivion usually reserved for candlestick makers and Zither players. Two things ...no wait... three things have happened simultaneously. Most of the practical outcomes of Amateur Radio operating have been replaced by publicly available methods that need no license. Most of our existing operators are disappearing. (For every four operators who kark it, we would be lucky to get one new starter) Finally, we have shoveled in so much more stuff into the 'Novice' syllabus over the last two decades that it should be renamed 'Engineer-in-waiting'. Now some of you may be thinking, *'Of course we have to make it hard, how else do we keep the riff-raff out?'* Which is probably what the Zither Appreciation Society thought as well.

Most of our syllabus is simply obstructionistic. I have taught AOCP/ NAOCP classes on many occasions, and I am pained to say that there is little in a twenty-week amateur radio training course that prepares you for what is present under the lid of a modern transceiver. *"You see that little black blob in the corner, that's the RF bit."* It may not seem like it from the inside, but to other non-amateurs we collectively appear as starchy as a waxed cardboard toilet roll.

'So what do you reckon we ought to be doing, you whining purveyor of human misery?' you may be thinking by now. Well, theories are cheap, so here's a couple.

Number one. Make it a bit easier to get on the air, make the 'Novice' certificate live up to its name. The incremental step from No License to Novice license is far too steep. Imagine if the management to Colonial Stadium said: "We invite all interested spectators, but we have no doors into the stadium. You are welcome to scale the walls with ropes and grappling hooks." A bit of imagination quickly yields a few ideas. I would like to see a Regs-only, (no-theory) license that gave access to 70cm for say 18 months. Too easy? How about this: A special Scout license that lets 12 to 16 year olds use 2 metres if they pass the Regs test and are paid up members of the Scout Association. I can think of few groups that would benefit more from reliable field communications. If they go with that for a year or two, they will probably want to take it further. JOTA has always been the equivalent of giving a starving man a tic-tac.

Number two. Get some *real* publicity happening. Not that namby-pamby preaching-to-the-converted stuff. Existing Radio Clubs are an ideal vehicle for fresh publicity, with perhaps the W.I.A acting as mission control. (I can't think of a better reason to *have* the Institute) Get promotions going in Secondary schools, four wheel drive clubs, retirement villages etc. Perhaps a few attention grabbing events, like putting a 160m vertical up the Arts Centre spire or staging a 2m fox hunt through Parliament while it's in session. Install a stylized sculpture of a TH6 at Southbank. What is needed is a continuous barrage of in-your-face public exposure of communications as a hobby.

Number three. Simplify our stupid exam and license structure. You'd have to be a Rhodes Scholar to figure out the existing labyrinth of exams vs. classes of license. Why have separate Novice and Full theory exams anyway, the syllabus is mostly the same. Give all the Novice papers the flick and only have the one exam with two pass marks. If your skill is adequate- you get a Novice pass. If you are really good on the day, you get the full ticket. For years I've watched candidates trying to decide whether to sit for the Novice or Full, just missing out on the Full license and walking away with nothing. This brings me to my fourth and last theory (which had better be quick, as Star Trek is about to start).

Make the exams Cheap, Accessible and Spontaneous. This 'one-shot every few months, and then wait another 30 days' is so much tarnished crap. I'm sorry...*'excrement challenged'* is a more appropriate term. We need a few central locations where a candidate can wander in, pay ten dollars, and do a one hour test on a PC. If they are good enough, they go home with a license, calling CQ all the way. If they flunk *let em come back tomorrow.*

Well that's my opinion for today. Please address your hate mail to Lot 1, Princes Highway, Australia.

Address Letters to:

The Editor,
Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

YAESU SUPER DE'AL!

Yaesu FT-1000MP Mark V Deluxe HF Base Station

Yaesu is proud to enter a new chapter in the history books with the new premier-class MARK-V FT-1000MP. Offering new features such as 200W PEP RF output, a Class-A RF power amplifier, interlocked Digital Bandwidth Tracking, a variable RF front-end preselector filter and improved control layouts, the MARK-V represents the highest overall performance ever offered in a Yaesu HF transceiver.

Whether your interest is in ragchewing or contest operation, the MARK-V's outstanding hybrid analogue/DSP receiver IF chain incorporating a new 10 pole Collins SSB filter and the use of Enhanced Digital Signal Processing (EDSP) with improved front panel access provides dramatic improvements in readability under tough conditions. For ease of use, the new MARK-V uses an external FP-29 power supply which can be mounted next to the transceiver, or under your operating desk. Yaesu's IF-based EDSP system provides noise-reduction protocols, audio enhancement with equalisation programs for Tx and Rx use and an automatic notch filter which identifies and eliminates multiple interfering carriers.

The MARK-V FT-1000MP also features selectable receiver front-ends, High-stability Reference Oscillator, an internal high-power auto antenna tuner, two main antenna sockets, selectable tuning steps as small as 0.625Hz, dual-mode noise blankers, 500Hz and 6kHz IF filters, an RS-232C computer interface, plus easy digital mode interfacing. With so many new and improved features, why not ask for a copy of the 8 page colour brochure today to learn more about this amazing new transceiver.

D 3450

2 Year Warranty

$5990

SAVE $500!

YAESU

On display at selected PowerHouse stores only. Please call for details. All Yaesu products are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia.

Offer expires 31/12/2001.

DICK SMITH

That's where you go!

ICOM'S GREAT CHAMPIONS

IC-756PROII NEW!

Sharp & soft IF filter shape · Improved 3rd IMD & wide dynamic range · One-touch record/play · Digital voice memory · Extended 1/4 Tuning step & BPF functions for SSB-D mode · 32-bit floating-point DSP and 24-bit AD/DA converter · SSB/CW synchronous tuning · 4.9-inch color TFT LCD

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional AF DSP capabilities, including noise reduction & auto notch function. It's versatile, compact & loaded with features.

IC-910H The new dimension in the VHF/UHF world!

Tri band multimode transceiver · 2M -100W, 70CM - 75W, (optional 23CM, 10W) · 9600GPS packet operation · Satellite communication · Reverse/normal tracking doppler shift compensation · CIV capability for PC control

IC-706MKIIG HF · VHF · UHF

The amazing evolution of the legendary 706.

Now includes 70cm @ 20W and output power has been increased to 50W on 2m. You get base station performance and features in a mobile rig sized package.

IC-T81A

A remarkably compact tri bander.

VHF/UHF Multiband FM · 2M, 6M, 70CM, 23CM · 124 alphanumeric memory channels · Ni-MH battery Tone squelch · "Joy Stick" operation

ICOM

Clearly Ahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

2 YR WARRANTY

November 2001
Volume 69 No 11

Amateur Radio

The Great Australian Science Show:
IT'S A GASS!

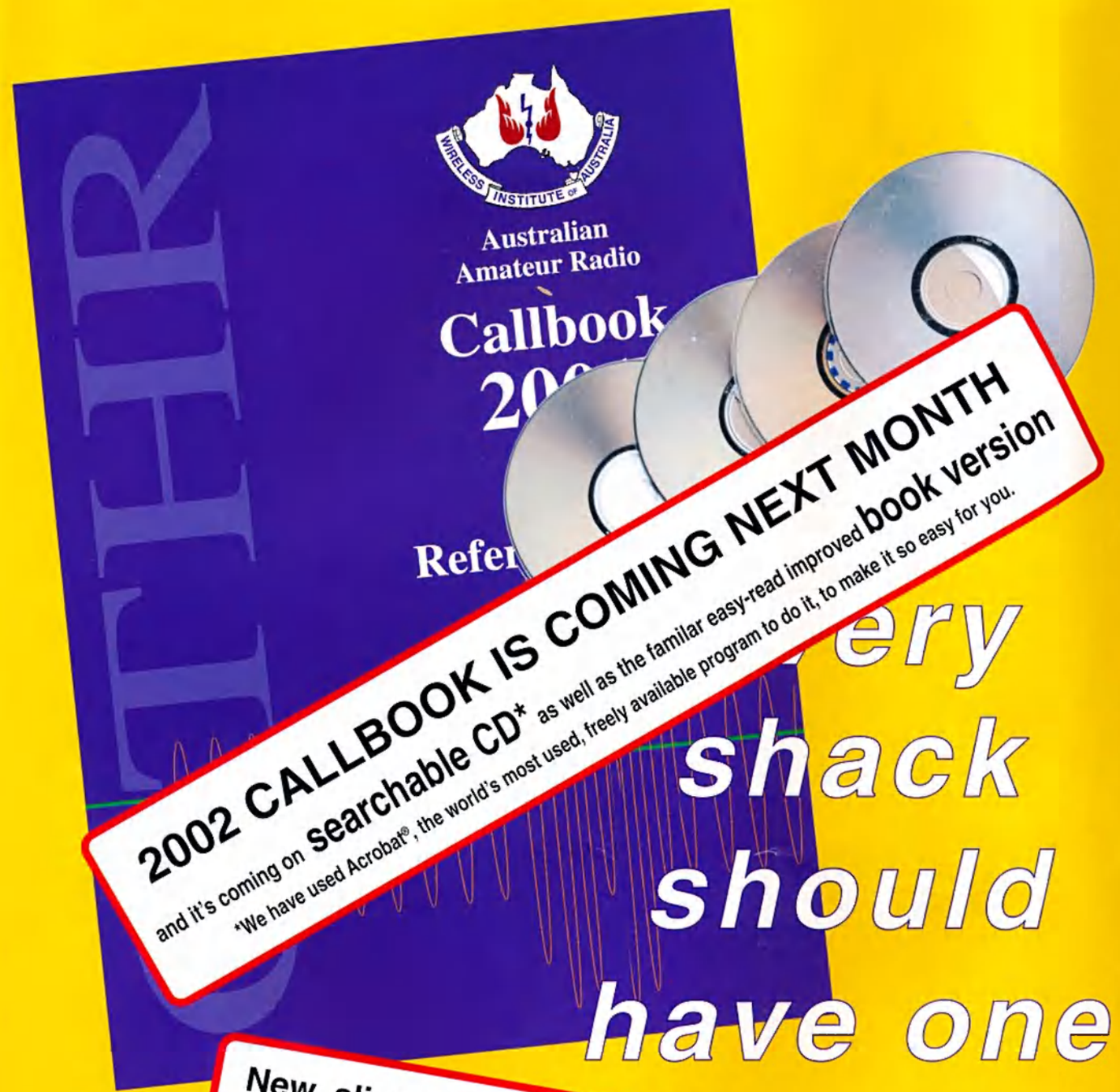
GMDSS:
Safety Compromised at the Peril of Seafarers?

St. Mary's Island, AS096
IOTA — Islands on the Air

- Use of ferrite cores in RF broadband transformers
- The DL6WU Yagi: a VHFers Classic
- A meterless capacity meter

Internet Repeater Linking

Home brewing a helix, VK5ZAI style



Callbook Lis
Lists • Licenc
Lists • Beacon Lists • Satellite
and TV Frequencies

New, slim version has all the calls, a little less other detail and a lot less price

If you sell to the amateur market, a searchable ad, listing those 1001 items you carry is a good investment.

The "WIA Call Book 200
available from
Divisional Bookshops
and selected outlets

For initial information contact Newsletters Unlimited 03 9756 7797

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 11
November 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members

Ron Fisher	VK3OM
Don Jackson	VK3DBB
Evan Jarman	VK3ANI
Bill Rice	VK3ABP
Gil Sones	VK3AUI
Bill Roper	VK3BR

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031

e-mail: *newsletters@ozemail.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191

Business Hours 9:30am to 3:00pm weekdays

Postal

The Editor AR
34 Hawker Crescent
Elizabeth East
South Australia 5112
Email edarmag@chariot.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5868

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

Our cover this month

The arrival of digital television has resulted in many changes being made to transmission facilities.

The cover shows a MII 8 helicopter lifting a new UHF antenna onto the TxAustralia site on Mt Dandenong in Victoria.

(Photo courtesy of TxAustralia)

General

Technical

Columns

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Federal Secretary
Peter Naish VK2BPN

Federal Office staff
June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

Council

President	Ernest Hocking	VK1LK
VK1 Federal Councillor	Gilbert Hughes	VK1GH
VK2 Federal Councillor	Barry White	VK2AAB
VK3 Federal Councillor	Jim Linton	VK3PC
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6UU
VK7 Federal Councillor	Phil Corby	VK7ZAX

Executive

Brenda Edmonds	VK3KT
David Pilley	VK2AYD
Don Wilschefski	VK4BY

Federal Coordinators

AMSAT	Graham Ratcliff	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	Mal Johnson	VK6LC
Contests	Ian Godsil	VK3VP
Education	Brenda Edmonds	VK3KT
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Grant Willis	VK5ZWI
Intruder Watch	Harry Andersson	VK8HA
International Travel Host	John Miller	VK3DJM
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (VK9, VK0)	Neil Penfold	VK6NE
Videotapes	VK2 Division	
Web	Joe Burford	VK5UJ

ACA Liaison Team

Ernie Hocking VK1LK
Gilbert Hughes VK1GH
Keith Malcolm VK1ZKM
Peter Naish VK2BPN

Canberra Liaison Officer Richard Jenkins VK1RJ

Editorial

Colwyn Low VK5UE
edarmag@chariot.net.au

Is this Amateur Radio?

Greetings. While checking my email account the other week, I was surprised to find I was averaging 2.5 h connect time each day and that is 90% +AR. Luckily there are other sides to Amateur radio. I was able to spend a day watching the Classic Adelaide cars go by as I helped WICEN with the scoring communications net. I had a Stage Start position so the cars waited patiently while I checked them out. I also ran a JOTA station for the Salisbury East Guides with Steve VK5AIM. We did not have a large rollup but there were enough Guides to make it worth while. Conditions were good. HF nearly as good as VHF FM and the girls got to talk to several different groups.

I have also been involved with the SA VHF Group/Elizabeth Amateur Radio Club in their efforts to make Amateur Radio more visible. I said I would take the ideas members put up and set them out in a folded sheet of A4 booklet. This is to be made available in the local DS store, the libraries and schools. The first version said all the usual things but it was still lacking a good interest catching theme. I am still unfortunately not clear what are the best aspects of Amateur Radio to present to today's retirees and electronically minded teenagers. Do we highlight communications and black boxes? Do we push an experimental aspect with a build/assemble thrust? Do we show that amateurs are a group of "help each other" people with a range of interests broadly covering communications, electronics and with an experimental approach?

When I read Q-News or other Club electronic newsletters, I get the impression some clubs have got things right and they do have a steady string of activities that attract people. They have developed a method of keeping people after they make their first appear at the meeting room door. We never should let a prospective new member stand embarrassed at the meeting room door being unintentionally ignored. So we do need to approach them, introduce our selves find out what motivated them to come and then know who is able and willing to answer their questions and who to introduce them to, to explain what the club is about.

My experimenting is still in areas I would not have considered, at all, a few years ago. I was not interested in VHF; I did not have 2 m gear. I thought SMT was too difficult to even contemplate. Now I have built a transverter which works I have several VHF and UHF Tcvrs and I get a great satisfaction from operating something I have made and using frequencies where art and science merge!

The highlight of the month was being able to go to Miningie, SA and present Eric Jamieson VK5LP with his 1999 Higginbotham Award. Eric is confined to a wheel chair and the visit also allowed UHF equipment at the 50 foot level on his tower to be checked.

The message for the month is make your club friendly to visitors, do something to advertise Amateur radio and if possible "Help an old lady across the road"

New WIA members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of SEPTEMBER 2001

L11289	MR D GEORGIEVSKI	VK3DOU	MR J W CONNELLY
L30979	MR S OUWERKERK	VK3FJP	MR M WESTWOOD
L30980	MR P MCPHEE	VK3KRB	MR R BROOMHEAD
L31572	MR P J PHILP	VK3TCR	MR B GREGORY
VK2DBD	MR H KRISENTHAL	VK3TPJ	MR R HAMMENT
VK2ERF	MR R FOX	VK4MHQ	MR D BAUER
VK2PCA	MAJOR R A ADAMS	VK7JAB	MR A E BRAIN
VK3AHD	MR P MCPHEE	VK7LUV	MS S M BRAIN
VK3AUD	MS S A THOMPSON		

Ernest Hocking VK1LK
WIA Federal President
Email president@wia.org.au
PO Box 691, Dickson, ACT 2602

Political activities

The Productivity Commission Review of the Radio Communications Act

I alerted everyone to the forthcoming review of the Radio Communications Act being conducted by the Productivity Commission (PC) in my last set of notes. Since then a number of events have occurred. Firstly I met informally with the two commissioners tasked with conducting the review. This was a very useful meeting the result of which was the confirmation that we needed to make a written submission to the review team as well as attend the public hearings that have been scheduled for all major Australian cities. To ensure that the best interests of the WIA were met I have written a submission detailing the WIA response to the issues being examined by the Productivity Commission. This document has been widely circulated amongst the Divisions. The results of these reviews have been incorporated into the final document that was submitted to the PC in mid October. A copy of the submission will be available on the WIA web page.

This submission will be the basis on which a number of us attend the various public hearings. I will be representing the WIA position at the hearing in Canberra on 29 October. This will not be the end of the process. The nature of the review process will allow us to make further submissions after the public hearings have completed. For this reason it is important that those of us who can, try and attend these hearings to hear what other groups have to say. Some of their views may be damaging to the WIA and it is imperative that we are in a position to rebut them before the end of the review.

The WIA, its structure and policies

The WIA, like most organisations is always subject to pressure from both within and without. We are all aware of the various open discussions that have been held over the WIA and its structure over many years dating back to the Arnold report and even before. Many of you will have heard rumours about the fact that this discussion has been continuing with the council and the executive. This is only natural when a group of individuals get together. Over the last few weeks I have been pleased to see considerable discussion of a wide variety of issues that impact the WIA. These have ranged from whether the Productivity Commission paper should contain references to the place of type approved equipment and class licences in the conditions of the amateur licence, through to policy issues on the issue of access to membership records.

By now many of you will be aware of one of these issue in relation to the provision of email aliases on the WIA web page. For me this has proved to be a very interesting experience on Federal WIA politics. There has been a wide range of responses to the service. These have ranged from:

- Don't do it - we provide too much already to non members,

through to

- It's a great idea and will serve to show that the WIA represents all amateurs and therefore attract new members.

The truth is probably somewhere between these two extremes.

Due to pressure I have agreed to suspend the service until a number of issues are resolved. Currently the biggest impediment to the service is being able to validate WIA membership. At the moment the WIA Federal office cannot use the membership lists to perform this task without the express permission of some Divisions. This is a chance for you to make an impact. If you have a view on this issue please either tell me directly or lobby your local club and Division. The service is there - you just need to tell us how you want it run.

Financial Issues

David Pilley and June Fox have been working hard towards revising the budget based on factors such as the current costs of AR, current membership numbers, and various international contributions that we are required to make to groups such as IARU. This calculation is important to the issue of setting fees for the next financial year. The setting of is of course a very emotive issue. However there are a number of factors which are outside of our direct control which have the overall affect of driving up our costs at a time when membership and therefore income is falling. Whilst the executive can do all it can to address the issue of cutting costs there are some that we simply have to accept. The issue of membership is though something that all of us can help with.

New Draft Spectrum Plan

A new draft Spectrum Plan has been issued by the ACA. The plan is available through the ACA web site. The WIA team is already looking at this draft to determine what impact it will have upon amateur operation in Australia. I urge to you visit the ACA web site to obtain a copy of the draft plan and spend time with your local club and Division discussing the draft. It is important that we ensure that amateur interests are best represented. The Spectrum Plan is only reviewed infrequently. If we are not heard during the current cycle of revision of the plan we will miss out for a number of years until the next review is scheduled.

Membership

Membership as always remains very much at the top of my priority list. I would like to thank all of you who have made thoughtful contributions as to how we can improve membership numbers. Keep up the good work and remember that by showing non-members the benefits and great spirit that we have in WIA we can persuade them of the benefits of joining.

Best wishes and 73s de Ernie Hocking VK1LK

ar

Use of ferrite cores in RF broadband transformers

Ron Saunders VK2WB

Depending on the requirements, transformers can be designed to provide dc isolation, impedance matching and specific current or voltage ratios. Transformers designed for power, broadband, pulse or impedance matching can often be used over a broad frequency spectrum. In many transformer designs, ferrites are used as the core material, particularly for low power levels.

Theory of Operation

Figure 1 shows a typical performance curve of insertion loss as a function of frequency for a broadband transformer. The bandwidth is the frequency difference between f_2 and f_1 or between f'_1 and f'_2 and is a function of the specified insertion loss and the transformer roll-off characteristics. It can be seen that the bandwidth is narrower for transformers with steep roll-off (f'_1-f'_2) than for those with more gradual roll-off. Three frequency regions are identified. The cutoff frequencies (f_1 and f_2) are determined by the requirements of the individual design, and f_1 could be anywhere between 300 Hz and 10 MHz. Bandwidths can also vary from a few kHz to a hundred or more MHz. Typically the design will specify insertion loss for the mid frequency range and the 3dB loss (relative to midband loss) at the cut-off frequencies f_1 and f_2.

Figure 2 is a schematic showing the equivalent circuit of a transformer followed by an ideal (lossless) transformer. The circuit elements show combined (lumped) primary and secondary equivalents of a practical transformer. In the low frequency region the roll-off is due to a lowering of the shunt impedance, which reduces as the frequency is reduced. This impedance is mainly a function of the primary reactance X_{Lp} with a small contribution due to shunt loss resistance R_p if the ferrite material is chosen correctly. The insertion loss for the mid-band region is due to the winding resistance R_c. The high frequency region characteristics are mainly a function of the leakage inductance L_l or the shunt capactiance C_d. In a low impedance circuit the high frequency region loss is more due to L_l and in a high impedance circuit C_d dominates.

From the above explanation it can be seen that we should select a ferrite material which specifies a broadband coverage suitable for our needs and yields the highest inductance per turn (A_L) at the low frequency cutoff f_1. This will give us the least number of turns which produces the required shunt inductance. The low number of turns then produce low insertion loss at mid band and also low winding parasitics needed for good high frequency response at f_2.

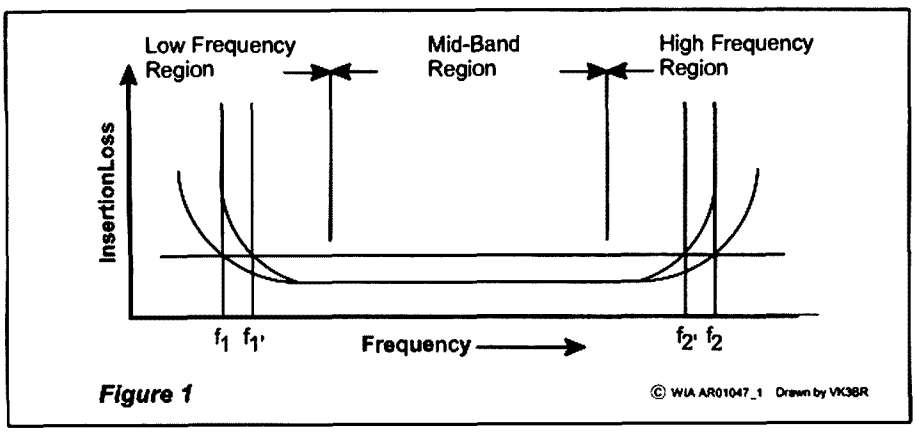


Figure 1. Typical characteristic curve of insertion loss vs frequency for a broadband transformer

Practical Considerations

At frequencies above 1 MHz it is important to consider the complex magnetic parameters of the core material, rather than just the simple core constants, such as A_L. Most applications in amateur radio where wideband transformers are used are at relatively low impedances, and the small number of turns means that the concept of minimising the R_{dc}/L value is usually no longer a problem. The design then becomes focused on the core shape and material necessary to achieve the required shunt impedance at f_1 and also reducing leakage inductance to achieve f_2.

The toroidal core is a very effective shape for winding broadband RF transformers although the balun core can provide a wider bandwidth where required.

Ferrites with permeabilities (u) from 1000 to 5000 are made from manganese-zinc materials and are suitable for use where f_1 is below 1 MHz. Above this frequency it is best to use a nickel-zinc ferrite which has permeabilities ranging from 20 to 850. There are several different materials in each category. Material selection should be made by checking the manufacturers data to find one that specifies a broadband range to cover your requirements. Ref. 1.

Table 1 lists some typical ferrite material data that is required for making a choice.

All these materials are available as toroids and some are also available in balun form.

Material	43	61	67	72/73	77	J/75
Initial Permeability	850	125	40	2500	2000	5000
Resistivity (ohm-cm)	1*10^5	1*10^8	1*10^7	1*10^2	1*10^2	1*10^2
Curie Temp (deg C)	130	350	500	160	200	140
Broadband Circ. (MHz)	1 - 50	10 - 200	200 - 1000	0.2 - 15	0.5 - 30	1 - 15
Resonant Circ. (MHz)	0.01 - 1	0.2 - 10	10 - 80	0.001 - 1	0.001 - 2	0.001 - 1

Table 1

You will see that the high permeability materials have low volume resistivity (100 ohm-cm) and low resonant circuit characteristics. The low resistivity means that you must provide adequate insulation between the core and winding. A simple check with an ohm meter across opposite faces of an unknown core can often indicate whether it is a manganese-zinc or nickel zinc material. A low reading indicates it is a high permeability material. The Curie temperature is also of importance since it indicates the temperature at which the material loses its magnetic properties. Generally, if a ferrite core under continuous operation exceeds 75 deg.C it is running too hot, and should be replaced by a larger one and/or the wire size should be increased. You can see that any given material has a much lower resonant frequency range than when used in a broadband application. We should choose a material with a suitable broadband frequency range.

Having chosen a suitable material for our application we must then determine what primary inductance is required to provide sufficient inductive reactance (X_{Lp}) at f_1. As a "rule of thumb" the value of X_{Lp} should be at least 5 times the winding load impedance. Suppose that the load impedance is 50 ohms, then the winding should exhibit at least 250 ohms of inductive reactance at f_1. To calculate the turns for the winding we must know the A_L value of the chosen core. This value is specific to each core and takes into account the core shape/ size and the ferrite material and is the inductance index for that particular core. It is expressed as nH/turn² or mH/1000 turns.

It should be noted that the permeability of ferrite material decreases as the frequency is increased and for this reason we must calculate the inductance required at f_1.

Table 2 shows a selection of small toroid cores with their size and A_L value.

Ferrite Toroid [size-mat'l]	Outside Dia. (inches)	Inside Dia. (inches)	Height (inches)	A_L +/- 20% (mH/1000t)
FT-37-43	0.375	0.187	0.125	375
FT-37-61	0.375	0.187	0.125	55
FT-50-43	0.500	0.281	0.188	470
FT-50-61	0.500	0.281	0.188	68

Table 2

Design Example

Let us assume we are designing a broadband transformer which is to match a 50 ohm load to a 450 ohm load over the 1.8 – 30 MHz range ($f_1 - f_2$). This could be a matching transformer used in a low level section of a multiband amateur hf transmitter or receiver, and would be considered a low impedance transformer.

From Table 1 we can see that 43 ferrite is suitable for broadband use between 1 and 50 MHz, so we will choose a toroid core made from 43 material. Since this is a low level transformer, we can choose a small size core as negligible power is involved. Table 2 gives the A_L values for some small toroid cores varying from 0.375" to 0.5" o.d. We will initially choose the FT-50-43 which has a nominal A_L value of 470. Taking tolerances into account this value could be anywhere from 376 to 564. Let us use the nominal value and see how the design works out.

Earlier, we said that we required the 50 ohm winding to have a minimum X_{Lp} of 250 ohms at 1.8 MHz. From the formula for inductive reactance (X_L = 2*À*f*L) we find the value for L works out to be 22uH. The formula which ties the A_L and L together is as follows:

N = 1000 * (L/A_L) where *L is required inductance in mH, N is number of turns*

Substituting L = 0.022 mH, nominal A_L = 470, we get N = 6.8 turns.

If we substitute A_L values for the upper (564) and lower (376) limits we get turns

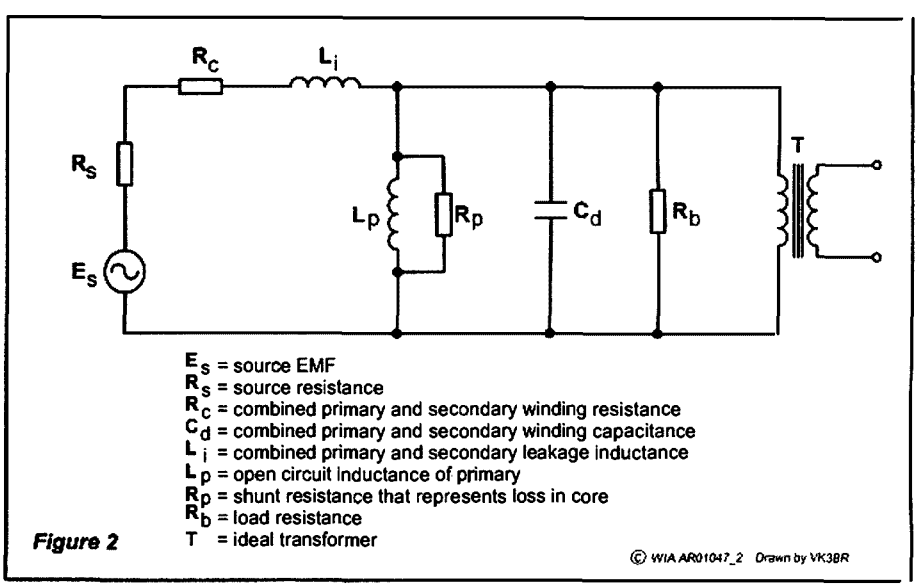


Figure 2

Figure 2. Simplified equivalent transformer circuit

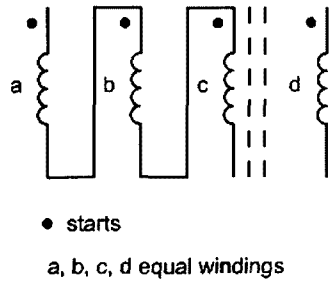


Figure 3 © WIA AR01047_3 Drawn by VK3BR

Figure 3. Quadrifilar winding

of 6.2 and 7.6 turns respectively. To ensure we have sufficient inductance at f_1 we will choose the higher number of turns i.e 7.6.

With toroid cores it is not possible to have fractional turns (a wire passing once through the core counts as 1 turn) and since we said that the *minimum* inductive reactance should be 5 times the load impedance we will make N = 8 turns. Our transformer has a 9:1 impedance ratio, so we must have a turns ratio of 3:1, so that the other winding should have 24 turns (3 *8). We now have defined the winding requirements and the toroid core to be used. Will we be able to fit the turns on the core? A total of 32 turns (8+24) must fit on the core. Quick calculation indicates that we could use 28awg wire, which would be suitable for a low level application. To keep leakage inductance and interwinding capacitance as low as possible the winding must fit into a single layer around the core, and special winding techniques should be used. This will raise f_2 as high as possible. The winding technique used is the *multi-filar* type of winding, which provides tight coupling between windings and at the same time achieves low leakage inductance which is the dominant factor in achieving a high f_2. The other advantage of this type of winding is that we can use several wires of equal length which can be wound on the core as a single bundle of wires. The wires are often twisted together 2-3 twists/cm to facilitate winding. The disadvantage is that we must identify the starts and finishes of each wire so that the individual windings can be *phased* correctly. Figure 3 shows the schematic circuit of a quadra-filar transformer with a 3:1 turns ratio.

	8 Turn Winding Induct. (uH)	Leakage Induct. (uH)	Interwinding Cap. (pF)	Calculated f_2 (MHz)
Simple winding	23	0.38	13	72
Quadra-filar winding	23	0.05	19	163

Table 3

Practical Transformers

Two transformers were constructed, one was a simple transformer and the other was a quadra-filar winding. Both transformers used FT-50-43 cores and had windings of 8 turns and 24 turns. The simple transformer had the low impedance winding (8 turns) wound over one end of the high impedance winding. Measurements of primary and leakage inductance and interwinding capacitance were made on each transformer and the results are shown in Table 3. The calculated value of f_2 is derived from the leakage inductance and interwinding capacitance values used in the normal fromula for calculating resonance $1/(2*\pi*\sqrt{(L*C)})$.

We can see that the quad winding has a much lower leakage inductance than the simple winding, but the interwinding capacitance is about 50% higher. This increase is due to the tighter coupling between primary and secondary in the quad winding, but the effect is swamped by the big reduction in the leakage inductance. The result is that the high frequency cutoff (f_2) is more than doubled. In practice, other circuit components could make this upper frequency unattainable and if necessary, it could be deliberately restricted to a lower frequency – say 30 MHz.

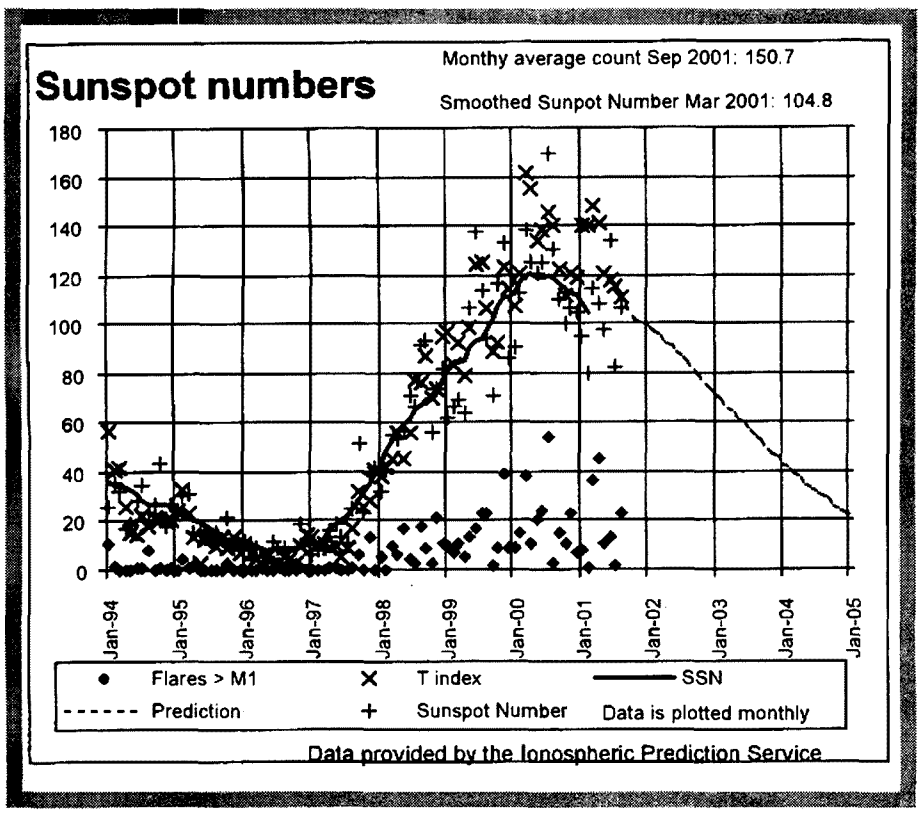
Conclusion

It has been shown that it is possible to make an RF broadband transformer with a high to low frequency cutoff ratio in excess of 30:1 by using simple calculations and winding techniques which are easily carried out by amateurs.

Reference

1. www.cyberelectric.net.au/~rjandusimports

ar



The DL6WU Yagi: a VHFers Classic

Ian Cowan, VK1BG.

Among the more serious VHF operators, the DL6WU yagi design is already well known and valued. However this antenna is not familiar to everyone. There has been occasional mention of it in this magazine, but not enough to answer the questions of those who may have heard of the DL6WU but do not know what it is. This article is intended to give some background on this classic DIY antenna to those not yet familiar with it.

Background

Gunther Hoch, DL6WU, spent decades on research and development of the universal antenna now commonly bearing his name. He used cut and try experimental techniques, sometimes with the aid of a large reflection free antenna test range owned by the German Post Office. The outcome of this labour was a set of graphical curves. These can be used to design a near optimum yagi antenna for any frequency using materials which happen to be on hand, and which matches to 50 ohm coax without the need for adjustment. The DL6WU antenna provided a significant boost to VHF/UHF operators using DIY antenna systems.

Literature

DL6WU has contributed to a number of amateur publications, but the first of his works to reach here appeared in 1977. In it he presented the basis of his recipe for yagi design, at a time before computer simulation was available. He presented his results using sets of curves from which element lengths can be accurately determined. Even now, an antenna built to his design will have performance very close to that attainable using much more sophisticated techniques.

A listing of relevant articles is given in the appendix.

References 5 and 6 give all that is really necessary for the design of a DL6WU yagi using manual techniques, with the latter being particularly valuable. The design of an antenna is a bit fiddly using the DL6WU curves, although if there is no better way, the results are certainly worth the time spent.

Along with a number of others, I have found the little one page item shown at reference 7 to be very useful. In this, David Tanner, VK3AUU, presents the outcome of some inspired work he did as an adult student at the GAIE. David took the DL6WU curves and developed an algorithm expressing them with very good accuracy. The algorithm can be readily plugged into a spreadsheet or written into a simple BASIC program. Either way, the antenna design exercise becomes automated with only a few seconds of computer time needed to produce the finished result.

The VK3AUU Algorithm

The VK3AUU algorithm reads as follows:

L = 0.5179 - 0.4328 d^0.2078 + (0.007344 + 0.1794d ^0.1996) e^-0.07586* N

where L = Length of Director N, d = director diameter, e = 2.718285

N is the number of the director being calculated, with director 1 being that closest to the driven element.

Note that in the formula above, the dimensions are expressed in wavelengths, so that before designing an antenna, the boom and element diameters must first be converted using the formula below:.

Dimension in wavelengths = xf / 299800, where x is the dimension to be converted, in millimetres, and f is the design frequency in MHz.

In the VK3AUU antenna, the length of the reflector is 1.12 times the length of director 1, and the driven element is 1.066 times the length of director 1.

Boom Correction

The VK3AUU algorithm gives the lengths of the directors which are mounted well clear of metallic mounting hardware. Where a metallic boom is used a boom correction factor must be used. This is an amount by which the reflector and directors must be lengthened to compensate for the metal in their vicinity. There has been a lot of work done in an effort to establish just what this factor should be. Gunther Hoch presents his estimate of boom correction in graphical form in Reference 6. Ian White, G3SEK has converted this curve to a simple algorithm, which may be stated as:

C = B(25.195B/W – 229B^2/W^2)

where C is the amount to be added to the length of each element, B is the boom diameter and W is the wavelength, all expressed in millimetres.

Guy Fletcher, VK2KU has refined this work still further, as set out in his excellent article at Reference 9. Guy has discovered that boom correction depends not just on the boom diameter and wavelength, but also on element diameter and the actual length of the element in question. The outcome of his work appears to be of special significance for the design of yagis for the 23 centimetre bands and above, and the reader contemplating the design of yagis for microwave work should see his article.

Calculation Techniques

As I said above the given formulae are conveniently handled using a PC. These days spreadsheet programs are the way to go for those familiar with them, and I know that Ron, VK3AFW is one of those who uses this technique to very good effect. Not being a spreadsheet man, I went the BASICA route many years ago using my then trusty XT clone PC, and prepared a program, somewhat modified over the years since, which is a direct conversion of the VK3AUU and G3SEK algorithms. I have set out the guts of the code below

```
30 INPUT "Design Frequency in
MHz ";F
40 INPUT "Diameter of elements
in mm ";D1
W=299800!/F
D2=D1/W
INPUT " Boom diameter in mm
";B1
B2=B1/W
100 INPUT "Required number of
directors";N
B3=B1*((25.195*B1/W) -
(229*B1^2/W^2))
IF B3>.66*B1 THEN B3=.66B1
A=.5179-.4328*(D2^.2078)
LR=A+(.007344+(.1794*(D2^.1996)))*EXP(-
.07586)
LR2=299800!*LR/F
LPRINT USING "Length of
reflector:-
####.#";CINT(1.12*LR2)+B3;:
LPRINT "mm"
LPRINT "Overall length of folded
dipole:-";CINT(.476*W);"mm"
FOR N=1 TO N
L1=A+(.007344+(.1794*(D2^.1996)))*EXP(N*(-
.07586))+B3/W
L2=299800!*L1/F
LPRINT "Director ";N, " :
";:LPRINT USING
"####>#";L2;:LPRINT "mm"
NEXT N
```

This may not be a particularly elegant way of performing the calculation process, but it is quick and it gives results identical with those using the spreadsheet approach. It asks for inputs of element diameter, boom diameter, operating frequency and desired number of directors. It then calculates and prints out the lengths of the reflector, driven element (folded dipole) and each director up to director N, where the routine stops.

Element Spacings

All DL6WU yagis have the same element-to-element spacings when these dimensions are expressed in wavelengths. These spacings are critical to the design, as they determine the feed impedance of the antenna. The first director seems very close to the driven element; this is deliberate. The spacings are set out below, and are a direct lift from David Tanner's article. All are expressed in wavelengths.

Reflector to driven element: 0.240

Driven element to D1:0.075

D1 — D2	0.180
D2 — D3	0.215
D3 — D4	0.250
D4 — D5	0.280
D5 — D6	0.300
D6 — D7	0.315
D7 — D8	0.330
D8 — D9	0.345
D9 — D10	0.360
D10 — D11	0.375
D11 – D12	0.385
D12 — D13	0.390
D13 — D14	0.395
D14 – D15	0.400

After director 15 all director to director spacings are set at 0.400 wavelengths.

Antenna Design

Designing antenna is simple. Determine the diameter of the elements and their mounting arrangement, i.e. through the boom or insulated. Determine the boom diameter if the elements are to pass through it. Determine the length of boom desired in wavelengths, and from that, the number of directors. Note that the DL6WU design should have a minimum of 9 directors for best operation, though I have built one with 6 directors and it seemed to work quite well. Using the VK3AUU algorithm, and whatever calculation method is most convenient, determine the uncorrected lengths of each of the elements in the proposed antenna. If through the boom element mounting is to be used, calculate the boom correction factor, and add this amount to the lengths of each director and to the reflector. The dipole is not normally corrected, as this usually straddles the boom rather than passing through it. Indeed, better balance at the feed point is achieved if the dipole is fully insulated from the boom, though this is by no means essential.

Remember that conversion of dimensions to wavelengths is necessary for using the VK3AUU algorithm, but not the G3SEK formula. Both of these are taken into account automatically in my BASICA routine.

Element spacings are then calculated by multiplying the spacings given above by the wavelength of the antenna design frequency.

Wavelength (mm) = 299,800/ f , where f is the design frequency.

The usual driven element is a folded dipole whose overall external length is given by David Tanner as 1.066 times the length of the first director. I normally calculate this as 0.476 wavelengths, which is in most cases pretty close to same thing. Gunther Hoch says that the construction of the folded dipole is not particularly critical, so the leg to leg spacings can be set to a value, which is convenient. The dipole is fed from 50 ohm coax via a simple half wave balun, which matches the inherent 200 ohms at the balanced feed to the unbalanced 50 ohm coaxial cable. Other convenient feed arrangements can be used of course.

Tuning

If all is well, a DL6WU antenna using the folded dipole and balun scheme should have an SWR rather better than 1.5 : 1 on construction, and will work well without further tuning. Very satisfying!

Conclusion

Although the DL6WU is no longer the ultimate antenna for the serious VHF Dxer or moonbouncer, it still gets very close to the best currently available. For the amateur with a nondescript pile of aluminium tubing, which he wants to put to use in a very effective DIY antenna, the DL6WU design must surely be unbeatable.

Appendix – Reference Articles

1. Yagi Antennas. Principle of Operation and Optimum Design Criteria. G. Hoch, DL6WU, in *VHF Communications*, 3/1977
2. More Gain With Yagi Antennas. G. Hoch, DL6WU, in *VHF Communications*, 4/1977
3. Extremely Long Yagi Antennas. G. Hoch, DL6WU, in *VHF Communications*, 3/1982
4. DL6WU Yagis for 23cm. Rainer Bertelsmeier, DJ9BV in DUBUS 2/1994
5. Yagi Antennas for UHF/SHF. G Hoch, DL6WU, in The ARRL UHF/Microwave Experimenters Manual (1990) Page 9.1 et seq.
6. Beam Antennas & Feedlines. G. Hoch, DL6WU, Chapter 7 of the VHF/UHF DX Book, DIR Publishing (1992)
7. The VK3AUU Yagi Design. D. Tanner, VK3AUU, *Amateur Radio*, February 1988
8. Yagi Facts and Fallacies. Joe Reisert W1JR, in *Ham Radio*, May 1986, P 103.
9. Boom Corrections to Element Lengths of Yagis at 144, 432 and 1296 MHz. Guy Fletcher, VK2KU, *Amateur Radio*, March 1999

ar

A meterless capacity meter

Neville Chivars VK2YO
57 Vulcan Street
Kingscliff 2487

This device has been in use in my shack since necessity forced me to make it almost 30 years ago. Wishing to save the cost of variable capacitors on preset coils I needed an instrument to measure the variable capacitors so that they could be replaced with the nearest standard fixed value capacitors available.

T1, T2 and T3 can be any general purpose transistor. eg. BC108 etc. T3 is the business end. This transistor drives a bridge circuit. The bridge circuit comprises the 25k ohm linear pot together with the standard "C' and the unknown "C". The Crystal earpiece , ex an AM transistor radio, takes the place of a moving coil meter to indicate when the bridge is balanced. Attached to the shaft of the 25k ohm linear pot is a suitable pointer knob with a paper scale underneath. T1 and T2 form a multivibrator to produce an audio tone to drive the bridge. I used a 24 pF capacitor as my "C" standard and I can measure from 5 pF to at least 0.01 mFd with this instrument.

After switch on you will have an audio tone in the earpiece with your standard "C" in circuit.

Select some capacitors of known values to calibrate the paper scale underneath the pointer knob of the 25k ohm linear pot. Start with 100 pF across the unknown terminals and rotate the knob until you get a null in the sound in the earpiece. This indicates the bridge is balanced. Rock the knob left and right slightly until the sound reappears in the earpiece and then mark 100 pF on the scale. Repeat as many times as you like with the known capacitors you have on hand until you have a useable scale to read off.

I have found this instrument particularly useful in determining the minimum and maximum capacity of unmarked variable capacitors that have come my way over the years.

ar

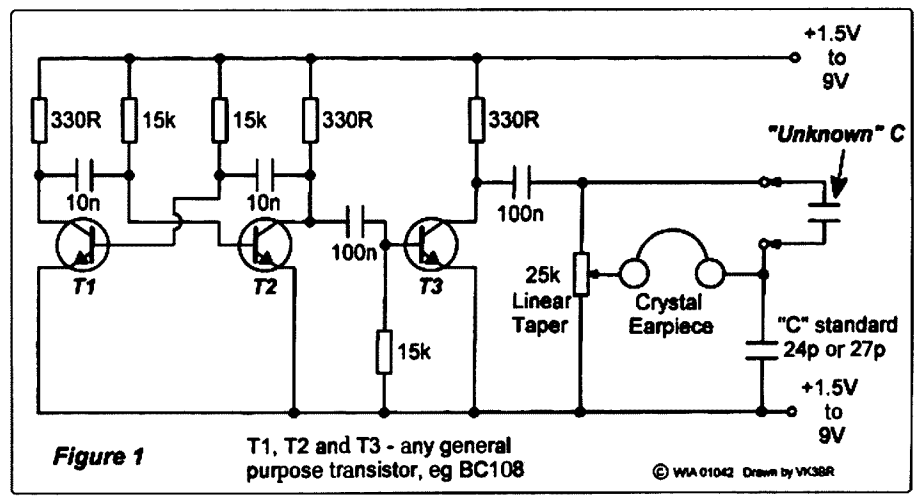


Figure 1. Meterless capacity meter circuit.

TO ALL INVIGILATORS

Due to the implementation of changes to the accreditation of invigilators the WIA Exam Service will be closed from 21 December 2001 to 1 March 2002 inclusive.

Completed exams for marking must be received in Federal Office by **Monday 10 December** to ensure the results will be in the mail to candidates before Christmas. Every endeavour will be made to have all results out before Christmas but no guarantee can be given on any papers that arrive after the 10th

Any orders received in January and/ or February will be processed. If material is ordered by invigilators not accredited under the new system the event must be held prior to 1 March 2002 otherwise the event will be declared invalid and all candidates will have to re-sit.

What can you do with 4 watt?

Joe, W1JR refuses to accept that the DX ever disappears.

He says "August is usually a slow month DX-wise and conditions aren't that great. However, despite this, I put on air a new Yaesu FT-817 just 4 weeks ago and the latest tally is over 158 different DXCC entities and 35 zones worked (missed zones 3,4, 19, 30 and 38). No help or nets or going from QRO to QRP! The antenna is a Hygain TH-11 up 20 metres. Contacts are split, very close to 50% for CW and SSB with over 90 worked on each mode! Not bad for 4.0 watt! DX is still alive and well." So there you are, dedication and enthusiasm is all that is required. [TNX W1JR and OPDX]

Signal fades for ham radio

Kim Quillan

Reprinted with permission from *The Courier* Ballarat

You've heard it said over and over that technology is a wonderful thing.

Technology has been responsible for great advances in such areas as medicine, business and industry.

It has also been responsible for the creation of hundreds of thousands of jobs in many different fields of everyday life.

While the computer age has introduced everyday Australians to such wonders as the Internet, video link-ups and other marvels of modem technology, has this advancement resulted in the decline of other forms of communication in letter writing, verbal conversation and even talking to friends and relatives on the phone). One form of communication which has experienced a gradual decline is the use of amateur (ham) radios. The computer age has taken its toll on the small band of avid radio operators in Ballarat - known as BARG (Ballarat Amateur Radio Group).

The Group, which was renamed BARG in 1972, has experienced a severe drop in membership. In its heyday, the local group had more than 150 members. This has fallen to a mere 55. But these members remain loyal to their hobby. "It's very easy to hop on a computer and talk to someone on the other side of the world, but you miss the thrill of turning the knobs on a ham radio to find the right frequency to talk to someone," said immediate past president and publicity officer for BARG, Doug Raper.

And, while it is easy to walk into a store, buy a computer and connect it to an Internet server, being able to use an amateur radio is a much tougher process before you can start communicating with others, Mr Raper said.

A licence is required before a person can operate a ham radio. Extensive study is required in various radio operating subjects, including theory, regulations and Morse Code.

"Many people are under the impression that ham radios are just like working an old CB, but it's not ... there is much more involved than just connecting a radio,"' Mr Raper said. Governed by the Wireless Institute of Australia, the Ballarat group was originally set up to send messages around the city. A radio station was set up to play music and, before long, there were dozens of people interested in talking to others from around the world. Like many other hobbies, ham radio operating carries some initial expense. It costs about $1000 to set up an amateur radio at home, but there is little on-going expense. But, one essential item for each amateur radio operator is a "shack". "Everyone needs a shack at home to house all their equipment and to have some privacy to be able to use it," the BARG publicity officer said.

Despite the local decline in membership numbers, coupled with the increased use of computers, there are still millions of ham radio operators around the world. Japan has the quickest ham radio operator membership growth, while the US boasts the most amateur radio users. Australia currently has 18,000 licensed amateur radio operators.

Mr Raper describes ham radio as an addictive hobby. "I average about four hours a week on the radio, which is not much by other people's standards," he said. Each amateur radio operator has a call sign that is specific in Australia, with call signs for Victoria starting with VK3. Almost all ham radio users have regular people they contact. "Most operators talk for years with the same people and, while they never usually meet in person, they know each other very well," Mr Raper said.

One of Mr Raper's "regulars" is a university lecturer living in Hawaii who, at one stage, had actually attended St Patricks College in Ballarat. "We found, each other on a frequency one evening and instantly struck up a friendship over the radio that has lasted for years," Mr Raper said. "In the past five years we have never met, although, we have exchanged photographs.

Doug Raper VK3 VBA in his shack

"Ham radio operators who do strike up a friendship over the radio usually share common interests." Mr Raper, who admits to owning a computer and being on the Internet, said amateur radio offered a different and exciting challenge. "You have to put a bit of work into it (amateur radio) just to make that initial contact. "Someone once compared amateur radio to a bowl of fruit ... it offers a variety.

"There are some (operators) who concentrate on Morse Code, there are others who chase satellites, some who run their radio through their computer and others who like packet radio, which is like the internet only on radio." One Ballarat district ham radio operator is even on a mission to speak to another person in every county of the United States - and he has almost reached his goal. Operating an amateur radio is not gender or age specific. While the number of female operators is few, there are three in Ballarat. And the age range of BARG members ranges from 14 to a man in his 80s who, in recent years, obtained his amateur radio operator licence.

It also seems the addiction of amateur radio is passed on from generation to generation. "The son gets hooked on it from his father and his father before him and so on," Mr Raper said.

For more information about BARG or obtaining your amateur radio licence, phone Mr Raper on 03 5332 3565.

Editor's Note. *I think all clubs should try and get coverage like this. You can set up a station for under $1000.*

ar

The Great Australian Science Show:
IT'S A GASS!

Photo 1. 80m Transmitter and Audio to Scope

Photo 2. Andrew VK3HFA , Bruno VK3BFT and Sharon VK3LYL help customers

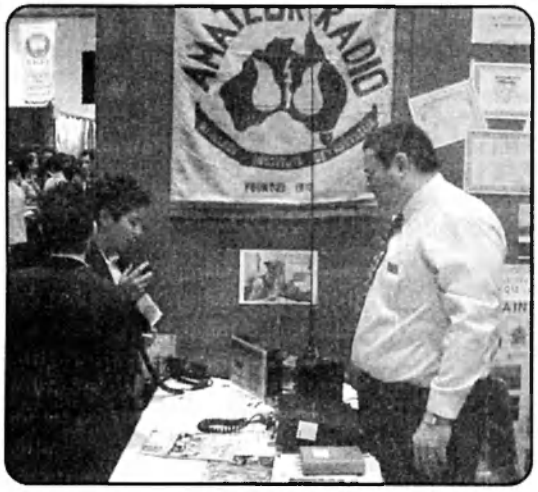


Photo 3. Bruno VK3BFT oversees the 2m operation

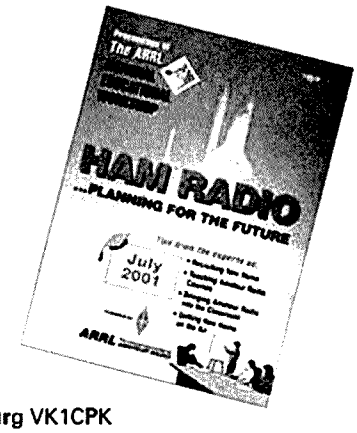
Photo 4. Andrew VK3HFA , Bruno VK3BFT and Sharon VK3LYL

Photo 5. Chris VK3JAA answering questions

Photo 6. Bruno VK3BFT and Andrew VK3HFA at work

Book Review

Ham radio ... Planning for the future



Publisher: American Radio Relay League (ARRL)

Author: Various

Reviewed by: Peter Kloppenburg VK1CPK

ISBN: 0-87259-837-3
Paperback, 278 by 214 mm, 156 pages

When you read the title of this book, committees, and especially those who organise and do the planning for future club events, will be delighted and impressed by the activities that have been organised successfully by various Amateur Radio Clubs (ARC) in the State of Indiana in the USA. Each of the 24 chapters was written by the organisers, who took a leadership role in getting amateurs with skills and special knowledge together, developed a plan of action, set a date, publicised the event, and conducted the activity with enthusiasm. The results were impressive: Increased membership, more communication between local amateurs on the bands, more younger people sitting for exams and passing, and more participation in club and public service activities.

The latter was achieved by applying the four Fs. Food, Fun, Frequencies and Fellowship. The realisation that a change in attitude was needed to make Amateur Radio an exciting hobby is demonstrated in every chapter of this book. For example: During club meetings, only 20 minutes were allocated to business matters, opportunities were sought to give help to new hams with operating and antenna building skills, how to run on-air sessions for very young aspirant amateurs, how to train experienced hams to convey their knowledge and skills to the next generation, and how to involve Scouts and Guides into Amateur Radio.

This book describes in detail how to recruit, how to teach Amateur Radio courses, how to bring Amateur Radio into the classroom, and how to get new hams on the air. Main sections of the manual describes what clubs have done to increase their membership, make meetings more interesting and rewarding, provide training in the application of new operating techniques, and attract young kids to the hobby.

Each of the 28 chapters, grouped effectively into seven main headings, and divided over 156 pages, was written by individual amateurs who took action to put ideas into practice and had success with it. The main headings in support of Planning for the Future are as follows: Amateur Radio Clubs, Instructors and Teachers, School and Youth Applications, Scouting Activities, Projects, General Interest, and ARRL Field & Educational Services. Most of the plans were carried out by teams of amateurs, some of whom had previous experience in special fields such as teaching, contesting, kit-building, scouting, management, or making presentations. The point of view of all the authors is that ham radio is an exciting and satisfying hobby with a great future in personal communications, and that it just takes a bit of time and effort to attract others to it.

This book describes in detail how to recruit, how to teach Amateur Radio courses, how to bring Amateur Radio into the classroom, and how to get new hams on the air

Most aspects of ham radio planning are covered adequately by this manual. Obviously, some chapters are of greater relevance to a particular local application than others are. For example, an Amateur Radio Club has different planning requirements than a Primary school that wants to communicate with orbiting amateur satellites. Other chapters deal with achievements such as E-badges for Scouts, and some chapters are especially suited to fit in with High-School student activities. There are also stories about Amateur Radio workshop activities that were very successful to the participants

One essential element in the minds of all authors was dedication to the future of ham radio. This was shown by the many hours of preparation that went into the set-ups of all the events that were described. Everyone who came to the organised events was attracted by the publicity that went on before, in newspapers, journals, and broadcasts.

I obtained my copy of the manual direct from the ARRL in the USA at a cost of US$15.00 plus US$5.00 postage. It took two weeks to arrive. You can place your order at: www.arrl.org/shop and pay via major credit cards. The ARRL publication number is: 8373

ar

The following was received from Ian G3ZHI who has promoted Internet repeater linking around the world. This is a story about iPhone linking experiments in South Africa.

Internet linking of repeaters

by Brad Phillips ZS5BP

Background

On Sunday, 27 May 2001, during the Internet 2001, Ian Abel, G3ZHI, presented a very informative talk on the linking of repeaters using the Internet as the backbone. He explained two methods by which the linking could be achieved. It could either be done using a software package called Iphone or alternatively, an IRLP (Internet Radio Linking Project) node could be established to permanently connect the local repeater to the Internet.

Linking via Iphone was as simple as installing the software, setting up a connection to one's local ISP and joining the Ham Radio chat-room. Once in the chat-room, one selects the remote station to link to and establishes direct communication with that station. This system could be implemented by any interested amateur and could be left running in the background while one was surfing the net or downloading email, etc. It did however require monitoring of the system because it allowed non-amateurs to access any linked frequency. A simple VOX circuit completed the link between the PC and the radio. Iphone can also be used to talk directly to other people in the chat-room in an off-air mode (similar to a keyboard to keyboard 'chat' via packet).

To set up an IRLP node, however, required a slightly more specialized approach.

The requirements for an IRLP node are:

- a PC running Linux (486DX4-100 with 16MB and sound card)
- a link radio
- a permanent Internet connection
- an IRLP node interface board

Once the above infrastructure is in place, linking to remote repeaters is possible on a 24 x 7 basis (24 hours 7days a week) merely by sending the relevant DTMF code sequence to the node & the linking takes place via the Internet. As this linking only caters for node to node linking, it is more secure than the Iphone system above - it doesn't allow individuals to link directly off the Internet to a node. It also makes allowance for simultaneous linking of multiple nodes.

HARC members link to the UK

Having been inspired by the talk, Bruce, ZS5BR and myself began investigating. After downloading Iphone from the Internet, I got it running successfully on my PC. After some experimenting, I decided to attempt a link from our repeater to another over the Internet. During my experimentation, contacts were made with the following stations:

- ZR6ANF - Johan (operating directly through Iphone on his PC)
- G7CCS - Ken (operating directly through Iphone on his PC)
- KJ1Q - Jim (operating portable on a repeater in Connecticut)
- VUswl - Moodley (a SWL operating directly through Iphone on his PC)

At about 22h20 on Tuesday 29 May, I established a link from the Highway repeater system to Ian, G3ZHI. Ian was operating on the repeater situated at the Sheffield University in South Yorkshire. Very soon, a net was established on each of the repeaters with Ian running the UK net and myself at the helm in Durban. The following callsigns were heard on the 2 repeaters:

- G3ZHI – Ian
- M1ERS – Steve
- 2E1HTX – Trevor
- G0MVC – Chris
- ZS5WT – Brad
- ZS5WFD – Keith
- ZR5CW – Dave
- ZR5ADQ – Mike

After having exchanged greetings between the various stations, a very enjoyable & interesting net was conducted for approximately 45 minutes. Throughout the net, the audio quality was exceptional with only occasional glitches being experienced. The average loss of speech was around 4%; this made no difference to the intelligibility of the conversation. The net was terminated shortly after 23h15 and was followed by a very enthusiastic discussion on our local repeater. The consensus was that the club should further investigate this mode of communication for our repeaters.

The final cost of this all was a local phone call of around 50 minutes. The link was established using a 33.6kbps modem and Pentium 100 PC.

So where to next?

Further investigation into the finer details of the available options has prompted the Highway ARC to establish an IRLP node linking the Highway repeaters to the Internet. A permanent Internet link has already been located, as have many components to build up the required PC. A suitable radio will be prepared and as soon as the required interface and software arrives from the US, we hope to establish the first IRLP node into Africa - another first for HARC and KZN?

Who was it that said that the Internet would be the death of Amateur Radio? —I think not!

Internet sites on repeater linking

http://www.qsl.net/g3zhi - Ian Abel's homepage

http://www.irlp.net - IRLP homepage

http://www.harc.org.za - visit the FTP site to download Iphone

If you require assistance getting Iphone operational, email me at zs5bp@yebo.co.za or Ian at g3zhi@hotmail.com and we will try to assist.

Happy linking - see you on the IRLP

http://www.qsl.net/g3zhi

Ian Abel G3ZHI, 52 Hollytree Ave. Maltby, Rotherham, Yorkshire, S66 8DY
Tel: 01709 799911 Mobile 07748928916

GMDSS: Safety Compromised at the Peril of Seafarers?

The Global Maritime Distress and Safety System is floundering because people are blinded by the technology. The value of human presence must not be downplayed.

By Ian Godsil VK3VP

When I was a lad I became fiercely interest in radio broadcasting, along with my natural bent of classical music. I wondered why stations did what they did, then how did they do it? This led to the dual interests of what was going on inside my receiver, and programming philosophy. Also, very quickly I perceived that there was local broadcasting, international broadcasting on short waves, and specialist broadcasting (which I later came to know was called "commercial"). And there was Morse Code. What a wonderful sound! Later I came to regret that I did not get into Amateur Radio much earlier than I did and take advantage of this mode, and others.

In my late 30s I went through a strong phase of wanting a boat. I even got myself a Marine radio licence and realised that if I had a boat and a big beam, I ought to do quite well! This led to an interest in shipping in general. Now my wife and I help out in a Seafarers' Mission, and this has afforded me the opportunity to talk to seafarers and their officers about life at sea and all that goes on. The following thoughts may be of interest to readers today, as we have come to rely on the efficacy of technology as the be-all-and-end-all of modern living.

It may surprise readers to know that Morse Code is still commonly used in Mediterranean, Middle Eastern and Asian parts, even though its official use world-side ceased on 1 February, 1999. Many third world countries cannot afford the Global Marine Distress and Safety System (GMDSS) equipment, regardless of International Maritime Organization guidelines. Morse Code has survived for 160 years and is a testimony to a form of communication that relied on human abilities.

Under the Morse system, the number of 'false alerts' remained, in general, under 1% when human operators were involved. Even in the 1950s, when automated alarms appeared in radio rooms, the administrators of the day had the sense to keep human radio watches for at least eight hours a day. This was impressive and acknowledged the worth of human presence in a high-risk working environment. With GMDSS the false-alarm rate can be between 95%-99%! So are we now in danger of losing what has been learned?

Focus Shifted

The efficiency of the old system, using a radio officer, was tied to the fact that the ground rules, the basic distress structure, never changed from the voluntary scheme at the turn of the 20th Century. Today, its replacement, GMDSS, is floundering because the focus has shifted on to the importance of the technology employed. GMDSS administrators are constantly calling for changes in the system's apparatus.

Overworked

All these costly and time-consuming changes are attempts to make the system easier for operators, who basically have just two weeks' preparation in gaining an internationally recognised operating certificate. In reality these changes probably confuse them. The professional seafarer is already overworked in the automated area, with crew numbers having been cut. (You should *see* the modern bridge – just bristling with computer screens and desks!) It has been estimated that the flow of data to ships has increased by 23,000% since the inception of Morse Code.

An officer of the US Coastguard said that, after two years of using GMDSS, the false-alarm rate for Digital Selective Calling had fallen from 99% to 95%, and for 406Mhz Emergency Position Indicating Radio Beacons from 99.5% to 97%. What a mess! In the past, in distress situations it was relatively easy for a radio officer to deal with callsigns that were made up of four letters, eg GBTT for the *QEII*. Today the operator has to deal with formats such as "356433000", even though these are largely automated.

What has gone wrong?

It has been said that we have become blinded by the power of automation and its potential for saving costs, relegating the importance of the human factor. We see this all around us, and we see businesses "falling over" in their quest for large computerised systems and the need to make enormous profits. At sea, this could mean more catastrophes.

Rear Admiral John Lang, head of the UK's Marine Accident Investigation Branch, in a report on a near-collision, noted that the modern-day officer-of-the-watch has to be a radio officer, ship's manager, navigator, lookout, helmsman and chief amendments officer for reams of regulations and documents. Small wonder, then, that such personnel are overworked and prone to mistakes.

Distress situations still require sharp responses, which are hindered by overwork. The human desire to interact as social beings at work has not changed either. Reducing manpower and relying too heavily on automation reduces interaction between officers and crew.

GMDSS is a good system, excellent in fact; but automation alone cannot interpret situations. Only the ingenuity of the human mind can do this (and get it wrong at times) with a sure sense that things will work out OK.

ar

FTAC Notes

John Martin, VK3KWA
FTAC Chairman

Winlink

The Australian Communications Authority has looked into the operation of the Winlink message forwarding network, and has advised the WIA that it does not comply with Australian amateur licence conditions.

The Winlink network consists of a number of HF packet stations that are all connected to a central e-mail server. It allows amateurs in ocean-going vessels to send and receive Internet e-mails from friends or family members. In a letter to the WIA (ACA reference no. X2001/0426), ACA explained that there are two main reasons why it is not legal for Australian amateurs to participate in the Winlink network.

The first reason is ACA's policy that non-amateurs must be prevented from getting access to amateur transmitters. If an unattended amateur station (such as a packet mailbox) is connected to the Internet, it is possible for non-amateurs to send e-mails, which will then be relayed by the amateur station. For this reason Clause 11 of the amateur Licence Conditions Determination (LCD) does not allow automatic or computer-controlled stations to be connected to a public telecommunications network.

The other legal problem relates to international restrictions on third party traffic. The LCD allows us to carry third party traffic from any country that has a third party agreement with Australia. But at present we have third party agreements with only five countries (the USA, Canada, Israel, Honduras and the Solomon Islands), and any third party traffic from other countries is illegal. The only way to comply with this regulation would be to hold all incoming messages for manual checking and only pass messages which originated in one of the five countries listed above.

Australian Winlink stations have already ceased operation, but there is also a message here for all packet sysops. It is important to filter your incoming messages and make sure that non-amateur traffic is not passing through your station. This applies not only to Winlink traffic but also to messages from any kind of packet-Internet gateway.

Internet Repeater Linking

Further to the above, please note that clause 11 of the LCD applies only to gateways which allow non-amateur traffic to pass through the amateur network. It does not prevent the use of secure Internet links to forward amateur-to-amateur traffic. The test is whether non-amateurs can get access to the amateur stations that are connected to the link. If the link can only be accessed via amateur stations operating on the air, you are in the clear.

The same considerations apply to various systems used for linking of voice repeaters. Systems using software such as "iPhone" are a problem because non-amateurs can access them via a dial-up connection to a web page. Any connection of this kind of link to a repeater is a direct breach of clause 11 of the LCD.

The new IRLP linking package does not have any of these compliance problems because it works differently. It uses secure Internet links that cannot be accessed by non-amateurs, and traffic can only enter and leave the link via licensed amateur stations. So if you are interested in Internet linking, IRLP is the only way to go.

Digital TV and Channel 0

There was much rejoicing when we heard that digital TV would operate only on channels 6-12 and on UHF, and that analog TV would be phased out in late 2008. At last we can see an end to channel 0 problems.

However a recent newspaper article suggested that the analog closure could be delayed until 2014 or even later. This is quite likely considering the very high cost of digital receivers or set-top boxes. The delay could be even longer in country areas where digital transmissions may not even begin until 2004 or even later.

The other side of the cost issue is the fact that TV operators will have to run two transmitters-analog and digital-during the changeover period. It would save money if existing VHF transmitters stayed in operation until the analog services close down. So it is possible that the introduction of digital TV will actually prolong the life of those old channel 0 transmitters.

Call Book Update

Band plans:

In the diagram that accompanies the 13 cm band plan, the words "All Modes" should be deleted from the 2302-2400 MHz segment. This part of the band is no longer available for amateur use.

Repeater updates:

The Bundaberg 6 metre repeater VK4RBG on 53.775 MHz is now in testing phase. VK2RAE in Young (146.775) is operational.

Broadcast station listings

On 1341 kHz, change the callsign 3GL to 3CW. This narrowcast station carries programming in Chinese, but I think I heard the callsign correctly! The following stations have also changed callsigns: 4CA Cairns in now 4EL, 2GZ Orange is now 2EL, and 3CV Maryborough is now 3EL. These stations now use the ID "Easy Listening".

3UZ, which identifies nowadays as "Sport 927", has a new translator on 1467 kHz in Mildura. The frequency was previously occupied by 3MA, which has moved to FM.

On 1116 kHz, narrowcast station 3AB has ceased operation, and the frequency is now occupied by commercial station 3AK. This change is based on the theory that 3AK's low ratings were at least partly due to poor coverage on their old frequency of 1503 kHz. (Quite strange when one recalls that they used to have quite high ratings, even back in the sixties when their power was only 2 kW).

ar

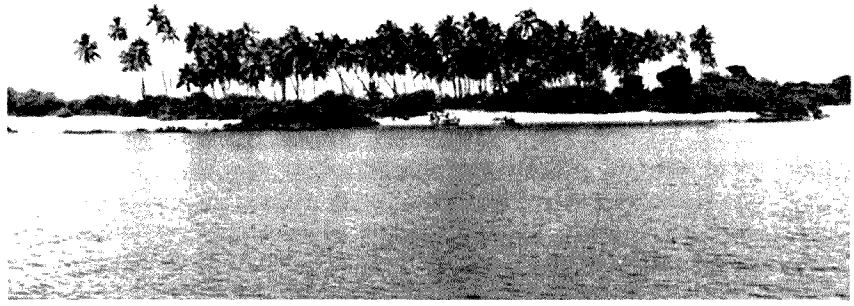
St. Mary's Island, AS096 — IOTA

Islands on the Air

5th May, 2001 to 7th May 2001

Event organised by Manipal & Mangalore Hams
http://www.vuiota.com
Report by Sri, VU2SBJ,
Manipal, vu2sbj@vuiota.com

St. Mary's Island (constituent part of AS096 group of Isles) is about 3 km from the coast of Malpe in the Udupi district. It is barren without habitation (human), shelter and drinking water. About 400 m by 150 m, the small isle is mainly explored by tourists who visit for a few hours, usually on weekends when a few boats offer services from the Malpe coast.



The boat takes about 25 minutes from the Malpe coast to the island. Some boats cannot go all the way to the island, and tourists are transferred into a smaller boat. Overnight stay on the island is restricted by the police authorities of the district.

Beginning at about 0530 UTC on Saturday, 5th May, 2001, the IOTA station was on the air almost continuously till about 0030 UTC on Monday, 7th May, 2001. With the 10 operators who participated, this IOTA event operated 4 stations on phone and CW on various bands simultaneously.

Amidst lot of WX uncertainties the IOTA to AS096, The St. Mary's Island was a grand success. The total count of logged QSOs crossed 3,500 in the less than 40 hours of effective operating time. Logs are still being sorted out and more statistics will soon be available. It is our desire to QSL every QSO logged.

A well planned event by the Manipal and the Mangalore hams, the IOTA was the first of its kind for all operators who participated. Hoping WPC's approval will come in on time, which eventually did, other coordinating efforts began just a few days prior to the scheduled date.

The team that took part included Manikant-VU2JRO, Bhat-VU2NJN, Sri-VU2SBJ, Gopi-VU2GPH, VU2MHC (MIT Ham Club, Manipal) from Manipal and Mur-VU2MTT, Chets-VU3DMP, Pai-VU2PAI, Prakash-VU2JIX, Rohit-VU2RDQ and Sukanya-VU2RDJ from Mangalore. SWL Laxminidhi from Manipal and two others from the Mangalore Coast Guard also accompanied the team.

These were the 4 stations we had eventually set up.

Station 1: HF

RIG - Kenwood TS 850 S
ANT: 3 element 5 BAND YAGI, Cushcraft MA5B (10/12/15/17/20) metres
CABLE RG213
MAST FOR ANT - 17 foot MAST
180 Ah LEAD ACID
CHARGER – 35 VA SOLAR PANEL
Shelter - Pre-erected bamboo frame with woven coconut leaves and tarpaulin.
Operators - VU2PAI, VU2MTT, VU3DMP, VU2RDQ
nb: the camp kitchen was also in the same shelter - now you know why there were so many operators in one place! The camp kitchen was operated by VU2RDJ.

Station 2 : HF

RIG - Yaesu FT 757
ANT1 - 10 m 3 element homebrew YAGI;
MAST1 - 10 foot GI pipe;
CABLE RG 213
ANT2 - 15 m 2 Element homebrew YAGI;
MAST2 — 17 foot Al;
CABLE RG 213
TUNER Homebrew
BATTERY - 180 Ah LEAD ACID;
CHARGER - 35 VA SOLAR PANEL
Operators: VU3DMP, VU2MTT, VU2JIX, VU2RDQ
Shelter: Homebrew - tarpaulin tent with bamboo supports

Station 3 : HF

RIG - Icom IC 751
ANT1 - Fritz 3 BAND (20/15/10) Vertical antenna with mast in the water
CABLE RG213; MAST12 foot Al
ANT2 - HOMEBREW G5RV ALL BAND horizontally supported on coconut trees
CABLE2- RG 58;
TUNER - Homebrew
BATTERY - 88 Ah LEAD ACID
CHARGER - 35 VA SOLAR PANEL
Operators: VU2SBJ, VU2JRO, VU2NJN, VU2GPH, VU2JIX, VU2MTT, VU2PAI, VU3DMP, VU2RDQ, VU2RDJ
Shelter: Homebrew - tarpaulin tent with bamboo supports

Station 4 : HF

RIG - Icom IC 725
ANT - Diamond CP6;
MAST : AL 17 foot;
CABLE : RG 213

BATTERY - 180 Ah LEAD ACID;
CHARGER - 35 VA SOLAR PANEL
Operator: VU2MTT
Shelter - Commercial dome tent

This shows the enormous amount of luggage that was carried. The 6 lead acid batteries (2 extras) were the bulkiest items. A very useful sledge prepared by VU2RDQ was a boon to move the batteries. About 250 litres of drinking water, and another 50 litres for 'other' purposes came second in terms of bulk. Tarpaulins, bamboo staves for tents, aluminum masts, radio equipment and antennas came in next.

In case of rain, adequate water proofing for equipment (worth our life for most of us), utensils for cooking, and food were carried. Rain and a flat tyre delayed our start by about 60 minutes. Eventually after a quick breakfast specially arranged by VU2NJN at the wee hours of the morning at a hotel in Udupi, we reached Malpe and began unloading stuff from a mini truck and 3 other cars at about 7:45 am Saturday. It took about 30 minutes to load the boat, and the same to unload after about 25 minutes at sea. It was drizzling and the sky was dark. You can imagine the uncertainty in our minds. Fortunately, it was not windy. The boat people refuse to travel if it is windy.

We landed on the island and unloaded all the stuff using a human chain. It took us about 4 hours to get things in place and set up 2 stations on the island. Fortunately it stopped raining. (Later the temperature went up to 42 C). We were the only people on the island then. The third and the 4th station came up later. A very useful tip from K2KW encouraged us to install at least one vertical with the mast right in the sea water. You have got to see to believe how dramatically it improves the performance of the antenna compared to that of the other erected beams (for more details on the special performance of verticals in salt water, visit http://www.k2kw.com/k5k/dxcomp.htm).

The propagation condition from St. Mary's Island was overall moderate with solar flux showing 165 points on Saturday and 160 points on Sunday. The peak was showing a downtrend in the coming days.

10 m was good on 5th May during the 12:00z to 15:00z with a huge pileup usually from Europe. There were stations from N.America, S.America, JA, VK's coming through pretty well. The condition on 15 m was exceptionally good and the pileup from Europe was tremendous during 17:00z to 20:00Z. Also some stations from N.America/S.America were strong on 15 m. However 20/17/12 m bands were not encouraging on 5th May. But we could log maximum stations during the peak time on 12 m on 6th May. 20 m improved on 6th May with stations from Europe, N.America, S.America coming through pretty well. 17 m was quite moderate. We did our best to log maximum QSOs with optimum band propagation and minimum operating time.

We stopped operations early in the morning on the 7th (Monday). The specially hired boat picked us up at 7 am. We were almost done with disassembling all the stations and the other stuff. It amazing how much less time it takes to pull down a station as compared

Photo 1. The Group on the beach with their boat

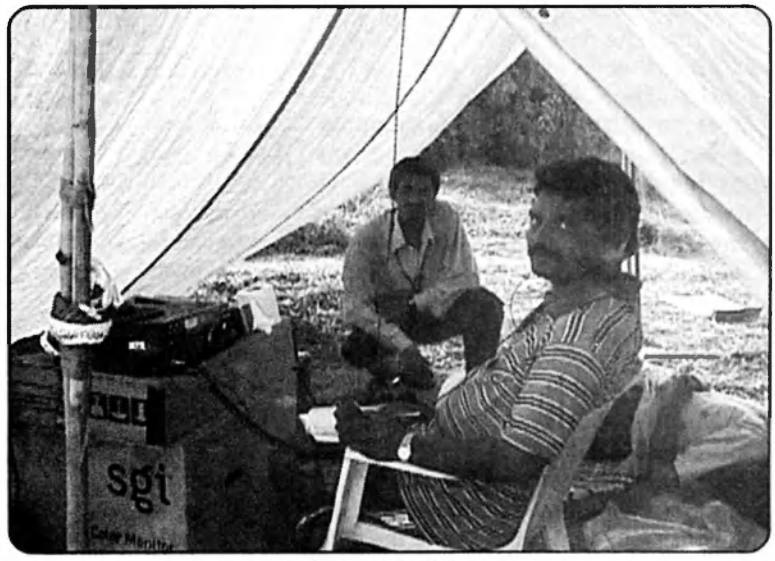


Photo 2. Prakash VU2JIX operations

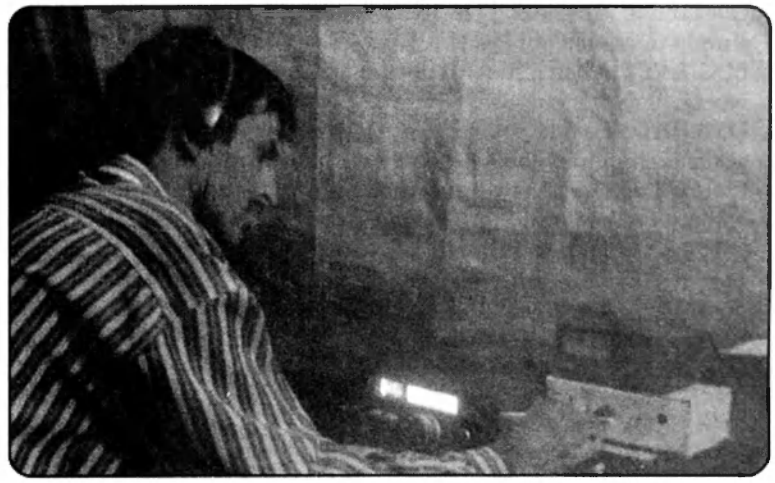


Photo 3. Mur VU2MTT G5RV Station

Photo 4. Bucket chain unloading

Photo 5. Cushcraft MA5B beam being setup

to setting it up! It took us less than 90 minutes to get all the stuff back to one place. We reached the shore of Malpe at about 9 am. A busy day at work for each of us looked certain. Nevertheless, it was worth every minute of the fun we had on AS096.

The small effort to publicize the IOTA event on the web paid off well. Though the event was confirmed just a few days prior to the event after WPC's letters came in, the good response on the band made all efforts towards our maiden IOTA very worth while.

ar

A simple and efficient computer logging program

Ian Alexander VK3DDL
7 Cambridge Drive Glen Waverley Vic. 3150. Email: vk3ddl@hotmail.com

Over recent years the use of computers by amateurs has increased, and many logging programs are available. I have tried several of these and found that if one is to enter all the information requested, i.e. Date, Callsign, Name, QTH, Frequency, Time, Signal Report, etc. the process can be extremely time consuming, and because of the amount of data, can also lead to errors.

The following is a fast, simple and efficient DOS database program that I have used for many years, and which requires minimum time and effort not only to set up, but also to enter the data.

The program consists of three small files –

LOG.ANS This is just a text heading to go at the top of the screen. It can be as simple or as elaborate as you wish.

LOG.BAT The batch file that does all the work.

LOG.DAT The data - list of contacts – again as simple or elaborate as you wish. In my Log.Dat file I have just four columns – Date/Call Sign/Name/QTH

The program is as follows:

Log.Ans (Example only – make up your own.)

```
VK3XXX LOG DATABASE
```

Log. Bat

```
@ECHO OFF
CLS
IF %1!==! GOTO EXIT
TYPE LOG.ANS
FIND /I "%1%2" Log.Dat | MORE
EXIT
```

Log.Dat (Example only)

```
1Aug2001  G4XYZ JIM LONDON
5Aug2001 EA2ABC PAUL VALENCIA
11Aug2001 F8ABC HENRI PARIS
```

To run the program, enter the word **Log** (space) **Callsign**

The program has an additional feature in that you can enter any of the categories in the data file, and the program will display the contact/s.

E.g. If you want to know the call sign of someone who you remember as Paul, enter **Log Paul** and the program will list out details of all the Paul's in the database. Or enter **Log Christchurch** and the program will list out all entries that have Christchurch in the QTH column.

There are many people who know much more about computers than I, they leave me for dead when it comes to complicated problems with Windows based applications, yet these same people do not know the procedure for creating a simple DOS batch program.

To create the three files used in this logging program is very easy. You can use a MS DOS text editor, or do as I do and use the copy command.

Type **copy con** followed by the file **name** <enter>

Enter whatever you want in the file and when finished press <enter>

Then type **CTRL+Z** <enter>

E.G. To create Log.dat as per the example above:

```
copy con log.dat <enter>
1Aug2001  G4XYZ JIM LONDON <enter>
5Aug2001  EA2ABC  PAUL VALENCIA <enter>
11Aug2001 F8ABC HENRI PARIS <enter>
CTRL+Z <enter>
```

Use the same procedure for log.ans and log.bat

Incidentally, with the data file – create the file with two or three entries, and then it is only necessary to use the edit command to add to it. edit log.dat <enter>

Finally a quick explanation of how the program works.

The first line turns off the echo that DOS provides.

The second line clears the screen.

The third line works out if you have entered any search words, and goes to exit if you haven't (If '%1' the first search word, followed by '!' is equal to '!' then the search word is empty.

The fourth line prints your text heading (log.ans)

Most of the heavy work is done in line five - the FIND command is run with any search words entered in the LOG.DAT, the database of contacts, and the output is piped to MORE, which places a pause between pages of results.

Line six is a marker for the EXIT in line three.

ar

A helix antenna for 2 metre satellite use

Home brewing a helix, VK5ZAI style

To be read in conjunction with my article on
A Satellite Tracking Antenna System Amateur Radio magazine May 2001

Tony Hutchison VK5ZAI

After using a 12 x 12 element crossed Yagi on 2m for a year or so for satellite work, mainly AO-13, AO-10, UO-22 and KO-25. I decided to construct a helix to make some comparisons.

At this stage I suggest that you read my article on "A Satellite Tracking Antenna" to get an idea on how the antenna is mounted. The elevation pivot is only 3m above the ground and the booms are end mounted so it is not a major job to swap things around and compare the results. Information was obtained from numerous publications including "The Satellite Experimenter's Handbook", "Satellite Anthology" both ARRL publications, Dr J.D. Kraus's "Antennas" as well as some personal input from a friend the late Vern "Rip" Riportella WA2LQQ.

Construction of the helix antenna is mechanically a little more difficult than a Yagi and requires a reflector behind it to function properly. This reflector should be 1 wavelength diameter for best results, although you can get away with 3/4 wavelength. Another disadvantage is that it has to be wound either R.H.C. Polarization or L.H.C. Polarization.

Points in favour are its wide bandwidth, being capable of operating 20—30% above and below its design frequency thus being useful for the weather satellites etc. It is also very forgiving when it comes to its dimensions when constructing.

Construction

The design frequency for this antenna is 145 MHz.

The main boom is 25mm square galvanized steel tube with a 1.6mm wall thickness and 5m long. This is for a 10 turn helix, and allowing approx 400mm to end mount it in a larger tube attached to the reflector. Each turn has a pitch or spacing of 454 mm so if you wish to add or subtract turns to suit your own personal requirements just add or subtract 454 mm for each turn, as they are evenly spaced.

I used 12mm fibreglass rod for the insulators cut to a length to give the helix a radius of 325mm. These were spaced 227mm apart on opposite sides of the square boom. I first drilled a 9 mm hole through both sides of the boom 25mm from the front end, then every 227mm along the boom. Then re-drill every alternate side *only*, with a 12mm drill to take the 12mm fibreglass rods.

In Photo 1 you can clearly see the copper matching strip as well as the start of the helix and the mounting plate with the collar around the boom at one end and the 50 ohm co-ax going to the "N" connector at the other.

I have added a small PTFE support between the copper matching strip and the plate that the "N" connector is mounted on, this takes the mechanical load off the connector centre pin, you can see it clearly in both photos.

The ends of these rods should be machined or ground down with a shoulder so as to fit into the 9mm hole on the opposite side of the boom which will stop them going right through. I used a good epoxy glue to hold them in

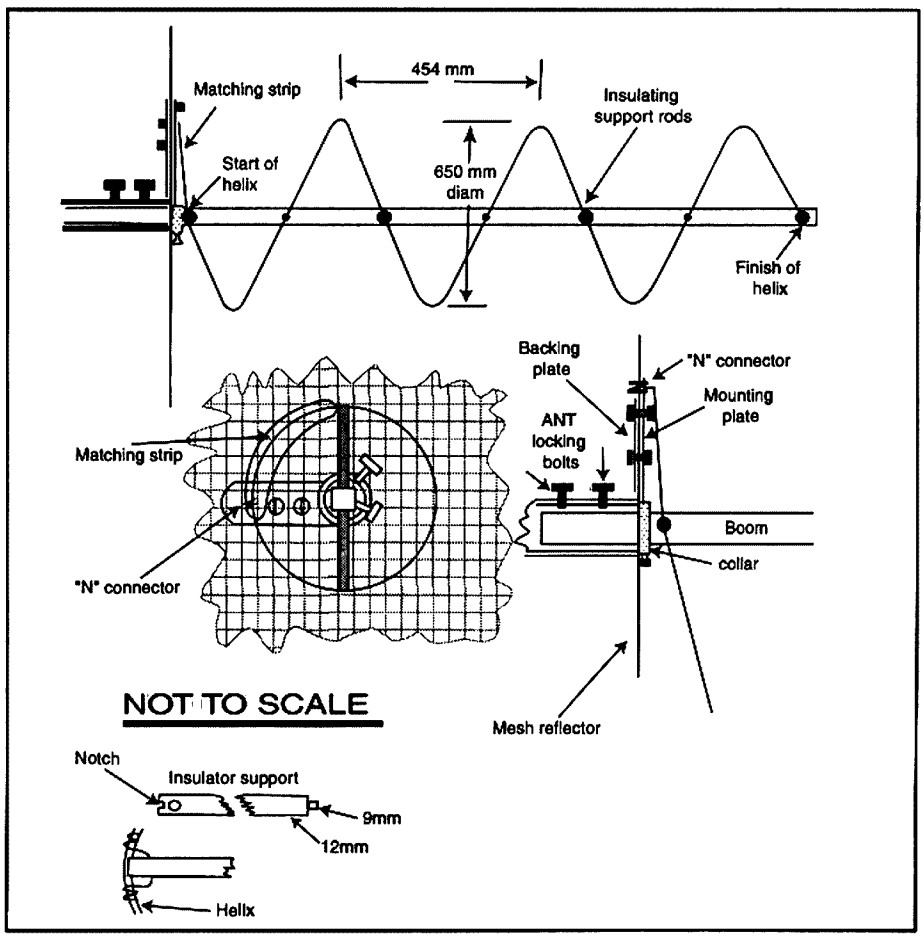


Figure 1

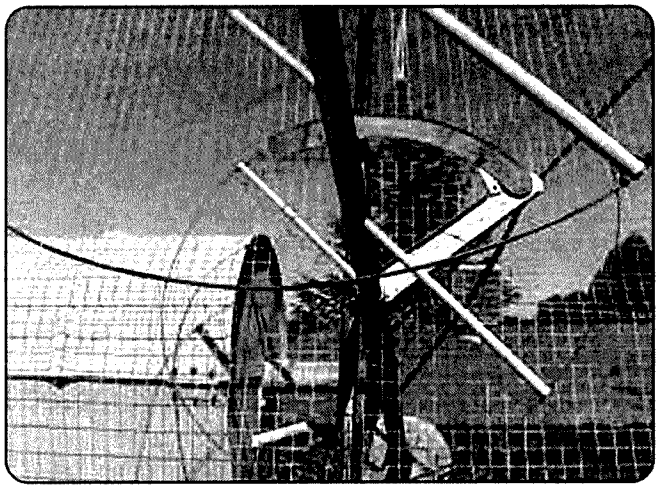


Photo 1

place, however they shouldn't come out once the helix is wound on them. The outer ends of these rods are V notched and a small hole (2-3 mm) is drilled 12mm from the end and parallel to the notch to tie on the helix wire and hold it in place. Note: When gluing these rods into place make sure that the V notch in the end will line up with your helix coil so it fits snugly. This will depend on whether you use LHCP or RHCP. In my case I used RHCP.

I used 3mm diam. (approx) copper wire for the helix. This is not critical; thin tubing could also be used. As the impedance of a helix is in the vicinity of 140 ohms, it requires a matching device to feed into 50 ohm cable.

This 1/4 wave-matching strip is made from a piece of copper sheet 0.5mm thick (not critical). With a radius of 325mm scribe an arc 525mm long on it, this is the middle. Now scribe 2 more arcs, one 25mm larger, and one 25mm smaller. Cut out this strip 50 mm wide, round one end and drill a hole 25mm in from this end to take the centre pin of an "N" type connector. Cut the corners off the other end of the strip to form a point. When assembled you will solder this to the feed end of the helix allowing 25 mm overlap for a strong solder joint. The helix can be any number of *full* turns, with the matching strip making an extra 1/4 turn.

Now to make an earthed mounting plate for the "N" type connector, I have chosen to mount this connector on the boom rather than on the reflector. Doing it this way means that the antenna and matching section can be removed as one assembly if required. Get some thick walled tubing (water pipe) that will neatly fit over the boom and cut an off a piece 20mm long to form a collar. Drill and tap this collar in two places 120 degrees apart so it can be locked onto the boom. Now get another piece of copper (or galvanised. iron) approx 350mm long by 50mm wide and 0.5mm thick and braze this to the collar on the opposite side to the locking screws.

Drill a hole 325 mm out from the centre of the of the collar and mount the N type connector, also drill two 6mm holes approx. 100 mm from each end of this mounting plate so it can be fastened to the mesh reflector with the aid of a backing plate made of the same material and 2 machine screws, the mesh being sandwiched between the two plates.

Assembly

After gluing the support insulators into the boom carefully wind the helix coil, tying it onto the end of the support insulators as you go, start and finish at a support leaving around 25 mm extra at the feed end to solder on the matching section. Now slip the collar with the bracket and "N" connector attached onto the boom until it is about 50 mm from the first insulator. *NOTE:* The matching section does *not* follow the same pitch as the helix coil. This is how it is tuned for the best SWR. In my case the matching strap ended up with only about a 50mm pitch for the 1/4 turn. The threaded end of the connector faces rearwards and fits through the mesh reflector when fully assembled. Solder the matching section to the end of the helix, butting it right up to the first support then the other end onto the connector.

The antenna is now ready to fit into the mounting tube on the reflector assembly. I haven't described this but I would suggest making up a frame of 25mm square tubing (similar to mine) and covering it with a mesh rather than a solid panel to lower the wind loading. In the centre of this you will have to fit a thick walled tube with 2 lock bolts to take the boom. After fitting the boom to the reflector assembly fasten the plate with connector to the mesh with the aid of the backing plate and machine screws.

Tuning the antenna

Leave the collar and lock bolts loose at this stage and connect up your coax and rig set on 145 MHz. with an SWR bridge to the "N" connector. Now slide the boom in and out to obtain the best match. It should be possible to get close to 1:1, on mine the junction of the matching strip and start of the helix was only about 45 mm from the reflector. When you are happy tighten up all the lock bolts on the collar and boom support and recheck the SWR and the job's done.

Performance

As I don't have an accurate means of checking antenna gain all I can do is compare it to the 12 x 12 element Yagi that I used to use. Gain wise it is similar however I found that it had fewer dropouts on AO-13 and AO-10. At present I am receiving AO-40 TLM at up to 20 over S9.

I would be interested in hearing from anyone who builds this antenna or a similar one.

I have thought of building a helix for 70 cm. and comparing it with my 21 x 21 element 70 cm. Yagi but it all takes time and at present 2.4 GHz is more important to get going.

ar

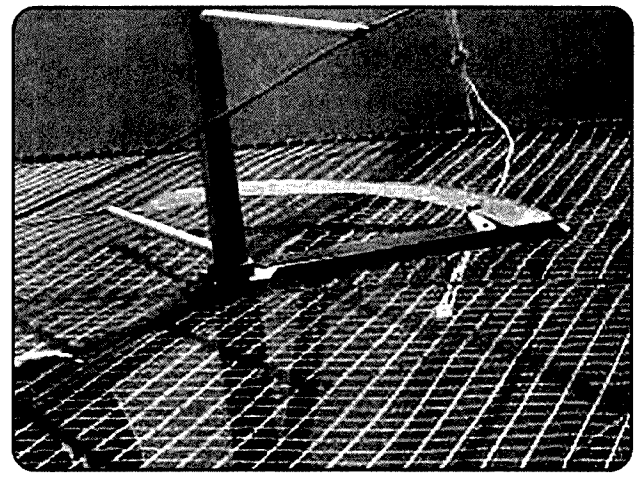


Photo 2

WIA makes submission to Productivity Commission

by Jim Linton VK3PC

In a submission to a body reviewing the Radiocomunication Acts, the Wireless Institute of Australia has called for greater recognition by government of amateur radio, licence reforms, and a better deal in terms of licence fees and charges.

The Productivity Commission has been charged by the Department of Communications, Information Technology, and the Arts, to review both the legislation and the role of the Australian Communications Authority. WIA Federal President, Ernie Hocking VK1LK, said the review is a rare opportunity to put forward viewpoints on the legislation, provide constructive comments about the ACA, and discuss matters of concern to the Amateur Service.

After filing the written submission with the Productivity Commission in Canberra, Ernie VK1LK said he thanked all WIA officers and members who have assisted in the putting it together. The WIA is one of 16 who have made a submission. The Productivity Commission will be holding public hearings in Canberra and state capital cities. The WIA submission begins by explaining the WIA's role, and the various community aspects or benefits that flow from the Amateur Service including education, emergency communications and WICEN, experimentation and development of communication technology.

It states "The contribution of the education component to amateur radio should not be under-estimated in terms of adding to the credibility of Australia as the Clever Country," and also fosters a strong sense of ongoing self-education.

The WIA highlights the pioneering work in the area of amateur satellites, and that some of the innovative techniques deployed by radio amateurs have resulted in commercial applications by others, with a dramatic example being that of Low Earth Orbit satellites.

In commenting on licensing, the WIA has renewed its call for an operator licence to be created for the Amateur Service. It submitted to the Minister for Communications in 1997 a case for a new type of licence, and has now told the Productivity Commission it believes that the Amateur Service is "significantly different" from other radio services.

The WIA and the ACA have struggled on a number of occasions, according to the WIA, in dealing with matters of specific concern to the Amateur Service that have arisen as a result of changes aimed at the commercial users of the spectrum. It said, "This situation could be made considerably simpler with the introduction of a decided Amateur Service licence type that addressed only those requirements of amateur operators."

The WIA, in referring to licence grades, acknowledges that after the World Radio Conference 2003 with the expected end to mandatory Morse code tests for amateur licences, Australia's current four amateur licences would be reduced to two - Unrestricted and Novice.

It also noted the development of a Foundation licence to be introduced in Britain early next year, and has advised the review that the WIA is likely to seek a similar new entry level licence for Australia.

On the topic of reciprocal and visitor licensing, the WIA said it believes that the current ACA approach to visiting radio amateurs is too restrictive, and not in line with practices in overseas countries including New Zealand.

This refers to short-term visitors, who are permitted in other countries to use their home callsign and adding a local callsign prefix, while the ACA practice is to require them to pay a licence fee and use an Australian callsign. In commenting on licence fees generally, the WIA believes they need a revised to better reflect the community benefits of amateur radio, increase the participation rate in the hobby, and afford juveniles and pensioners a discount.

The WIA further submitted that the role and contributions of radio amateurs have been recognised over the years, and it cites comments made by a former Communications Minister at the Ash Wednesday bushfire disaster, and the Prime Minister John Howard in his opening address to the WIA's Remembrance day Contest in August 2000.

The WIA observed that there is not legislative recognition of the fact that amateur radio provides a source of training and technically inclined people, for industry, in terms of national emergency or defence. It said, "This situation can be contrasted with the situation in other countries where the value of the Amateur Service has been officially recognised." The WIA referred to the United States situation where amateur radio is recognised for its value to the nation.

The submission also recognised the convergence of technology occurring within the Amateur Service. It mentions the interconnection of amateur radio and the Internet, and expressed the view that this activity, provide it is in accord with the spirit of the Amateur Service, should not be restricted by legislation and regulation.

ar

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

Come join us!

How to join ALARA

It is very simple to join ALARA. It is not necessary to hold an amateur licence at all; in fact we have some members who have been with us almost from the beginning without ever wanting to take out a licence. You do have to be a YL. Yes we are discriminatory that way.

To join just write to someone on the committee (a list is printed soon after the AGM in May) or direct to the Treasurer Bev VK4NBC, and we will send you information about ALARA and a form to fill in if you want to continue.

It costs only $12 a year which includes four newsletters containing news of activities nationwide and overseas.

We have around 200 members, about half of whom are overseas YLs. Many of these are sponsored into ALARA by a VK member. If there is a YL group like ALARA in the overseas country we are often given reciprocal sponsorship so we receive newsletters from those, too.

Amateur radio has given all of us friends all round the world. Just telling someone you hold an amateur licence or are a member of ALARA brings a smile of welcome.

Please join us. We would love to know you.

Monday night nets

Conditions on 80 metres have been quite variable during the last few months because there have been a number of storms, but nevertheless we usually have seven or eight and sometimes up to ten or eleven YLs on frequency.

If you have not yet tuned to 3.580/3.578 MHz on Monday around 1030 Zulu, you have missed out on an interesting natter session. Most weeks we start off with a weather report in each state as they join the net, but after that the topics vary as we each tell about our most interesting activities since last Monday.

Items of local and world news are interspersed with stories of local places we have visited and the rest of us learn about places to visit when next we are in that town. Families and gardens are bragged about in much the same way as they are when a group of friends get together anywhere in the world.

YLs out there, please join us, we won't frighten you away. OMs, tune us in for your YL and let her hear the interesting things we discuss, or call in for her and let her talk to us as well. We would love to have your input.

Luncheons here and there

Judy VK3AGC and Pat VK3OZ both attended the September luncheon at the "Melba Café" in Little Collins Street (on the second Friday each month) and Pat brought along a new ALARA member, Dianne VK3NDI along to meet the ladies.

Our congratulations go to Mavis VK3KS who has just celebrated her 80th birthday. HAPPY BIRTHDAY Mavis, from us all.

The monthly luncheons in Adelaide recently have been working luncheons as some of the details for the ALARAMEET 2002 are discussed. We hope to welcome Shirley and Myrna to those, soon. Now that Myrna has retired she is looking forward to being able to have lunch in town occasionally.

A photo is attached of the ladies enjoying the extra lunch held in September when Marlene was in VK5. As reported in the last ALARA column. The film was still in the camera last month.

For all of you with computers

A Modern Prayer

Every single evening as I'm lying here in bed.
This tiny little prayer keeps running through my head
God Bless my Mum and Dad and other family

Keep them warm and safe front harm for they're so close to me.
And God, there is one more thing I wish that you could do,
Hope you don't mind me asking, bless any computer too.

Now I know that it's not normal to bless a motherboard,
But listen just a second while I explain to you 'My Lord'.
You see that little metal box holds more than odds and amp-ends
Inside those small compartments rest so many of my friends.
I know so much about them by the kindness that they give
And this little scrap of metal takes me into where they live.

By faith is how I know them much the same as you,
We share in what life brings us and from that our friendship grew.
Please, take an extra minute from your duties up above

To bless those in my address book that's filled with so much love!
Wherever else this prayer may reach, to each and every friend,
Bless each mail inbox and the person who hits SEND.

When you update your heavenly fist on your own CD-ROM
Remember each who've said this prayer sent up to God.com.

Sent to me by Ella G0PIP

...and...

Ode To A Spell CheCker

Eye have a spelling chequer
It came with my pea sea
It plainly marks four my revue
Miss steaks eye kin not sea,
Eye strike a key and type a word
And weight for it to say
Weather I am wrong or write
It shows me straight a weigh.
As soon as a miss steak is maid
It nose bee fore two long
And eye can put the error rite
Its rarely ever wrong.
Eye have run this poem threw it
I am shore your pleased two no
Its letter perfect awl the weigh
My chequer tolled me sew.

Barbara, GW0SKC
(Reprinted from the Bylara Newsletter)

B J Slarke. VK2ZCQ.

Huey gives Urunga a break

Following long term predictions of floods and heavy rain over the Easter period a request was forwarded to the force above the E layer, at the Convention committee meeting in early January, for fine weather over the Easter week end. All went well until late January, then there was a lot of rain causing a small flood. Then in early February the conditions deteriorated and by late February everything was very wet and waterlogged. That is the point at which the rain started and kept going, giving the area a reasonably big flood of about 4 foot 6 inches below the record 1950 flood. All the low area of the Urunga golf club was well covered and some of the flats near the railway bridge were flooded.

Fortunately the rain cleared and when April arrived most of the flood rubbish and water has dissipated.

The Easter weekend turned out fine and mild, giving the participants at the Urunga convention a perfect run after hidden TXs.

Remember when:

50th Urunga Convention. Convention Committee with the cake

Urunga Convention Easter 1998. Trophy winners L to R: A Austin VK2ADA, P Alexander VK2PA, K Golden VK2DGT

Contestants at Urunga 2001 convention: mainly the kids and their Yagi

The results of the events are as follows:

Saturday

80 metre Mobile hunt	Adam Scamell VK3YDF.
2 metre Pedestrian hunt	Rod Summerville VK2URK.1st, Adam Scamell VK3YDF 2nd
80 metre Novice.	Reese Austin 1st, Carl Winkler 2nd
2 metre Multi TX Mobile	Karen O'Brien 1st, Adam Scamell VK3YDF 2nd
Talk in mobile.	Kim Piper, VK2ZW 1st, Brian Lindslay VK2BI 2nd

Sunday

Urunga Scramble	Henry Lundel VK2ZHE
40 metre Fun event	Bryan Ackerly. VK3YNG, 1st
80 metre Novice	Carl Winkler. 1st Reece Austin 2nd
2 metre Mobile multi TX	Adam Scamell VK3YDF 1st, Ken Golden VK2DGT 2nd
2 metre Pedestrian	Adam Scamell VK3YDF 1st, Bryan Ackerly 2nd
Talk in Pedestrian	Craig Martin 1st, Adam Scamell VK3YDF 2nd

Overall Winner for the weekend and the Jack Gerrard Award Adam Scamell VK3YDF.

Lucky door prizes competitions and raffles were drawn and all places were filled

The convention committee hope that everybody who attended the Urunga convention for 2001 enjoyed themselves and we will see you at the 2002 Do.

The names of the 1950 convention participants will be published when we have most, if not all, of the names to complete the list.

So far from February AR cover and photos in March AR, Coll Fletcher VK2ASF, Ted Gabrial VK2AVG, then VK4.Fox hunters, Allan Baird, VK2ZIW, Geoff Pages VK2BYY, Graham O'Brien VK2FA.

Special thanks to Ron VK4BRG for his talk on ARDF and Grahame VK2FA for details of his round the world on a shoe string. Also Henry VK2ZHE for video taping highlights of the weekend and Graham Vk2GJ for helping the fox.

73s from the Convention Committee

B.J.Slarke VK2ZCQ.

The International Lighthouse/Lightship Weekend (ILLW)

The International Lighthouse/Lightship Weekend (ILLW) took place from 0001 GMT on Saturday, August 18th until 2359 GMT on Sunday August 19th, 2001, when around 360 Amateur Radio Stations were established at Lighthouses and Lightships in over 46 countries. The event was not a contest, just a chance for like-minded Ham Radio Operators to enjoy themselves while making contact with other Stations and to promote public awareness of the role Amateur Radio and Lighthouses have played in assisting and maintaining safety at sea.

As available space in many Lighthouses was filled to capacity, the activity did not have to take place inside the tower itself. Field day type set-ups at the lights or other buildings adjacent to a light were quite within the guidelines and spirit of the event.

A Tale Of Three Hams in Search of a "House"

by Carl Schlink VK3EMF

Maritime Museum: *from left*, Glenn Alford VK3CAM, Carl Schlink VK3EMF, Ken the Curator and Marty Van Bladel VK3FII (seated)

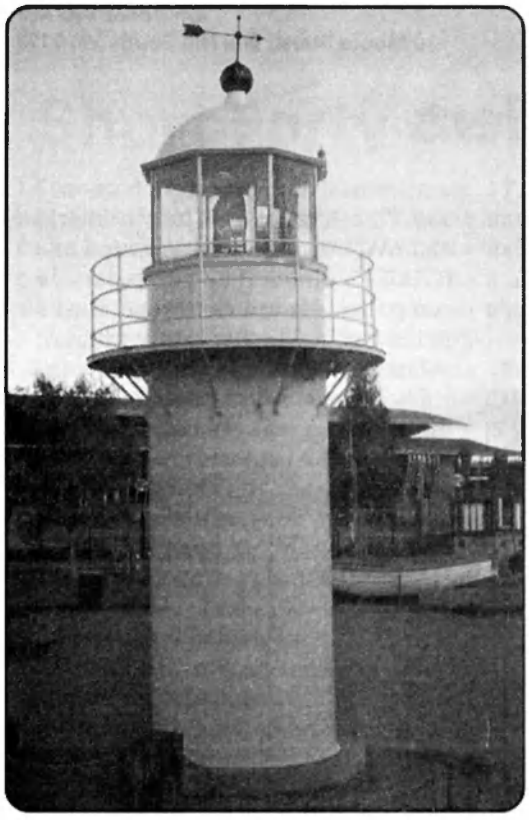
THE AUGUST 18/19TH International Lighthouse/Lightship Weekend (ILLW) for 2001 has come and gone and an idea that was sown early last year to get involved in this event finally came to fruition. It all began with the obvious choice, for me anyway, the Cape Schanck Lighthouse. It had all the facilities we would need, including accommodation, to combine a pleasant weekend outing and help celebrate the great service that Lighthouses and their Keepers have provided to mariners over the centuries. Unfortunately, this selection proved to be the first of many hurdles we would encounter in our quest for a place to operate from.

Marty Van Bladel VK3FII, myself and our XYLs Carolyn and Lois (who were somewhat reluctant participants in the "lighthouse spotting" expedition) set out for the Cape Schanck Light with the idea that if we found it suited our needs we would make a booking for the Aug. 18/19th weekend, with the view to making it a Club event. We arrived there, spent an hour or two looking it over, pronounced it fit for operations and declared our intentions to the curators who were quite pleased with the whole idea. It was only then that we discovered that a Scouting Group was also booked in. The thought of a joint operation crossed my mind, but after canvassing this possibility when I got back to Melbourne I took the decision to look elsewhere and to this end Lois and I ventured out along the coast road the following Sunday looking for other Lighthouses and/or Beacons that would be suited to portable operations. That's when we came across the McCrae Light and as soon as I saw it I knew instantly this would suit our needs admirably and immediately got the digital camera out for some photos to e-mail Marty and Glenn Alford VK3CAM (who by this time had also expressed an interest in activating a Lighthouse) for their approval. While taking the photographs I noted that the McCrae Yacht Club was adjacent to the car park but unfortunately the premises were unattended. However I took the phone number down with the idea in mind of contacting the Commodore to canvas the possibility of them allowing us to operate from within their Club Rooms...just on the off chance that the middle of August turned on some nasty weather. I had visions of us sitting in the elevated Yacht Club and operating in comfort, with all mod cons laid on.

I had a dream...but not for long.

The Commodore informed me that there was a wedding reception taking place on the same weekend I had in mind, so, back to the drawing board. Fortunately this wasn't an insurmountable problem, I figured we could operate from the Lighthouse car park with the hope that we didn't interfere with the Yacht Club's PA system. Glenn, Marty and I sorted out what radio equipment we had between us and agreed on the best combination for the expedition. To that end I charged up 5 batteries for the exercise as well.

"LH-Day" was fast approaching and we now had our worst fears confirmed...the weather was going to be horrendous for



Gallibrand Lighthouse VK3EMF/AUS 079

Glenn VK3CAM at the operating position Gellibrand Lighthouse

Melbourne Maritime Museum Curator with VK3EMF

portable outdoor operations, especially at our chosen locale which was right on the beach. Anyhow, the die was cast and come hell or high water we were going ahead with the planned exercise unless a miracle occurred and an alternate venue cropped up.

Believe it or not, the age of miracles is still with us.

On the Friday preceding the planned excursion Glenn went for a lunchtime stroll, which took him down by the Melbourne Maritime Museum where the Polly Woodside is berthed. Whilst there he happened to notice a Lighthouse adjacent to the Museum, this in turn led to him approaching management on site and explaining what the ILLW was about and seeking permission to set up a station there. The response was very favourable indeed, but had to be confirmed by the curators. We received the ok that same afternoon with an offer to accommodate us inside the museum, alongside the Gellibrand Lighthouse, with everything laid on including a heater should we require it.

Our ship had come in! The all-important choice was an easy one: Goodbye McCrae, hello Gellibrand and thus VK3EMF/AUS 079 was officially registered for the ILLW.

The facilities provided for us saw the IC775DSP, FT7, FT270R and 25 amp Power Supply installed just inside the Maritime Museum's front door, which made us the first "attraction" visitors had to contend with. Quite a few stopped for a chat, some watched from a distance and some just passed us by with not so much as a cursory glance. Those showing interest in what we were doing were quickly engaged in conversation and handed AR publicity blurbs and copies of our Club (EMDRC) Bulletin.

The rest is history as they say in the Classics, we spent a most enjoyable two days activating the Gellibrand Lighthouse. Mine hosts Anne, Ken, Keith, Gordon and John from the Maritime Museum, Lorimer Street, Dockside, Melbourne made our two days as their guests a very pleasant experience indeed. We were given the run of the place, offered refreshments, allowed to bring our vehicles onto the premises and permitted to erect our antennae, which comprised three verticals (a Werner Wolf, Cushcraft R7 and an ex CFA Co-linear converted for 2 metres), right outside the Museum's front door. We were very spoilt indeed and this was probably made very evident in some of our "smug" comments as we spoke to fellow enthusiasts who were outdoors, cold, wet and windblown at various other lighthouses and beacons...poor souls.

The microphone was shared around over the two day period, with each of us doing 60 to 90 minute sessions at a time. Operating between the hours of 10:00am and 4:30pm on several bands, we made a total of sixty five contacts into sixteen countries and worked thirteen lighthouses.

As the operation from Gellibrand Lighthouse, AUS 079, ended on Sunday afternoon we reaffirmed our earlier commitment to return again next year.

Footnote: *The Lighthouse Weekend was of special significance to Marty and myself, with Marty being ex RAN and myself being ex Merchant Navy.*

ar

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Directional Feedback Amplifiers

Amplifiers with improved output to input isolation were described by Zack Lau W1VT in QEX Jan/Feb 2001. The improvement in output to input isolation was achieved by using directional couplers to generate the feedback path.

A 20 dB gain preamplifier with directional feedback is shown in Fig 1. The 2N5109 transistor should be fitted with a heatsink. The transformers T1 and T2 consist of a 10 turn primary of #28 AWG enamelled wire wound on an FT-37-43 toroid. The secondary is a component lead stuck through the hole in the toroid. Phasing is important.

The performance is given in Table 1.

A 12 dB gain preamplifier with directional feedback is shown in Fig 2. The 2N5109 transistor should be fitted with a heatsink. The transformers T1 and T2 consist of a 10 turn primary of #28 AWG enamelled wire wound on an FT-37-43 toroid. The secondary is a component lead stuck through the hole in the toroid. Phasing is important.

The performance is given in Table 2.

The preamplifiers were built using direct wiring or ugly construction on scraps of PCB laminate.

The 20 dB gain amplifier had an output intercept point of +12 dBm and an input intercept point of -8 dBm. The 12 dB gain amplifier had an input intercept point of +11 dBm which was a substantial improvement.

Table 1. Performance of 20 dB gain preamplifier.

Frequency MHz	MS11 dB	MS12 dB	MS21 dB	MS22 dB	Noise Figure dB
2	-19	-54	21.5	-34	
5	-35	-51	21.2	-28	
10	-28	-47	20.3	-24	3.2
12	-26	-44	19.8	-23	3.2
20	-22	-40	18.0	-20	3.2
30	-17	-36	15.7	-19	3.3
50	-17	-31	12.2	-17	3.4
100	-21	-25	7.0	-14	5.1

Table 2. Performance of 12 dB gain preamplifier.

Frequency MHz	MS11 dB	MS12 dB	MS21 dB	MS22 dB	Noise Figure dB
2	-20	-49	11.5	-29	
5	-27	-49	11.7	-37	
10	-28	-45	11.7	-34	6.0
12	-32	-44	11.7	-33	5.9
20	-33	-39	11.2	-28	6.0
30	-32	-35	10.5	-24	6.0
50	-29	-31	8.7	-21	6.3
100	-23	-25	5.0	-16	6.8

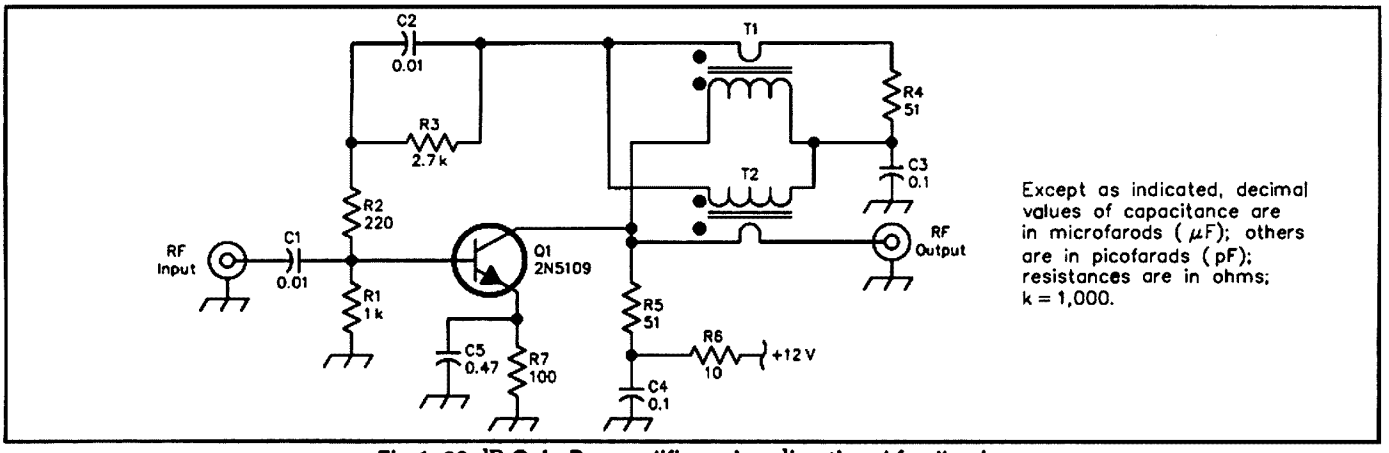


Fig 1. 20 dB Gain Preamplifier using directional feedback.

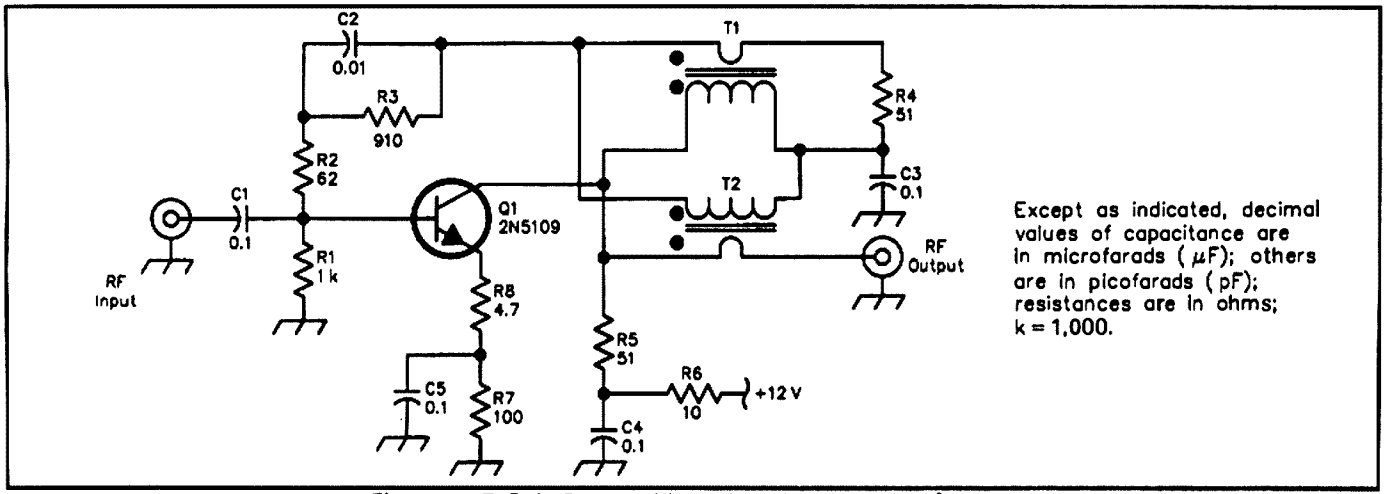


Fig 2. 12 dB Gain Preamplifier using directional feedback.

Short Forty Antenna

The short forty antenna is a shortened dipole which uses a combined loading and matching inductor. This antenna was chosen by Philip T Sage KF8JW as a simple portable antenna for use on a trip to France. The advent of CEPT licencing which allowed US amateurs to operate in many European countries with the minimum of paperwork.

The antenna was described in QST July 2001 by Philip T Sage KF8JW and is an antenna design published in the ARRL Antenna Book by Jack Sobel WOSVM. The antenna described is roughly half size which helped usage from hotel room balconies.

The antenna uses combined loading and matching coils. The loaded shortened dipole uses a pair of loading coils either side of the feedpoint with a coil in parallel with the feed point as a form of hairpin match. The antenna is shown in Fig 3.

The combined loading and matching coil is wound on a 6 inch long piece of 2.5 inch diameter PVC tubing. The coil is 27.5 turns of #14 insulated wire wound the full length of the tube. The winding is tapped at the 12th and 15th turns for the feed point. The wire used was electrical house wiring wire. Similar wire should be locally available. The feed uses 300 ohm twin lead.

The antenna wire used was # 24 solid insulated wire. The dipole uses two 14 ft 6 inch lengths and the wire is hard to see once in the air.

The feed line was 32 ft of 300 ohm twin feed line. At the transceiver end of the feed line a 4:1 balun was used. A 2:1 SWR bandwidth of 7.03 MHz to 7.14 MHz was obtained.

ar

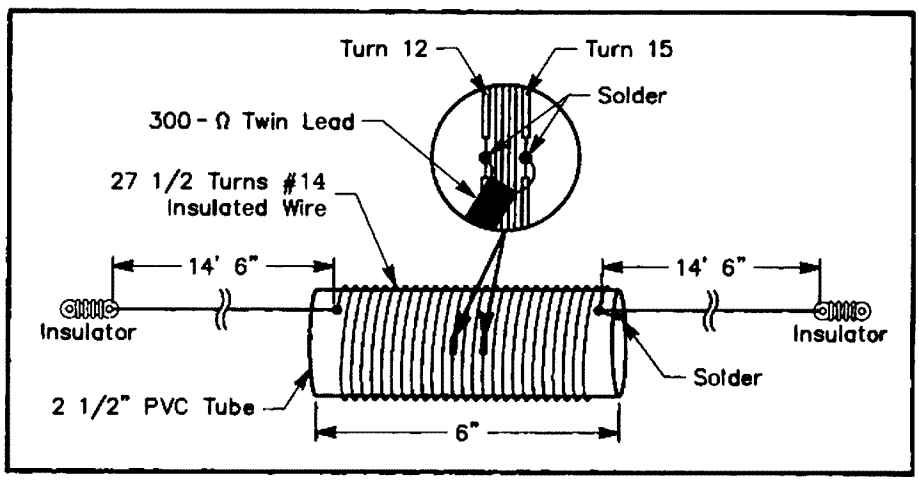


Fig 3. Short Forty Dipole Antenna.

TechNotes

Lindsay Lawless VK3ANJ

Microphone sensitivity

Most dynamic microphones listed in local radio parts catalogues have a "sensitivity" of about –75 db. That means that a sound wave pressure of one dyne per square centimetre (dyne/sq cm) impinging on the microphone diaphragm produces a no load output volts of –75dbv i.e. 75 db below one volt, which is approximately 0.18 millivolts. It is probably better to put the sensitivity as 0.18 mV per dyne/sq cm (One volt/ dyne /sq cm = 0db.)

The accepted RMS sound pressure of conversational speech at a distance of one metre is 0.645 dyne/sq cm, so the –75db microphone will produce an open circuit output of 0.116 mV when used for speech.

Specified sensitivity is that measured at 1000 hertz, it will not have the same sensitivity at other frequencies but in a good unit should be within plus or minus 3db.of the 1000Hz. spec.

The sound pressures quoted above are absolute pressures; pressures quoted in db above a reference level of 0.0002 dynes per square centimetre are used for the same purpose these levels are called Sound Pressure Levels (SPL). A pressure of 0.645 dyne/sq cm is an SPL of 70db.

European manufacturers prefer to use the SI unit of pressure, the Pascal, and microphone sensitivities are quoted in volts per Pa. The Pascal is 10 dyne per sq cm therefore sensitivities in the SI system will be 20db greater eg. –75dbv/ dyne/sq cm = -55dbv/Pa. The reference level for SPL is 0.00002 Pa.

The above information is useful for designers of mic. amps, others "try not to worry about it".

Headphone sensitivity

Headphone sensitivity is the sound pressure output per unit electrical input at 1000Hz. The output pressure units are dyne/sq cm. or Pascal or SPL and the standard electrical unit is the milliwatt. mW SPL is the preferred pressure unit.

A typical dynamic headphone sensitivity is 74db. SPL per milliwatt, which is a sound pressure output of one dyne/sq cm or 0.1 Pa. per milliwatt. 70 db.SPL is the approximate average pressure of conversational speech at a distance of one metre.

The manufacturers should assure purchasers that the rated sensitivity is maintained within 3db over the specified frequency range and that distortion is not perceptible over that range ie. ideally less than 1%.

Headphones should also be capable of an output of at least 84db for speech service and at least 94db for "hi fi".

Another rating which should be specified is the "load rating"- the maximum power input which the unit can accept without risk of damage. 100 to 200 mW is a typical load rating.

ar

SOLID PERFORMANCE!

VX-5R pictured showing large frequency digits

VX-5R 6m/2m/70cm Deluxe Handheld

Tiny, yet incredibly rugged, the VX-5R provides 6m, 2m and 70cm amateur band operation with 5W output as standard (4.5W on 70cm), made possible by a unique PA design, super high-capacity 7.2V 1100mA/H Lithium-ion battery, and a diecast metal case. Plus, ultra-wide VHF and UHF as well as medium-wave* and shortwave reception facilities are provided.

Another really useful feature is the large backlit dot-matrix LCD screen that can be configured to suit your operating needs. You can choose large frequency digits, dual line displays (VFO 'A' and 'B' frequencies, VFO 'A' frequency and battery voltage and even VFO 'A' frequency as well as other data such as recent Tx/Rx times or transceiver internal temperature), or even 8-digit alpha-numeric memory labels. All this in a diecast aluminium enclosure just 58W x 87H x 28D mm (w/o knobs or antenna)!

Other features include:

- Tx: 50-54, 144-148, 430-450MHz
- Rx: 0.5-1.8MHz, 1.8-16MHz, 48-729MHz, 800-999MHz (cellular blocked)
- Full feature keypad, CTCSS encode/decode, Digital Code Squelch
- Comprehensive menu system
- Over 200 regular memories, plus 10 pairs of 'Band limit' memories
- Fast battery charging from the supplied AC adaptor
- 5 battery saving systems, plus Tx/Rx usage monitor.
- Spectra-Scope™ for monitoring adjacent channel activity
- Comes with FNB-58LI 1100mA/H Lithium-ion battery, flexible antenna and AC adaptor/charger

D 3670

*10kHz steps only.

2 Year Warranty

$599

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information.

Offer expires 30/12/2001.

PHONE FAX AND MAIL ORDERS

direct link

PHONE: Within Australia: 1300 366 644
(local call charge)

FAX: (02) 9642 9155 within Australia and
(+612) 9642 9155 from outside Australia

Visit our web site at
http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 500,
PO Box 500, Regents Park DC NSW 2143 No stamp required

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 30/12/2001. All prices shown are in Australian dollars and are inclusive of GST.

3572D DPS spot col

SCOOP PURCHASE!

All-mode operation on the HF, 6m, 2m, and 70cm bands with full satellite capability...

Yaesu FT-847 'Earth Station'

Ready for action on SSB, CW, AM, FM and digital modes, the FT-847's compact size makes it ideal for a variety of portable/mobile applications as well as for serious base station operation. You get a solid 100W output on the HF and 6m bands, 50W output on both 2m and 70cm, dual fan cooling and a rugged diecast chassis. Plus, the ultra-quiet HEMT receive pre-amp on 2m and 70cm contributes to the FT-847's amazing sensitivity figures. Advanced Digital Signal Processing (DSP) circuitry enhances received signal/noise ratio for easier copy of signals under marginal conditions through the use of 16 selectable noise reduction algorithms, while the Bandpass and Auto-notch filters aid the IF based Shift and Noise Blanker circuits in reducing interference on crowded bands.

The FT-847 is ready for satellite operation, with crossband full duplex operation, normal and inverted VFO tracking of the satellite uplink/downlink, as well as 12 special satellite memories with alpha-numeric tags. Also provided is a low-noise Direct Digital Synthesiser (DDS) that provides tuning steps as small as 0.1Hz, plus there's an adjustable DSP bandpass filter as narrow as 25Hz for exceptional weak-signal CW performance. You can also install optional Collins® mechanical filters in both the transmit and receive chain for enhanced SSB operation, as well as a 500Hz Collins® filter in the receiver side for CW. An effective speech processor with adjustable frequency shift voice tailoring is also provided to add punch to your SSB transmissions. The FT-847 is ready for data modes, with a rear panel Data In/Out socket and a packet socket for 1200/9600 baud VHF/UHF operation. Other features include extended receive operation (36-76, 108-174, and 420-512MHz), a high-speed computer control interface, 10-key keypad for band/frequency entry, and a shuttle-jog tuning ring for fast QSY. Also included are encode/decode CTCSS and DCS operation, selectable channelised steps for FM operation, FM narrow/wide modes for 29MHz use, and a large LCD screen with adjustable backlighting.

Each transceiver is supplied with a hand-mic, DC power lead and a comprehensive instruction manual. Call us for a copy of Yaesu's 6 page colour brochure to learn more about this incredible value 'Earth Station' transceiver.

D 3425

2 Year Warranty

$2995

SCOOP PURCHASE!

SAVE $441

Offer expires 30/12/01

DICK SMITH ELECTRONICS

That's where you go!

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Linden S Orr	VK1LSO

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Mon-Fri 1100-1400)
Phone 02 9669 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Pat Leeper	VK2JPA
Treasurer	Chris Minahan	VK2EJ

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Old. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Bill Riis	VK4YCU
Secretary	Bruce Jones	VK4EHT
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	David Minchin	VK5KK
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@iinet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http://www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $70.00. Without *Amateur Radio* $48.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $83.00 Pensioner or student $71.00. Without *Amateur Radio* $52.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3565kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $67.00 Pensioner or student $61.00. Without *Amateur Radio* $36.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $52.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

The guest speaker at the general meeting of September 24 was Olaf Moon (VK1JDX). Olaf spoke about DXing and Contesting. Being very active in these operations over a number of years, he collected much experience in this aspect of the hobby. Supported by an electronic slide projector, Olaf demonstrated the tricks of the trade to increase the average number contacts made and how to stay fresh and alert during nighttime contesting. Many unusual terms and jargon used by Contesters were explained, together with details of where and how to get data on propagation, newsletters, and sudden openings to particular places.

Our Treasurer, Ernest Hocking, (VK1LK), has resigned from the position due to Federal commitments. Ernie is kept so busy with E-mails, snail mail, phone calls, writing reports, and work, that he hardly has time to come to regular meetings. The Committee has appointed a successor to the Treasury by the name of Linden S. Orr (VK1LSO).

Linden is an accountant with many years of experience in finance. We wish her well.

A change is about to occur in the Division's Website. http://www.vk1.wia.ampr.org

A new page, entitled "Speakers Bureau" will be part of the site by the time you read this. This page contains a list of speakers who have spoken to their subject at one of the Division's general meetings in the past, and, in the future. With all Clubs and Divisions participating, the list will be a valuable asset to program organisers, nationwide, looking for speakers on particular subjects. Check it out Folks!

On November 24, 2001 a Trash & Treasure meet will be held in the parking lot of the Scout facility in Farrer, starting at 12.00 pm. The Farrer Hamshack will be open for inspection as well. Rectangular tables (3) can be hired for $10.00 each, on the day. Cars should be parked with their boots facing the centre of the car park. There will **not** be a general meeting on November 26, 2001. The next General Meeting will be held on Monday, January 22, 2002. Cheers.

VK3 Notes

By Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
e-mail: wiavic@wiavic.org.au

Club & group forum

Following on from the success of the amateur radio stand at the Great Australian Science Show (GASS) earlier this year, which brought radio clubs and WIA Victoria closer together, a forum has been called for 15 November.

An invitation has been sent to all radio clubs to attend. It is limited to club presidents or their nominee, and one of other member of each club. The aim is to build on the experience of GASS and provide an opportunity for the informal interchange of information and ideas.

IRLP update

Steady progress is being made in support of the linking of amateur repeaters through the Internet Repeater Linking Protocol (IRLP), and nodes for this are steadily being licensed. It was pleasing to note that IRLP being used for the first time this year during JOTA, and no doubt it will become a permanent feature. In less than a year IRLP has become well established and gaining a reputation for increasing on air activity.

WIA submissions

The WIA has been concentrating on two key issues in recent weeks. The first is the Productivity Commission Review into Radiocommunciations legislation and the role of the Australian Communications Authority, and the draft Spectrum Plan.

Productivity Commission Submission

A detailed submission was prepared by the WIA and submitted to the Productivity Commission. This took considerable effort, but the rare opportunity of such a review could not be ignored.

Among the key points of the submission are that the WIA continues to seek a special operator type licence for the Amateur Service. This is because amateur radio does not fit into the three existing types of licences in the Radiocommunciations Act, the Apparatus, Spectrum and Class. The WIA submission highlighted the educational role and community benefits of amateur radio and called for the Amateur Service to receive formal recognition in Australia. While preparing that document, the WIA has also been busy examining the ACA's draft Spectrum Plan. This is the blueprint for the use of spectrum in Australia, and is infrequently revised. The WIA is considering the opportunities the revision presents, and these include the pursuit of an LF band, clearly labelling 50-52MHz as a future primary allocation, and maybe some issues concerning microwave bands.

Repeater report

Despite some earlier success in getting the South Gippsland repeater VK3RSG back on air, it appears that the inundation of water put an end to it. The site is to undergo the installation of new equipment and other work, and the timing of the restoration of this repeater is uncertain. Another repeater inactive for a long time, Mt Fatigue VK3RGS, is also on a program for works, and likely linking to VK3RSG.

VK4 Notes

Qnews

From Alistair Elrick VK4MV

Co-operative construction

Logan West Amateur Radio & Electronics Club has had a working bee with the Greenbank Scouts. President Peter VK4JPH reports that this joint venture between the Club and the Scouts will see a 33-metre tower to carry antennas and lighting equipment erected. This month also saw an excellent demonstration and explanation of the new IRLP mode now available. Andrew VK4BAB is to be thanked for the presentation. Then next month Ron Bertrand will talk about his most successful Amateur Radio Education Course.

Slow scan up and flying

The Murrumba Communications Group has announced the Groups Slow Scan Television repeater VK4RSS ON 438.575 MHz is now back in service. John VK4ET operates a software based repeater in conjunction with VK4RSS and this can be accessed by sending a 1750 Hz tone through VK4RSS for one second and this will be acknowledged by the letter K in Morse. Upon hearing the letter K transmit your picture within ten seconds and VK4ET's repeater will store the pictures and then retransmit them back through VK4RSS. Pete also thanks Bruce VK4BOO for his expertise in fixing a mysterious fault that developed causing the shut down and inconvenience to fellow users.

Museum to open

On Tuesday the 2nd of October a museum of Radio and Recorded Music was opened at FM Radio Station 4MBS in the Brisbane suburb of Coorparoo. Quite a proportion of the display is from WIAQ Historian Alan Shawsmith VK4SS. This will be well worth a look. Perhaps Radio Clubs could organise an outing to visit the display. The 4MBS programming is first class as well. (Sorry Graham, 4TAB's is great too).

Sunshine Coast on PSK31

Resulting from an initiative by Len VK4ALF, some 25 members of the Sunshine Coast Amateur Radio Club Experimenters Group gathered at the clubrooms last month to assemble PSK31 Interface Kits. Len's six-year-old son Joel successfully completed a kit, which Len reported, worked first time with a contact into VK3. Further projects are planned, but in the meantime watch out for increased PSK31 activity from the Sunshine Coast. The Club is also mounting Amateur Radio displays for the general public at local Libraries this year. Maroochydore will be from 8 October to 20 October. The REDSUN Rally this year between the Redcliffe and Sunshine Coast Clubs will be organised by SCARC President Dave VK4KDL and Olga will set the observation rally course and hide the Fox. The date is Sunday 25th of November. The rally will start from the Southern Car Park, Ettamogh Pub 10.00am, finishing at the clubrooms at Godfreys Road, Bli Bli. SCARC are also planning a foxhunt, Ron VK4GZ will organise this starting from the clubrooms at 10.00am, Sunday 28 October. Busy time on the coast it seems.

Silk screen printing

The Townsville Amateur Radio Club (TARC) have many and varied activities. One of the latest was a session printing T-shirts with the silk screen method. All this fun was had at the West End SES HQ. President Og (Gavin) VK4ZZ led the printers and Wallaby Bob wielded the Squeegee. Just about anything not nailed down was a target for printing by the sound of it and marks were given for outstanding efforts during the day. Sounds like a great way to have walking billboards advertising Amateur Radio and your Club. They are also getting ready for the Cyclone season and it might be a good idea for others in the rest of the State to do the same. Remember we should always be able and available to help with communications if disaster should strike. So charge all those batteries now.

73's from Alistair

VK7 Notes

QRM

An interesting piece of history has surfaced – brought to light by Bob, VK7KRR. The original application and the licence documentation for out first Tasmanian repeater, VK7RAA, was displayed at the October meeting of the Northern branch. It shows that the licence was issued on the 21st October 1971 which makes this year the 30th anniversary for this very reliable repeater. All our main repeaters are on mountain tops around the state – this one is at about 1500 metres on Mt Barrow, just east of Launceston.

Our southern branch members are rekindling their interest in ATV. Kim, VK7DY, has built up two 1.25gig antennas and is presently waiting on a transmitter kit for this frequency. More news to come on this. Their November meeting is a visit to the Communications room of the Tasmanian Fire Service.

The Tasmanian office of the A.C.A. has relocated to the second floor of 147, Macquarie St. Hobart – previously they were on the ground floor. All "peripherals"- phones etc remain the same.

The first transmission in the Southern Hemisphere using the Marconi system was between Tasmania and Victoria in 1906. Transmitters and antennas were set up on the foreshore at Devonport and Queenscliffe and it was the hot news item of the time. While this was 5 years after Marconi's first transmission across the Atlantic the Northwest branch is anxious to commemorate the 100th. anniversary of the transatlantic transmission by setting up a station on the original Devonport site in collaboration with the Devonport Kite Club. Due to the fact that Kite club members have problems with the closeness to Christmas the date at this stage could be Sunday afternoon, December 9th. Early pictures show a box kite being used but there is apparently a query about this. We would like to hear from any other club planning a Marconi celebration. E-mail to the writer at Ron.Churcher@tassie.net.au would be appreciated. A fax to VK7RN at 03 64246830 will also suffice.

Cheers for now, Ron, VK7RN.

Robin L. Harwood VK7RH

The world tunes in to terroism

On the 11th of September at approximately 1247 UTC, the first of several momentous events happened in the city of New York, when a jetliner crashed into the North Tower of the World Trade Centre. Just a very short 18 minutes later, a second plane crashed spectacularly in the South Tower. This was captured on video from several locations. After this second crash, it quickly became apparent that this was the result of a major terrorist action. Whilst President Bush was confirming this, a third plane hit the nerve centre of American military power, the Pentagon. A fourth aircraft crashed into a rural location, apparently as the result of the passengers overpowering the hijackers.

I was holidaying on Queensland's Sunshine Coast and listening to shortwave was the last thing on my mind. I was awakened by my Mother at around 6 am (2000 UTC) and told that 10,000 people had been killed from two planes that crashed into a skyscraper. I did not fully grasp the information and in my befuddled state, I tried to turn on my insensitive "Digitor" multiband radio. I eventually found the ABC in Brisbane on 612 kHz and had it quickly confirmed. I then alternated between it and the VOA on 17740 kHz.

I was summoned to the TV and to the full scale of the horror and carnage. All the TV stations were carrying live coverage, many with CNN. We sat transfixed for the entire day. I did notice even the small Brisbane community station on channel 31 was at times carrying the BBC World and even video from the VOA studios in Washington.

Tuning across the dial, it quickly became clear that the BBC World Service had pre-empted their regular programming into one stream. This continued for the next two days. The news from NY so dominated the news that it was the sole topic covered in all forms of the media and still does. The reaction to this horrendous event quickly altered the shortwave with major broadcasters introducing extended programming particularly to Iran, Afghanistan and Pakistan. This is the region that the US says is the source of the terrorist group they claim was responsible.

The security of military and civilian aeronautical communications was firmly tightened. The various utility lists also stopped posting military loggings in case these groups could use information. A united worldwide coalition of governments sprang into being, primarily led by the US, to combat terrorist actions.

Attention also turned to Afghanistan. About 90% of the nation is controlled by a hard line Islamic group known as the Taliban, which has strictly imposed a literalist interpretation of Islam. This regime has actively supported the terror group led by a dissident Saudi individual known as Osama Bin Laden.

The only shortwave- broadcasting outlet the Taliban regime had was a very erratic sender, ironically within our exclusive allocation on 7 MHz.

> In a few short weeks, the world has changed and once again shortwave has come into its own.

The Kabul regime is extremely suspicious of any electronic technology, with television and the Internet banned. It is forbidden to take film or photographs of any living being; broadcasting music is prohibited so official information plus Islamic teaching is the only fare available.

The sender is very erratic and is nominally supposed to be on 7200 yet is around 7085. They have been reported as being on around 1530 UTC with several short news bulletins including English. However there are some clandestine stations also operational around here at the same time, mostly backing the Kurds in northern Iraq. The Taliban station is known as the "Voice of the Sharia"

There is another faction in the northern part of Afghanistan, controlled by a disparate coalition of anti-Taliban forces, which was under the control of an equally bloodthirsty individual – General Masood. Just two days prior to the WTC outrage, he was assassinated while recording a television interview. They too have a small shortwave-operation yet reports state they mainly utilize FM stations plus a television station.

Naturally the Americans were going to launch a retaliatory counter-attack and have managed to obtain support from many nations in a grand coalition against terrorism. This brought together many former adversaries in a common cause. But it also has led to increased tension and suspicions particularly within the worldwide Islamic community. It has been very interesting to follow developments and opinion on shortwave from countries such as Iran and Pakistan. Israel has also been the focus of attention.

As I was compiling this month's column, the counter strike was launched on the 8th of October, when American and British air power commenced bombing airports and suspected terrorist bases within Afghanistan. My receiver is tuned both to the BBC World service and also on known US HF military frequencies. I shall also be paying attention to Middle Eastern broadcasts from Israel, the United Arab Emirates, Pakistan as well as Radio Tashkent in Uzbekistan. Another key and firm ally has been Russia and they too are worth monitoring.

I would not be surprised if the antiquated radio facilities in Kabul on 7085kHz have been destroyed but that is yet to be determined. The Northern Alliance Afghanis may also appear over shortwave and are likely to be on the tropical band allocations of either 60 or 90 metres. There are reports that the US will be employing radio psychological warfare units but these are likely to be short range and probably on MW or FM.

In a few short weeks, the world has changed and once again shortwave has come into its own.

Keep listening for the unexpected and 73- Robin L. Harwood VK7RH

ar

Bill Magnusson VK3JT

PCsat, Sapphire and Starshine successfully launched

The "Kodiak Star" mission was launched from the Kodiak Launch Complex in Alaska at on 2001 Sep 30 02:40 UTC. The Kodiak Star payload included the APRS-equipped (Automatic Position Reporting System) PCSat, built by students and staff from the U.S. Naval Academy under the guidance of Bob Bruninga, WB4APR. PCSat is a 1200/9600-baud APRS digipeater designed for use by amateurs using hand-held transceivers or mobiles. Bob reported that PCSat successfully separated and immediately began transmitting 1200 baud AX.25 AFSK telemetry on 145.825 MHz. As of 2001 Oct 03, PCSat had been enabled for user access.

On the same launch with PCSat were the Starshine-3 and Sapphire payloads. Starshine-3 is a 'mirror ball' similar to Starshine-1. The satellite is equipped with AX.25 9600 baud telemetry on 145.825 MHz. Sapphire has 1200-baud AX.25 telemetry and a voice replay on 437.100 MHz. Signals from both PCsat and Sapphire have been reported from all over the globe and many visual sightings of Starshine have been noted. So far I have received no reports of signals from Starshine's 2 metre beacon. Odd signals have been heard on the shared frequency of 145.825 MHz and these may indeed have come from Starshine.

All three satellites are orbiting very close together and this situation will continue for some time. Only when sufficient separation has occurred will NORAD be able to get an accurate radar fix and finally determine which is which. This is a common happening on multiple launches. Some weeks could elapse before the true identities of the individual birds will be known.

I'm writing this on the evening of October 10th and on this evening's passes of PCsat the closest match to its actual position were the keps for Starshine. The PCsat keps were over 5 minutes out. It certainly looks like they have these two objects transposed in the list.

PCsat signals loud and clear over Australia and New Zealand.

Since the launch of PCsat some friends and I have been liasing on HF and tracking the satellite on 2 metres. We all use the program, Ulview, to capture the data and display the locations of the digipeating stations. Hopefully when the satellite's GPS system is fully operational we should also be able to track it on the large area maps while it transmits its own position using APRS frames containing lat/lon co-ordinates. Although I haven't witnessed it myself, some reports are to hand of this being done already from time to time.

PCsat is primarily aimed at mobile and portable APRS stations, allowing them to digipeat their latitude and longitude position(s) so others can track their movements in real time. This can be done on a suitably scaled map which can vary from showing all of the world, down through smaller quadrant maps showing S.E Asia (VK and ZL and the island to our north) or on maps showing fine detail down to state-wide or metropolitan level and even local main roads and streets. Very great accuracy indeed is possible if a GPS receiver is coupled to the transmitting gear of the mobile station. In fact, the accuracy of your map will be the limiting factor. I recently watched as a mobile station in VK4 moved across a street map of Brisbane and suburbs. He was transmitting his position every minute or so via PCsat.

It's a bit like an amateur radio version of the "Intergraph" system used by our Police and Ambulance services to track their vehicles and patrols. Most large centres of population in Australia already have an enthusiastic group of amateurs, promoting APRS activities, who have established themselves on VHF or UHF. Many of these groups maintain links via the Internet and if packets are suitably addressed they can be digipeated via this medium too.

Ulview can be downloaded from the 'Peak Systems' web site in England. To listen in and watch the activity on this exciting aspect of satellite operation you just need a standard terrestrial packet setup on 2 metres – 1200 baud – AFSK. A good all-sky antenna such as an outdoor-mounted ground plane with a mast-head pre-amp will return loud signals for most of each pass. If you can make your packet station mobile or portable you can take full part.

Make contact with your local APRS group. I'm sure they will already be aware of and using PCsat and be able to help you along the way. Some of the newer range of radios come with the capability for packet radio decoding and display built-in. One of these would greatly simplify your portable/mobile setup and would be suitable for taking outdoors, perhaps even on walking trips.

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141,
Adelaide, SA. 5001.

Graham's email address is:
vk5agr@amsat.org

One of the prime aims of PCsat is to provide a means of monitoring for emergency communications. The software allows your digipeated frames to include a short message, perhaps even a request for assistance. Bob Bruninga has put in an heroic amount of work in developing the APRS system over the years and now his involvement in the PCsat project has crowned these achievements. He and his team of midshipmen at the USA Naval Academy are to be congratulated on the stunning success of this very ambitious project.

For more information, visit the PCSat web site at:

http://web.usna.navy.mil/~bruninga/pcsat.html

Sapphire data an be found at:

http://ssdl.stanford.edu/aa/projects/squirt1/sapphire_overview.html

Starshine information can be found at:

http://www.azinet.com/starshine/

The above information was gleaned from Amsat News Service bulletins.

We live in exciting times

While going through some old 5 inch floppie disks recently, I realised that the first AMSAT column I wrote was over 10 years ago! Perhaps a moment to reflect on this would be appropriate.

I took over the job from Maurie Hooper VK5EA in October 1991. Some excerpts from that first column: Oscar-17 (DOVE) was nearly two years old and was showing the first signs of the instability, which was later to claim it. Oscar-16 (Pacsat) was blazing the way with new protocols and modulation methods which have gone on to spawn a new generation of digital amateur satellite communications. Today's 38k4 birds owe a lot to those heady days.

Dr Karl Meinzer had startled the amateur radio satellite community with his suggestion of putting an amateur radio transponder on a Mars rocket. He's still doggedly working on this one.

It was very interesting to read that the best telemetry decoding and display software available was still DOS based, written by the University of Surrey team. Again from Surrey, their latest offering, UoSat-14 was taking up the challenge set by PacSat and offering CCD earth image downloads at 9600 baud using the revolutionary new "broadcast-protocol" which went on to pave the way for Chris Jackson's famous WiSP program and a whole new era in digital satellite comms for amateurs.

We can look back at all that has happened in the meantime and at recent developments like 38k4 download speeds from the UoSats and the move deeper into the microwave region with AO-40. Who would have dreamed 10 years ago of a satellite with 24 GHz capability? – The phase 3d development team did, that's who! We certainly live in exciting times.

ar

Club News

Adelaide Hills Amateur Radio Society

The September meeting for AHARS was enlightened about stepper motors by Jim VK5JST. It is amazing what these simple and clever devices can do. The variety of number of steps etc of which they are capable also opened a number of eyes.

With stepper motors being used in most computers they are readily available from disposal stores so it is very likely that some of the applications we were shown will be tried out by the AHARS members in future projects.

It so happened that a visitor had his telescope (onto which he has added a stepper motor as a star-follower) in his car. He brought this part of the mechanism in at the end of the meeting as another practical demonstration to add to those Jim had shown us.

If you are in Adelaide for the third Thursday of the month, do come along to the Blackwood High School at 7.30. All are welcomed

AHARS also has an informal luncheon on the second and fourth Friday of the month at the Blackwood RSL. The group that gathered a couple of months ago appears in the photo.

QSP new club established

The BASS IRLP Group was formed at Rosebud on Monday 27th August.

The aim of the club is to promote amateur radio. It will provide help and encouragement to both established and beginner amateurs, with special help in the use and operation of IRLP.

The Group currently has a simplex node on 146.475 MHz. Eventually the IRLP will be fitted to the Arthurs Seat repeater site on 439.725 MHz.

Club details:

Address BASS IRLP Group
PO Box 368
Rosebud Vic 3939

Phone/fax Graham VK3JBO 5982 0315
Neil Bright VK3TNB 0418 101 927

E-mail nbright@bigpond.net.au

ar

Contests

Ian Godsil VK3VP

Contest Calendar November 2001 — January 2002

Nov	1-7	HA-QRP Contest		
Nov	3	Spring VHF Field Day		(Oct 01)
Nov	4	High Speed Club CW Contest		
Nov	4	NZART Straight Key Night		
Nov	9-11	Japan International DX Contest	(SSB)	
Nov	10/11	WAE RTTY Contest		
Nov	10/11	OK/OM DX Contest	(CW)	
Nov	17/18	LZ DX Contest	(CW)	
Nov	17/18	All Austrian 160m DX Contest	(CW)	
Nov	17/18	IARU 160m Contest	(CW)	
Nov	24/25	CQ WW DX Contest	(CW)	
Nov	24/25	CQ WW SWL Challenge	(CW)	
Dec	15/16	ARRL 10 Metres Contest	(CW/SSB)	
Dec	15/16	10 Metres SWL Contest		
Dec	15	OK RTTY Contest		
Dec	15-16	Croatian CW Contest		
Dec	15-16	International Naval Activity	(CW/SSB)	
Dec	26	Ross Hull Memorial VHF Contest begins	(CW/SSB/FM)	(to Jan 13 2002)
Dec	29	RAC Canada Winter Contest	(CW/SSB)	
Dec	29	16th Internet CW Sprint Contest		
Dec	29-30	Original QRP Contest	(CW)	
Dec	29-30	Stew Perry 160 Metres Distance Challenge	(CW)	
Jan	12/13	Summer VHF Field Day		

Greetings to all readers. Summer is a-coming, so now is the time to get the VHF gear out and tuned ready for the Spring and Summer Field Days and the Ross Hull Memorial Contest.

I am pleased to be able to bring you some results this month. Details below.

As I said last month, it is most upsetting to see so few participants and logs submitted for our own contest events. I think that the time may be approaching when the whole area of contesting in VK may need to be put under the microscope. However, as you will see from the results below, not only are local events not being well-patronized, but some of the really interesting and achievable world-wide contests do not attract logs from VK/ZL either. I suspect that some of these events attract participants, but there it stops. I know that I have asked *why?* previously, so shall not do so again.

Contests that are for RTTY and PSK31 are just as interesting as the CW/SSB types – and I hear chaps talking on the air about how they are "getting into" PSK31, so there must be many of you now equipped and experienced to try your hand in an alternative-style contest. Please think about it!

On the other hand, not everything is negative. I am most pleased to see some new Callsigns in the results below, e.g. John VK5NJ, Alex VK2KET and Garry VK7JGD. This is most encouraging and I hope that they will develp their interest during 2002. Congratulations and thanks to each of you.

Final reminder about the VHF Spring and Summer Field Days. The dates are in the Calendar, so please get them into your diaries NOW! Look forward to working you — (makes a good change from Christmas shopping and worrying about how to pay for it all).

Good contesting and 73, Ian Godsil

Results Pacific 160 Metres Contest 2001

A total of 20 logs was received for this year's event. My sincere thanks to everyone who took the trouble. Your efforts were much appreciated.

Conditions were not favourable between ZL and VK this year; nevertheless, some lucky (ie well-set-up) stations made a fair showing. A number of ZL stations heard some DX but could not work it. Full details are listed below.

I commend the effort of Bob VK3ZL in both modes. As you know, Bob is a well-known and very experienced 160m operator who reaps the benefit of a well-designed antenna system.

I also commend the efforts of newcomers John VK5NJ and Alex VK2KET. John is becoming known for his successes in VK/ZL contests and often operates QRP. Alex, on the other hand, is solely QRP working around 2-3

watts and learning of the enjoyment to be had in reaching for CW signals. My sincere thanks to each of you, as to everyone else, and please call again next year. In fact I look forward to hearing you ALL again in 2002.

Whilst writing about participants, I am sorry to report that newcomer John VK3ET was taken ill about half an hour into the contest and had to call for an ambulance. John had contacted me some time before the event and expressed great interest in this contest and in getting back onto 160 metres after an absence. We hope that you are now feeling much better, John, and many thanks for at least sending a Check Log.

73, Ian Godsil VK3VP Contest Manager

Section	Place	Call	Name	Score
MIXED	1	ZL3REX	Rex	1170 points
	2	VK5GN	Martin	670
	3	W8JI	Tom	385
	4	VK3ER*	EMDRC	266
	5	VK3YE	Peter	210
	6	VK2AVQ	Bob	125
SSB	1	VK7CK	Frank	336
	2	VK3ZL	Bob	175
	3	ZL1BRY	Hector	168
	4	VK7JGD	Garry	95
	5	ZL2DW	David	42
CW	1	VK3ZL	Bob	1312
	2	VK3BKU	Don	638
	3	VK2QF	Nev	306
	4=	VK2AYD	David	60
		VK3VP	Ian	60
	6	VK5NJ	John	44
	7	VK2KET	Alex	16

CHECK LOGS VK6HD VK3ET Thank you.
*EMDRC operators: VK3s XOR NM FT SRB WWW

Statistics:

Logs by postal mail—Mixed 5, SSB 4, CW 3, Check 2
Logs by e-mail—Mixed 1 SSB 1, CW 4
Total—20

Results Novice Contest 2001

From Ken Ramplin VK2UTC, Contest Manager

Sadly, only four logs were received this year, so some serious thinking will have to be done. Anyway, thanks for the support from the four of you. 73, Ken, VK2UTC

Susan VK7LUV 32 points.

Keith Howard VK2AKX Trophy for Novice with highest phone score;

Certificate for top-scoring Novice in VK7 and Certificate for highest phone score.

Garry VK7JGD 29 points SSB section;

Lloyd VK2VZB 18 points Clive Burns Memorial Trophy for Novice with highest CW score and Certificate for top-scoring Novice in VK2;

Ian VK3VP 50 points Certificate for highest CW score.

Results CQ WW RTTY WPX Contest 2001

Single Operator, All Band, Low Power
VK4UC 241,490 points

Results 2001 Commonwealth Contest

From Bob G3PJT, Contest Manager

Open Section–Oceania-Results (Q/B)

Pos	Call	80m	40m	20m	15m	10m	Total	QSOs	BCAs
6*	ZL4CC	12/11	108/40	257/55	218/48	205/55	8062	800	134
9*	VK4EMM	13/13	73/37	237/54	197/44	169/42	7209	689	111
11*	ZL6QH	36/22	98/29	224/52	168/37	149/46	7080	675	105
15*	VK2AYD	12/12	44/28	243/52	175/32	115/37	6150	589	99
16*	ZL1MH	21/16	55/35	149/41	165/38	112/45	6006	502	101
19*	ZL2BR	12/12	30/26	156/47	166/32	84/45	5474	448	99
26	ZL2AZ	22/18	63/32	88/31	53/31	52/35	4328	278	92
56*	VK6HQ		21/15	135/33	35/26	22/5	2598	213	48
58	VK2YN	8/8	14/13	83/33	55/19	10/10	2503	170	55
61*	VK3ZC	7/7	24/22	47/30	17/17	8/8	2181	103	57
63	VK2EL		12/12	53/28	35/18	16/15	2011	116	48
65	ZL2TX		23/13	92/36	10/10		1901	125	35
71	VK2DID		12/12	30/22	8/8	11/11	1341	61	43
73	VK4XW		3/2	24/18	25/9	13/13	1152	65	28
78*	VK8HA		4/4			46/28	886	50	22
79*	VK5HO	1/1	15/14	8/8	7/7		736	31	22
81	VK3KS			22/21			519	22	13

** Certificate of Merit*

Restricted Section

Pos	Call	80m	40m	20m	15m	10m	Total	QSOs	BCAs
4*	VK2BJ	13/13	66/28	146/37	145/30	113/36	5287	483	93
9*	VK6VZ	16/10	65/15	170/37	120/19	133/27	4642	504	72
10	VK2APK	9/9	30/27	207/40	94/30	45/28	4587	385	85
16*	ZL2CD	8/8	30/20	77/30	95/26	36/31	3501	246	70
25	VK6AJ		6/5	121/32	40/21	104/22	2922	271	53
30*	ZL1HV	4/4	15/14	39/29	34/26	24/24	2514	116	67
44*	VK5GN	2/2	6/6	23/21	54/23	60/14	2012	145	49
49	ZL1AIH			12/11	28/23	29/28	1535	69	41

** Certificate of Merit*

HQ Stations

Pos	Call	80m	40m	20m	15m	10m	Total	QSOs	BCAs
1	VA3RAC (VE3KZ)	75/22	172/39	250/59	242/45	228/40	8861	967	99
2	GB5CC (GM3WOJ)	103/17	142/32	194/58	186/53	145/45	7923	770	115
3	VK4WIA (VK4TT)	9/9	28/25	168/39	101/32	104/39	4887	410	87

Checklogs from G3HAL, G3KXF, G3SXW, G3TXF, G3WP, G3XMM, G8DR, ZL2AOH, ZL2RX and ZL2ZLW are gratefully acknowledged.

ResultsWaitakere Sprints 2001

The tenth running of the Waitakere Sprint was held on the 29th August (SSB) and 5thSeptember (CW) with reasonable conditions on both nights. I had the impression on the night, that numbers were down, but scores seem to be as good as in previous years. From the logs we learn that 110 stations exchanged numbers in the SSB contest and on CW, 70 stations were active.

With 59 logs received (although down from 72 last year) the sprints are still very popular. But where are all the operators in ZL3 land. One operator asks 'Has CW been banned in ZL3' ?

We would like to take his opportunity to congratulate the winners in the various sections. John VK5NJ scooped the pool this year with overall wins in both SSB and CW, and is again the Sprint Champion. First ZL on SSB was John Elvy ZL2BAY and Paul Slako ZL1PC, will receive the Special framed certificate donated by VK5NJ for the highest score ZL in the CW contest.

We at Branch 03 hope that you enjoyed the contests and we thank you for your participation we hope you will join us again next year.

Waitakere Phone Sprint 2001

Call	Points	Area	Certificate
VK5NJ	56	vk	1st Overall
VK5SR	41	vk	2nd VK
VK4SN	29	vk	3rd VK
VK3DYL	20	vk	
VK4FJ	20	vk	
VK5ET	6	vk	
ZL1ALZ	45	zl1	1st ZL1
ZL1UF	43	zl1	
ZL1OS	40	zl1	
ZL1WT	38	zl1	
ZL1UTE	36	zl1	
ZL1BRY	34	zl1	
ZL1JL	34	zl1	
ZL1TW	34	zl1	
ZL1UD	34	zl1	
ZL1BVK	33	zl1	
ZL1ACZ	32	zl1	
ZL1WI	32	zl1	
ZL1ASZ	24	zl1	
ZL1VRR	18	zl1	
ZL2BAY	46	zl2	1st ZL2
ZL2AJB	43	zl2	
ZL2AWH	40	zl2	
ZL2BRS	40	zl2	
ZL2ADN	35	zl2	
ZL2FE	28	zl2	
ZL3GL	26	zl3	1st ZL3
ZL4IM	32	zl4	1st ZL4
ZL4HD	13	zl4	
ZL4OZ	12	zl4	
VK2LCD	47	swl	

Check logs gratefully received from:-
ZL1AKY ZL1ALK ZL1MW

Waitakere CW Sprint 2001

Call	Points	Area	Certificate
VK5NJ	33	vk	1st Overall
VK4SN	21	vk	2nd vk
VK2QF	19	vk	3rd vk
VK3VP	14	vk	
VK3BBT	13	vk	
VK5DC	11	vk	
VK5ET	2	vk	
ZL1PC	29	zl1	1st ZL1
ZL1ALZ	28	zl1	
ZL1AIH	27	zl1	
ZL1BYZ	25	zl1	
ZL1TW	25	zl1	
ZL1WI	21	zl1	
ZL1ASZ	18	zl1	
ZL1WT	18	zl1	
ZL1UD	12	zl1	
ZL1ACZ	11	zl1	
ZL1BVK	9	zl1	
ZL1UF	5	zl1	
ZL2AJB	27	zl2	1st ZL2
ZL2ADN	22	zl2	
ZL2BIF	22	zl2	
ZL2AVL	17	zl2	
ZL2CB	17	zl2	
ZL4IM	11	zl4	1st ZL4

Combined Phone & CW Sprint Champion VK5NJ Score

Call	CW	Phone	CW +Ph	(x 2)
VK5NJ	56	33	89	178
ZL1ALZ	45	28	73	146
ZL2AJB	43	27	70	140
ZL2ADN	35	22	57	114
ZL1WT	38	18	56	112
ZL1WI	32	21	53	106
VK4SN	29	21	50	100
ZL1UF	43	5	48	96
ZL1ACZ	32	11	43	86
ZL4IM	32	11	43	86
ZL1ASZ	24	18	42	84
ZL1BVK	33	9	42	84
VK5ET	6	2	8	8

10 Metres SWL Contest

Sat 15 December – Sun 16 December
0000z Sat – 2359z Sun

Object: For all SWL stations to log DXCC countries, USA states and Canadian provinces on 10 metres only. No time restrictions. However, listeners may only log three stations from DXCC, US state or VE province. District of Columbia counts as a state.

Sections: Single Operator CW or Single Operator SSB. *Note:* Use of DX- or Packet Cluster not allowed.

Logs must show date; time UTC; callsign of station heard; exchange at SWL's QTH; DXCC, State or Province. (RS(T) must be at least 33(9).)
Callsign of station being worked is not required.

Score: five points for first station in each DXCC country, US state or VE province. Second station scores two points and third station three points.

Final Score will be total of station points X number of States and Provinces X number of DXCC countries heard.

Send logs by 31 January, 2002, by mail to: Lambert Wijshake, Kattedoorn 6, 8265 MJ Kampen, Netherlands. Logs may be sent by e-mail to: <nl10175@amsat.org>

NZART Straight Key Night

From Barry ZL1DD, Contest Manager
Sunday, 4 November, 2001
0800z – 1100z

Polish and lubricate that old morse key and enjoy an evening of old time radio fun. An activity night in which everyone can be a winner with a certificate to prove it.

When: First Sunday in November 2000-2300 NZST. 2001 = 04 November.

Band: 80m (3.5 MHz) only

Mode: CW sent with STRAIGHT KEY ie characters formed manually, no system of automatic dots, dashes or spacing permitted.

Divisions: Vintage QRP, Vintage QRO, Open QRP, Open QRO.

Explanation: Vintage: Receiver and transmitter or transceiver using valves, no solid state devices in the signal line permitted. QRP: 5 watts or less rf output.

Exchange: RST/ QTH/ operator's name (one word)/key used (e.g. ZC1, P&T)/ TX type (eg ZC1, FT1000, homebrew)/ TX power (watts).

Scoring: 1 Point per QSO. Stations may be worked once, CW to CW only. All stations submitting logs MUST use a straight key throughout, but straight key stations may QSO stations using bugs, electronic keyers or keyboards.

Multipliers: Vintage QRP multiply total points x2, Open QRP multiply x 1.5, Vintage QRO x 1.2, Open QRO x1.

Final Score: Total QSO points X totals multipliers.

Logs: Suggest using standard NZART log pages (not contest log sheets). Each log QSO entry to show: Time (NZST or Z), callsign, RST, QTH, name, key type, tx type, tx power (of station worked).

Logs to have associated data sheet giving entrant's: name, callsign, QTH, age (optional), full description of equipment used ie key, tx/rx, tx power, antenna.

Send logs by e-mail, mail, fax, ON OR BEFORE 20 NOVEMBER to: Barry Kirkwood ZL1DD, 66 Cory Rd, Palm Beach, Waiheke Island 1240, Ph/fax 09 372 5161. E-mail: <bjk@ihug.co.nz>

All who send a log will receive a certificate. Special certificates to top three in each division. Annotated certificates e.g. Best ZC1, Youngest/ oldest op, etc., at manager's discretion.

Any photos of operators and/or equipment gratefully received.

ar

Intruder Watch

Henry G Andersson, VK8HA, VK8 IW Co-ordinator

The federal IW co-ordinator has not yet been appointed by the Federal WIA VK8HA, our VK8IW co-ordinator was nominated by the VK5/8 division and seconded by the VK4 division and the nomination was tabled at the September 2001 federal meeting.

The Indon pirates on 14 megs have been moved to some extent from below 14100 to above 14100. There are stil 3 or 4 persistent fone patches which do appear now and again below 14100, but they do leave when told to do so.

The 'arecheay headhunters' around 14100 have also been dealt a blow by the Indon army who had a 'clean-up'

The 24890-24990 OHR at Howard Springs near Humpty Doo, will be checked out when new federal co-ord has been appointed.

In the meantime, please keep up the good work in IW and if you like to send your reports to VK8HA, it will be included in the VK8 monthly report to our reg.3 co-ordinator, Arasu, VU2UR.

Cheers and all the best from: Henry, VK8HA, Box 619, Humpty Doo NT.0836
vk8ha@octa4.net.au

International Amateur Radio Union, Region 3

Monitoring systems newsletter. September 2001.

All the members of monitoring systems of region 3 offer our heartfelt condolences to the family members of those killed in the attack on world trade towers, and to those families of officers of police and fire services of new york, who lost their lives while helping in the search and rescue of the victims.we highly appreciate our american brethren amateur radio operators, who have been managing the disaster communications.

The region 3 coordinator, heartily welcomes the nomination of OM Yang BA7JA of CRSA, who has been asked to organise and work on the monitoring systems work of CRSA. This is a very important addition to the existing ms group of the Region 3. we hope OM Yang will be very active in compiling MS reports, trying the unidentified Chinese speakers and deal efficiently through the crsa to get the non-amateur stations of Chinese origin, off our frequencies. I have been in touch with him regarding the items of interest to both of us and have requested him to look into items which are periodically reported as coming from China, in our monthly newsletters. His e-mail ID is ba7ja@hellocq.net for those interested.

Till the nomination of a federal MS coordinator from WIA is announced, I am utilizing the reports received from OM Henry VK8HA and OM Tom VK4BTW for the general information.

We had queries about the stations with data bursts on 20m band and the regular carriers at the lower edge of the 20m band.

For a query from OM Chen BA1HAM, in August 2001, regarding the data bursts on 14180 kHz heard in his area, reply from MS coordinator of R2, says that Region 2 has observed 4 channels with 400 hz separation and also heard on 14302.1 kHz from 1100 to 1300 UTC. Reply from international coordinator says that China's military has been heard on the other frequencies like 14206,14122,14042,14116,14182 kHz with similar data signals. these signals are operating for over a year and deciphering has not been possible. But, beam headings have indicated China. The other comments from Australian area by om Henry VK8HA is also included in the detailed report.

The frequency of 14042 kHz has been studied in detail and found to contain 4 channels at 500 Hz spacing sending data at 2.7 sec intervals, similar data transmissions have been noted on other frequencies as well. The FFT softwares used and the graphic views obtained are very useful in identifying if the station is VFT or not.

OM Chris G4BOH reported that the carriers on 14000 kHz was from Amman and the other on 14001 was from The Hague, as per his observations.

73, all the best.

compiled by:
B I Manohar "Arasu" VU2UR.
Regional Coordinator.
vu2ur@lycos.com

IARU Monitoring Service WIA

VK4 Summary For August 2001.

VK4 Co-ordinator Tom Walker, VK4BTW
QTHR : 13 Bothwell St., Toowoomba Qld. 4350 Australia

FREQ	DATE	UTC	EMM	DETAILS
3.560	0308	1050	A3E	Radio Pyongyang, N.Korea
14.0032	0108	0900	N0N	Carrier all day, occasionally some F1B
14.026	1907	0055	WBD	Multi-channel data
14.0584	1707	1130	J3E/u	2-way non-Amateur
14.060	2407	1145	J3E/u	Asian voices non-Amateur
14.0617	1707	1130	xxx	Tunable noise
14.1335	2307	0900	R7B	Strong data signal 'de Europe'
14.140	3018	0726	F1B	RTTY, 2 baud rates used
21.420	0408	0430	A3E	"Christian Voice", spur of 21.680 MHz from complex near Darwin.

dennisa@hypermax.net
Thanks, Tom

VK8HA Intruderwatch Report For August 2001

FREQ	DATE	TIME	MODE	COUNTRY	IDENTIFICATION & REMARKS
03560	3008	1030	A3	N.korea	Pyongyang broadcast. Big Signal!
14085	1608	1030	A1	?	FSK-CW-4 Letter/Fig Groups 330 Degs. Ib6,Vvv,Msg Ga,Ap Ga = A3ta +++++++++
14057	1608	1038	N0n	?	Some packet.also CW 8SKT in 360 Degs
14041	1608	1039	Pkt	China?	Bursts of pkt dally in 330 degs
14100	1708	1230	Ssb	Papua	Pidgin English in 30 degs
14010	1808	1115	Ssb	?	Not Indons. Kabul Mentioned At Times. 330 degs
14075	2708	1030	F1	?	Ui Tty. Closed At 1005
14280	1708	1200	A3	N.korea	Pyongyang.same As 7140
14301	2808	1205	?	?	'The Daily Dits' sending couple of dits per second on a daily basis!

14320	2808	1200	Pkt	China?	Intermittent bursts of packet
14295	2808	1210	F1	?	Multichannel
14280	2808	1210	A3	N.korea	Pyongyang broadcasting
14250	2808	1220	A3	N.korea	Pyongyang broadcasting
14142	2808	1225	F1	?	Multichannel
14125	2808	1230	Ssb	Indonesia	Indon pirates
14122	2808	1232	Pkt	China?	Chinese jamming Indon pirates!
14180	3008	1030	Pkt	?	Strong stn in 320degs.Weak stn in 300degs daily obs
14025	3108	1245	M7b	?	Multichannel In 315 degs..also heard via Longpath to Europe aprox 135 degs.with reduced signal strength
14250	3108	1300	A3	N.korea	Pyongyang broadcasting
14280	3108	1300	A3	-"-	-'-
18080	0108	1216	Ssb	Indonesia	Indon phone patch
18074	0708	1200	Ssb	India	Indian J3E similar to 18075
18076	1608	1020	Ssb	?	Chinese almost daily
18075	1608	1025	Pkt	India	Daily packet
21257	1008	1115	Xxx	?	Sounds like Habana Moon numbers stn
24890	3108	1220	A3	?	Weak broadcast station too low for ID

The 14180 packet stations were checked out from Humpty Doo, PH57NK, VK8HA.

The strong station is in aprox 320 degrees from here and the weak station is aprox in 300 degs. The line 320 degrees goes thru Darwin-V8-HS-Burma A5-S2-Northern VU-bottom China-Afghanistan-UA3 near Moscow.

The 300 degrees line goes thru Southern Borneo/ Kalimantan-Singapore-Malaysia-India-Saudi Arabia-Suez-Libya. They do not transmit at the same time Txing stops end of message waiting for reply from Rxing station. It looks like it could be a link between Afghanistan and Libya

This kind of packet does not seem to be self correcting

Cheers from VK8HA
in Humpty Doo
aprox 50km SE of DARWIN

ar

Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic 3128

Digi Box

There are a number of programs which use the sound card in a PC to provide generation and decoding of a variety of modes such as PSK31, MFSK16, MT63, Hellschreiber etc. These need the sound card to be interfaced to your transceiver. In Radioamatoori July 2001 two interface circuits were presented by Harri Laakso OH2LFV. Similar circuits have appeared in various publications and on the internet. There are also commercially available interfaces.

The two circuits differ in the provision of isolation between the PC and the transceiver. Isolation may be required to freedom from a variety of problems however in some situations the simpler circuit without isolation may suffice. The simpler circuit in Fig 1A. is the minimalist approach.

The circuit in Fig 1B. provides transformer isolation of both audio lines together with opto isolation between the PTT line and the computer serial port. This will minimise any problems of connecting a PC to a radio transceiver.

The composite parts list for both Fig 1A and Fig 1B is as follows :-

R1 2K2
R2 5K pot.
D1 1N4148
D2 1N4007
LED1 LED colour to suit.
IC1 4N25 Optocoupler.
TR1 2N2222
C1 4M7 35VW tantalum electro.
T1 & T2 600:600 Ohm audio transformers.

Note Components are for Fig 1A & Fig 1B so some may not be required in the version you build.

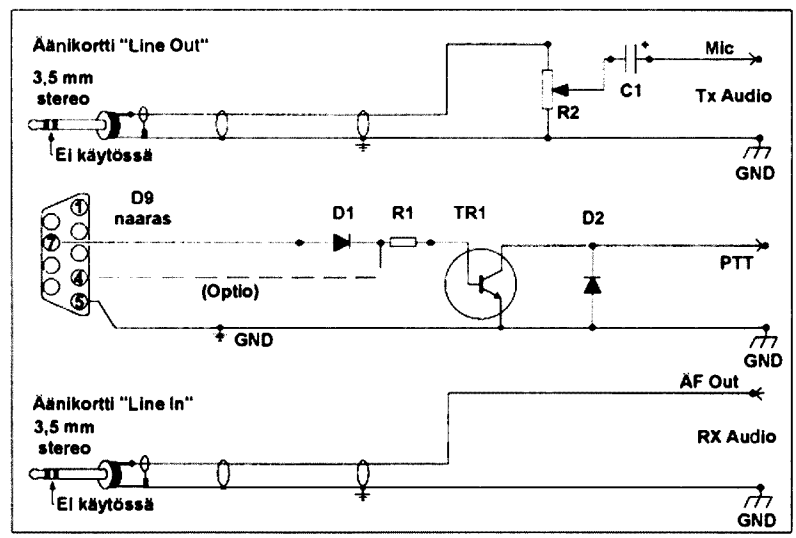


Fig 1A. Standard DigiBox.

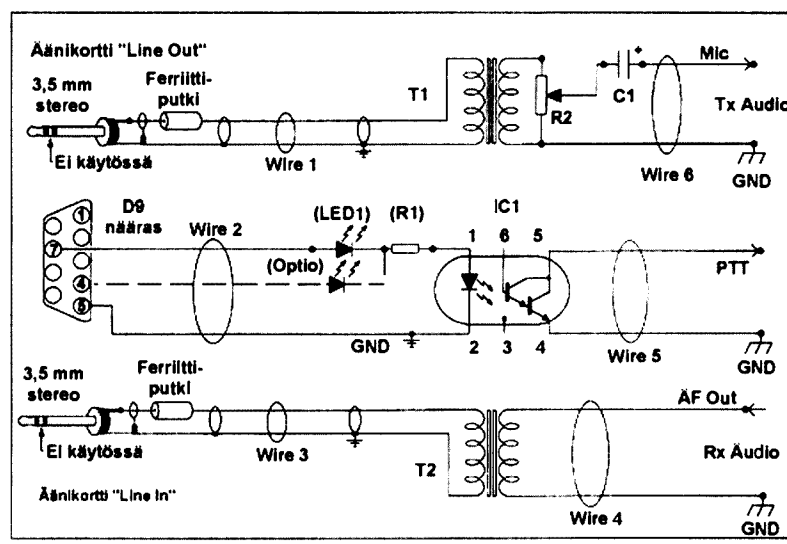


Fig 1B. DigiBox Deluxe.

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Drawing nations together

The recent terrorist attacks in the USA claimed the lives of a number of fellow radio amateurs, most of whom died while at work either in offices or as technicians/engineers manning the various radio and television transmitters located on the upper floors of the towers.

Their deaths are ironic; the international goodwill engendered by the hobby of amateur radio has in the past brought us closer together as a global community.

But unfortunately there are others whose aim is to drive communities apart for their own reasons. We must not let them succeed. By continuing to communicate with our fellow amateurs from all types of cultures and backgrounds, we will be promoting peace and understanding. Our condolences go to the bereaved families and friends, and also our hopes that we can rid ourselves of the destructive forces of terrorism.

The summer in the northern hemisphere has ended and if the propagation reports are right then conditions are set to improve dramatically for our summer. Six metre reports from Europe indicated strong signals into and from the USA; hopefully we will have some good conditions here as the sun rises higher. Those of us with rigs equipped with six metres should have them at least monitoring the calling frequencies, or if your rig is able to, set it to scan across the lower portion of the band. This would be an easy way to keep a watch for DX openings. The 10, 12, 15 and 17 metre bands should also show strong improvement, but unfortunately, 160 and 80 metres will suffer from the usual strong QRN from storms. Still, the cycle is in decline so it's all downhill for the next five years or so.

The DX

9U5, BURUNDI. Gus, SM5DIC, has renewed his 9U5D Burundi license. He plans to travel there in mid-November and stay over until March 2002. Gus says he will be using simple equipment and wire antennas, except on 6m and 2m (a 17 el yagi), so we should not expect big signals from him. He says he will be looking for 2m EME contacts. [TNX SM5DIC and The Daily DX].

C6, BAHAMAS. Ed, K8EP, plans to be active as C6A/K8EP between the 20th and 27th of November. Main activity will be on CW and SSB. He will also compete in the CQWW CW Contest. QSL via K8EP. [TNX K8EP and OPDX]

CE, Chile. Sergio, IZ6BRN (ex VU3CUR, AP2WAP, 9N7RN) has been resident in Chile for the past six months and expects to be there for the next two years or so. He is active on the air as CE3/IZ6BRN and only operates on 12, 17 and 6 metres. QSL via home call. [TNX IZ6BRN and 425 DX News]

FG, GUADELOUPE. Robert, N4CD, hopes to be active as FG/N4CD from the 15th until the 30th of November. He intends to be active on all bands using CW and SSB. QSL via N4CD (call book address) or via the bureau. [TNX N4CD and OPDX]

FS, SAINT MARTIN. Ann, FS/W2AZK and Brian, FS/KF2HC hope to be active from Saint Martin (NA-105) from the 26th of Nov until the 2nd of Dec 2001. They will use SSB and CW on all bands between 40 and 10 metres; operation on 80 and 160 metres will take place if circumstances permit. Antennas will be simple wire antennas and perhaps a vertical dipole. Address QSLs to their home calls direct or via the bureau. [TNX KF2HC and 425 DX News]

HC8, GALAPAGOS ISLANDS. Jon, N0JK, will be accompanied by a group of operators on his return to the HC8N station on San Cristobal Island in the Galapagos. He intends to operate from here from the 20th until the 26th of November 2001. They are also planning to take part in the CQ WW CW Contest. Activity will take place on HF as well as 6 and 2 metres, they also hope to get some satellite work in too. No mention of QSL routes, perhaps details will be released nearer the time. [TNX N0JK and OPDX]

KC4, ANTARCTICA. Jim, WA2EUJ, who has been active as KC4USV while working at McMurdo Stations radio communications gear has mentioned that he will be on the air as often as possible over the next few months. Jim is one of several operators at KC4USV, and the station has been worked often on or around 14203, 14250 or 18130 kHz usually after 0000z and until as late as 0800z. QSL via K1ED [TNX WA2EUJ and OPDX]

KP2, VIRGIN ISLANDS. Dennis, K7BV hopes to be active as NP2/K7BV from St. Croix in the Virgin Islands (NA-106) from the 21st until the 25th of Nov 2001. He also plans to participate in the CQ WW DX CW Contest as WP2Z concentrating on the 15 metre band. Dennis has a website at http://www.qth.com/Windwood if you want further information. QSL routes for both callsigns, WP2Z and NP2/K7BV, is via KU9C. [TNX K7BV and 425 DX News]

LS2, VERDE ISLAND, ARGENTINA. The Radio Club Mar Del Plata (LU2DT) plans to operate from Verde Island from the 23rd to the 25th of Nov 2001 using the callsign LS2D, the first time the call LS2D has ever been used. Verde Island is situated in the Atlantic Ocean about 65km (40 miles) south of Bahia Blanca, Argentina. The group has suggested a list of frequencies of operation; these are as follows, CW - 3510, 7005, 14020, 21020, 28020 and 50110 and SSB - 3680, 7080, 14190, 21290, 28400 and 50110 kHz. No QSL details mentioned but assume via LU2DT. [TNX LU2DT and OPDX]

KH0, SAIPAN, NORTH MARIANAS. JF2SKV will be operating as NH0S from here from the 22nd until the 26th of November. He will be operating on all HF bands as well as 6m. QSL via JF2SKV. [TNX JF2SKV and The Daily DX]

VP5, TURKS & CAICOS ISLANDS. Word from Ed, WA3WSJ, that he will be operating as VP5ED from the 20th until the 27th of November. He is the proud owner of a completed K2 kit transceiver and intends to give it a good shake down on air, he also hopes to work other amateurs who owners of K1 and K2 transceivers while operating as VP5ED.

Ed says that if you need a VP5 QRP QSO then this will be your big chance. QSL directly to WA3WSJ (call book address) with a SASE [TNX WA3WSJ and OPDX]

XU, CAMBODIA. A group of French operators comprising Yves, F5TYY; Alain, F6BFH; Jacqueline, F6EGG and Bernard, F9IE hope to be operate from Cambodia from the 22nd of Oct until the 10th of Nov 2001. They plan to operate on all bands 80 to 6 metres on CW and SSB using two IC-706mkII's. Antennas will be simple dipoles. Hopefully they will also be able to fit in some operation from Koh Poah (AS-133) sometime during this period. Alain, F6BFH, will be using XU7ABW, while the licences and callsigns for the others will be collected when they arrive. A special cup will be offered to the person having the most QSOs on the most bands. QSL is via home calls, either direct or via the bureau. [TNX F6BFH and 425 DX News]

Special Events

For the military/maritime types the following should be of interest:

International Naval Contest. This year the International Naval Contest will be sponsored by the Italian Navy Old Rhythmers Club (INORC). Activity will take place from 16.00z on the 15th and 16th of Dec 2001. This year will see naval clubs from a number of countries participate, including stations from the Australian Naval Amateur Radio Society, the Belgian Maritime Amateur Radio Society, the Finnish Naval Amateur Radio Society, the Marine Amateur Radio Club Netherlands, the Marine Funker-Runde, the Royal Naval Amateur Radio Society, the Romanian Marine Amateur Radio Club and the Marine Funk Club Austria. Further details and information can be obtained from Alberto Frattini, I1QOD by dropping him an E-mail at i1qod@inwind.it [TNX I1QOD and 425 DX News]

DXpeditions

ZL amateurs from NZART branch 33 will be mounting a trip to **Whale Island (OC-201)** for a little fun and 'radioactivity'. The group intends to be active on all HF bands. Operation will take place over the 23rd until the 26th of November. Whale Island is a located some 16km offshore from Whakatane. The island should not be confused with a larger island called White Island that is home to an active volcano and located to the northeast. Whale Island is currently under the management of New Zealand's Department of Conservation; hence access is very limited with strict controls in place for those who are lucky enough to obtain permission to land on the island. A special callsign, ZL6WI, has been issued for the operation.

An announcement from the Pitcairn Island Amateur Radio Association tells us that it will undertake an **IOTA DXpedition to Ducie Island**. Operations are planned to begin at 00.00z on the 16th of Nov 2001. The DXpedition will run three separate stations that will be on air around the clock. The leader is Tom Christian, VP6TC, a well known operator and president of PIARA. Other team members team are VP6DB, JA1BK/VP6BK, JA1SLS/VP6BB, JF1IST. Three other operators are yet to be confirmed. This will be an international DXpedition, aiming to provide worldwide coverage for this rare IOTA (OC-182). The team plans to have the logs uploaded onto the Internet via satellite for checking. The team's description goes "Ducie Island is located 360 kilometers from Henderson Island (the nearest land) and surrounded by waters of 3000 metres in depth. It is the easternmost atoll in Oceania and is rarely visited. Because of the remoteness of the island conventional transportation is not available, and an adequate size boat is needed to make the journey. Arrangements have been made for a charter, and landing permission has been obtained for the date selected. However, due to ecological concerns, only one group may be on the island at a time."

To make it easier to locate, a station will operate around the clock on 15 metres, 21.020 MHz for CW and 21.295 MHz for SSB. The Pitcairn Island Amateur Radio Association says it has applied for membership of the IARU. The application has been approved by Region III and forwarded to the IARU full membership for final approval. Yaesu (Vertex Standard), Create Design and Suzuki Motors are providing support. The QSL Manager will be Garth Hamilton, VE3HO, and the Pilot station will be Dr. Bill Avery, K6GNX. [TNX JA1BK/VP6BK, VP6TC and The Daily DX]

Round up

HA, HUNGARY. A special call HG50HSC will be on the air from Hungary to commemorate the 50th anniversary of the High Speed Club. A website is available at http://www.hsc.de. The operators HA3OV, HA3NU, HA1AG and others, are all members of the Hungarian HSC. QSL is via HA1AG and E-mail requests for bureau cards are welcome at ha1ag@compuserve.com [TNX HA1AG and 425 DX News]

Allan Mason, VK2GR has let me know that he will be operational from the **Solomon Islands at Atoifi on Malaita Island**. Allan and his XYL will be working at Atoifi hospital, and hopes to get on air between his official duties. Allan intends to be active using CW and PSK31 and possibly SSB mostly on 20 metres, but will try and get some time in on 15 and 40 metres as well. Dates of operation are from the 15th of October until the 30th of November 2001. Allan also says that WARC bands are not permitted using the issued H44MA licence. H44MA QSLs via VK2GR (QTHR). [TNX VK2GR]

ZD9IR is the call for Chris DeBeer, better known as ZS6RI, for the next 12 months while he is stationed on **Gough Island (IOTA AF-030) in the Tristan da Cunha Islands**. Chris plans to be active on 160 to 10 metres using CW, SSB and RTTY. Currently he is running 100 watts to a dipole but hopes to erect a beam for 20 – 10 metres as well as more efficient wire antennas for the low frequency bands. QSL to ZS6EZ. [TNX ZS6EZ and The Daily DX]

A note in The Daily DX reveals that *the recent activity from 8Z0A has been a pirate*. "8Z0A has been somewhat active over the last few weeks. 8Z is a Saudi Arabian prefix. The person using this callsign has been giving HZ1TA as the QSL manager. HZ1TA is the call of Saudi Arabian Prince Talal Al Saude, brother of King Fhad. The prince has been out of the country for several years and HZ1TA has be QRV by second op Ahmad Bukhari. Sulaiman Al Jedaei, 7Z1SJ, contacted Ahmad, who reported he has no knowledge of any operations of 8Z0A. Ahmad, who is an old timer (90+), does occasionally operate the HZ1TA station. Sulaiman agrees that 8Z0A must be a pirate". [TNX 7Z1SJ and The Daily DX]

Sources

As usual thanks go to the following: VK2GR, SM5DIC, K8EP, IZ6BRN, N4CD, KF2HC, N0JK, WA2EUJ, K7BV, LU2DT, JF2SKV, WA3WSJ, F6BFH, I1QOD, VP6TC, JA1BK/VP6BK, HA1AG, ZS6EZ, W1JR, NZART branch 33, 425 DX News, OPDX and The Daily DX.

ar

David A. Pilley
davpil@midcoast.com.au

A young Amateur shows the world what she's made of

During the month of September it was hard to find new editorial to write that did not concern the disaster in the USA. The news was tragic, but from this disaster came a comradeship that has not been unsurpassed within our fraternity. The loss of N2SJ, WA2ACW, KA2OTD, AA1GO, KA2KET and KA2DRF at the WTCs and W3HRD at the Pentagon will be a lingering memory for many, but on the lighter side you have to be impressed with 10 year old Beverly Holtz, who received her licence, KC2IKT, a few days after the tragedy and immediately volunteered to join the hundreds of hams helping in the rescue communication fields.

Using her dad's hand-held transceiver, Beverly relayed health and welfare traffic continuously for 8 hours. Over 300 hams volunteered their services during this tragic event and many more offers were declined. Most of these worked under the umbrella of SATERN (Salvation Army Team Emergency Response Team) located at strategic positions around New York City and Long Island. I had a long QSO with K2TV on the Empire State Building who witnessed the tragedy and I admit, even on CW, it made me feel deeply sad as I read the transmission.

New UK Foundation Licence

The U.K. is going through a 'New Look' vogue with licencing undergoing big changes. Besides lowering the Morse code speed for full licences, they have introduced a new entry licence known as the Foundation Class licence. Their Novice licence will now be known as the Intermediate Amateur Radio licence.

The new Foundation licence will provide access to most amateur radio bands with a restriction on power of 10 watts. Equipment has to be commercially manufactured. Weekend study is all that is needed.

(from RSGB web site)

CQ Contest Magazine Closes

CQ Contest magazine has put out its last issue. Publisher Dick Ross, K2MGA, says the magazine, in publication for almost six years, has been losing money for the past several years, and the decision to cease publication with the October issue was strictly a business decision. The content for the ham radio niche publication will be absorbed into "CQ". "CQ's dedication to the contest community is in no way diminished," Ross said in "A Message from the Publisher" in CQ Contest's final edition. All CQ Contest subscribers will be converted to CQ subscribers or have their CQ subscriptions extended on a dollar-for-dollar basis, starting with the November issue of CQ. In his "The Band Edge" editorial in the October issue, CQ Contest Editor Bob Cox, K3EST, says the magazine's legacy might be carried forward in the form of a Web publication to serve the contesting community. The demise of CQ Contest leaves National Contest Journal—published by ARRL—as the sole hard-copy magazine aimed at the Amateur Radio contesting community.

No problem with QRM—Go Laser!

For over 30 years a competition has taken place in the southern part of Germany called "The Bavarian mountain day " or in German "Bayrischer Bergtag". The competition was created to get more activity and improve the design of portable equipment for higher frequencies.

During the recent winter event (February 2001) one contact had been made using a frequency of 75 tHz, or a wavelength of 630 nm. Homebrew equipment had been used, built by Hans H. Cuno, DL2CH. The signal was produced by a 5mW laser. Frequency modulation was used to modulate a 60 kHz AM sub carrier. The distance between both stations were 1.2 km and after initial testing the power of the laser has been reduced to 1 mW. However, one hurdle had to be overcome, how to line up the laser towards the RX. A telescopic sight solved the problem. This contact was not a world first, but proved that there is still some room for homebrew equipment in some areas before the appliance industry takes over. If you can read German and you are on the net, have a look at www.hhcuno.de

(from CQ-DL 5/01 via VK4BDQ)

LF Across the Pacific

Last month it was interesting to read of the VK-W QSO on in the 165-190 kHz band. Now again in September the ZLs do it again. On September 22, five ZL stations and one VK station collectively transmitted in the LF band. VE7SL in British Columbia managed to obtain an ARGO capture (*What's a ARGO capture?*), of both frequencies of the DFCW *(dual-frequency CW)* signals from ZL6QH. The uniquely coded transmission consisted of repetitive sending of the letter "Q" with elements being of 120 second duration the transmission distance is circa 11,709 km.

(from ARRL News letter)

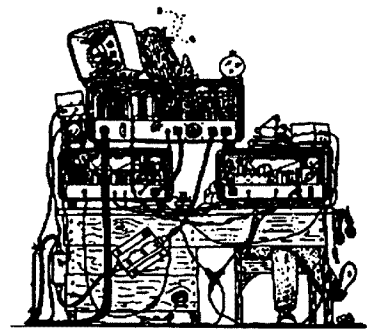
Help! Computer crash!

ERIC FITTOCK, the Contest Manager for the JOHN MOYLE FIELD DAY, has advised that due to a computer breakdown, logs for the 2001 event which were submitted by email have been lost. He asks that entrants who sent electronic submissions please do so again to either of these addresses —

email to: esr@powerup.com.au
mail to: Eric Fittock, 108 Queensport Road, Murarrie, Qld., 4172

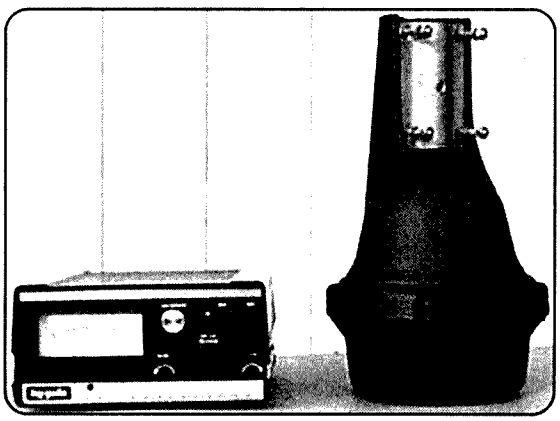
Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au



Part 8: *Rotor-EZ* Review

This month features a delightful weekend *Rotor-EZ* kit project from Idiom Press (1) in California by adding some "high-tech" solutions to your trusty old Ham M, II or Tailtwister antenna rotator from CDE, Hy-Gain or MFJ.



The writer has always dreamed that one day his Ham Shack Computer would control the beam rotator by a simple "click" on the screen. Some would suggest a gimmick perhaps, but once tried – you will **never ever** return to the old way of holding down the break and a direction lever then watch the meter wander around until the desired direction has been reached. Meanwhile, another elusive DX station has got away. With computer control, the beam seeks the direction of the DX while you get on with the real business of calling and working the DX station.

Called *Rotor-EZ*, the kit is used to upgrade the shack control unit, and comprises a small printed circuit board and all the components needed to complete the task in a leisurely weekend constructional project. The Rotor-EZ "clever" features include:

Manual Mode: The rotor controls are used manually just as they did before the *Rotor-EZ* mods were made.

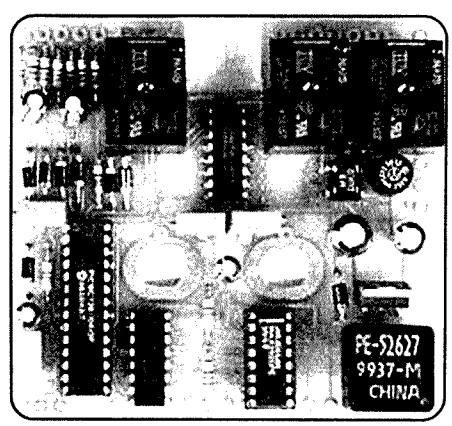
AutoPoint Mode: The original front panel calibrate pot (now called **pointer**) is adjusted to the desired direction on the meter, then a touch on the break lever sets *Rotor EZ* to seek and stop at the "pointed" direction.

Computer Mode: Using one of the popular logging programs like *YPlog* (2), a "left double click" on the Mercator Sun map will move the beam to the desired short path direction. "Right double clicking" the rotator moves to the long path.

Ordering

The writer ordered the *Rotor-EZ* kit (with RS232 options included) via a secure transaction page on the Internet (1). Delivery came within two weeks, well packed, and marked "*Amateur Radio Parts*" on the customs docket. Excitedly, the contents were checked from the component list, and the following weekend was earmarked for construction and installation.

Construction



The small *Rotor-EZ* printed circuit board (shown above) is designed to fit onto the two threaded studs of the meter. The board is silk screened, has plated through holes, and masked to make the job easy to assemble. A small soldering iron and a magnifying glass is recommended to ensure there are no solder bridges, and all the joints are sound. Idiom Press includes assembly instructions, which should be followed carefully and slowly to avoid errors. Once the board has been built and installed on the back of the meter, wiring and modifications are then made to the original rotator control box. Some mechanical work is required to drill four _ inch holes in the front panel for status LEDs. This should be done **FIRST** to allow clearing of any metal cuttings and general cleaning up to be done. Again, carefully follow the kit assembly instructions in the order given and your "home brew" assembly will be an enjoyable constructional experience.

Hints and Tips

The original control box wiring is modified to incorporate the *new Rotor-EZ* features. The writer's 30 year old CDE rotator used twin-flex for the power cable, a fuse in the neutral wire, and a switched the live wire! This is **NOT ACCEPTABLE** in Australia – or anywhere else in the world for that matter! This was fixed by fitting proper three-core mains flex, correctly earthing the green/yellow wire to the chassis, adding a simple EMC/VDR mains input filter, and wiring the switch and fuse correctly in the brown live mains input wiring. All power-input connections were sleeved and insulated for safety reasons.

The writer added three 16 pin DIL sockets (DSE P4160) ensuring that any IC could be changed if problems were experienced in the future. In addition, G3MXJ (5) suggests adding 3000pf ceramic bypass capacitors between pins 3 and 7 on the rotor screw terminal block and earth. This is done to avoid any possible RF from interfering with the new solid-state rotational circuitry in *Rotor-EZ*.

Calibration

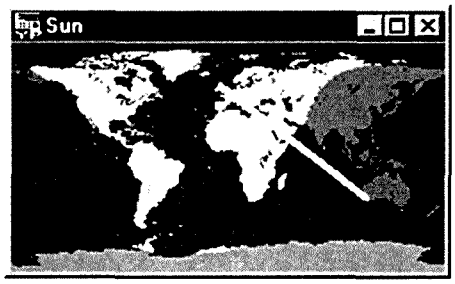
Before final testing and calibration of *Rotor-EZ*, ensure that your rotator motor and the beam assembly are pointing in the right direction. Use a compass or known landmark(s) to check this accurately. Connect the newly modified control unit to the eight-core rotator cable and switch-on. The green control LED should illuminate. Next, follow the calibration instructions and adjust each of three PCB mounted pre-set potentiometers until the meter readings correspond with the correct beam direction. This process is done in the Manual Mode by operating the paddles just like you did before the modification was made.

Next, try the AutoPoint Mode by moving the calibration potentiometer to a desired direction, then tap the Brake Switch. Watch the green status LED change to orange, the meter (and beam) starts seeking your new direction, the status LED slowly changes to green as the destination is reached. A few seconds pause and the brake LED illuminates, the rotor brake is engaged and you are there. Whilst the beam is in motion, either the clockwise or anticlockwise LED will also illuminate to tell you which way around the rotor is turning. Very nice!

Options

The *Rotor-EZ* offers several options that can be disabled by inserting links on the PCB. These include dealing with the dead spots on the rotor motor potentiometer, a programmable unstick routine where the motor is pulsed in the opposing direction for one second. This overcomes problems when the brake wedge becomes jammed. End point excludes the last five degrees at the scale ends to also avoid jamming which is a common problem with the Tailtwister. Overshoot control cuts motor power three degrees before the set point. Here the rotator coasts to a stop, then after five seconds, the brake engages. This process reduces the mechanical stress on the rotator prolonging its lifespan. Jam protection detects the situation when the system refuses to turn. The firmware detects this and cancels the command. Lastly, the offset mode manages antenna systems that are 90 degrees offset from the main beam. All of these modes are enabled in the *Rotor-EZ* default condition and the writer suggests they all stay that way to prolong the life of your value added new rotator system.

Software



YPlog (2) supports *Rotor-EZ*. Simply "double click" the destination on the Sun Map shown above and *Rotor-EZ* does all the hard work for you!

The YPlog rotator setup menu is shown above with the default values already part of the software package. Other commands are offered for the Hy-Gain DCU1, and Idiom Press has announced the development of a *Rotor-EZ* kit for Yaesu rotator users.

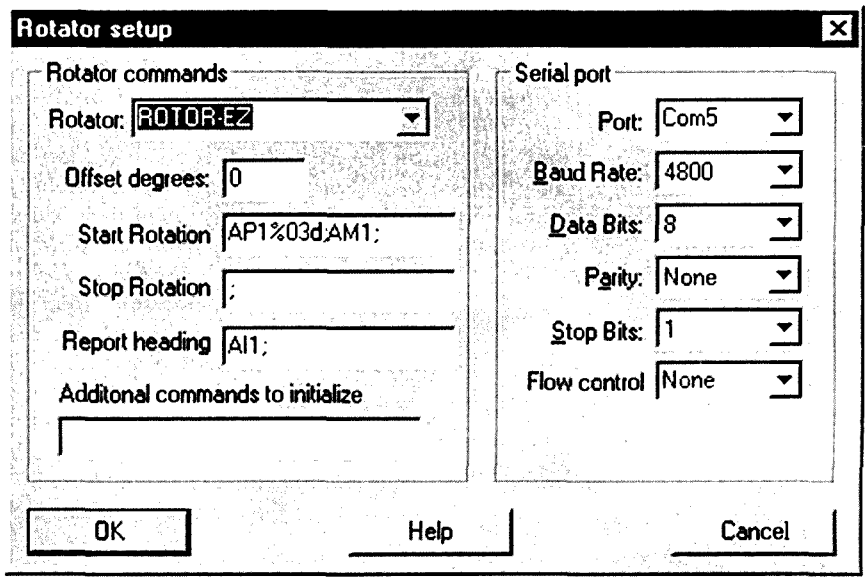
G3MXJ (5) has tested the system with DX4WIN, and two contest programs – CT and TR, and they all worked perfectly. In the writer's case, it took just 60 seconds to configure the YPlog software and become fully operational.

Availability

Via the Internet is the best way to purchase *Rotor-EZ*. You will receive an email confirmation within 24 hours, and Idiom Press is there if ever you need support, advice and spare parts. The cost is US$99.95 for the basic kit or US$129.95 including the RS232 options that are essential if you are to do the job properly. Add US$10:00 for shipping by airmail from California. *Rotor-EZ* is good value and will give enormous pleasure to your newfound "high tech" AR activities.

Ham Tip No. 8

Imagine a rare and much wanted IOTA DX station with an unusual callsign prefix. You don't know which direction the beam should be pointing. Enter the call in *YPlog* and select Control+B. Now start calling him whilst the beam automatically heads in the right direction. Now that's real productivity!



Ham Shack Computers, Part 9 – ComPorts. At long last! Next month explains the long awaited solution to installing and running extra computer RS232 Communications Ports without those annoying IRQ conflicts and lock-ups in Windows and Linux computers.

(1) Rotor-EZ at Idiom Press: www.idiompress.com

(2) VE6YP Logging and Control: www.nucleus.com/~field

(3) Ham Shack Computers, Part 3: *Amateur Radio*, June 2001. p48.

(4) QST Magazine. April 2001. p34.

(5) RSGB *RadCom*. May 2001. p46.

(6) Ham Shack Computers Web: www.tpg.com.au/users/vk6pg

73s de Alan, VK6PG

ar

VHF-UHF

AN EXPANDING WORLD

David K Minchin VK5KK
Postal:10 Harvey Cres, Salisbury Heights, SA, 5109
E-mail: tecknolt@arcom.com.au
Web page: http://members.ozemail.com.au/~tecknolt
Fax: +61 8 82924501 NEW FAX NUMBER
Phone: 0403 368 066 AH ONLY

All times are in UTC.

Oscar 40 heard on 24 GHz in VK!

Colin VK5DK reports on what looks like the first reported reception of AO40 on 24 GHz in VK and maybe the Southern Hemisphere. *Just a short message to let you both know that Trevor 5NC and myself both heard AO40 on 24 GHz on 5/10/2001 for about three quarters of an hour with signals up to a good 6-7db above the noise with quite deep QSB. Trevor was using a 600mm dish and I was using a 400mm dish. Conditions were very cold with clear sky and very damp atmosphere. Time of hearing signals was from about 11.50 UTC. ...* Colin VK5DK

Colin VK5HI comments further *Good news on the reception of AO-40 on 24 GHz. So you can appreciate how the system works the Middle Beacon runs at a level of +10 dB. Consequently all other signals in the passband should be 10dB down on the beacon, otherwise LEILA is activated.*

LEILA is an anti-alligator system that detects strong signals notches the signal out and sounds a "siren" tone on the frequency.

Currently LEILA is only active on the U Band uplink. L band is not a problem at this point in time.

At apogee with minimal squint I can trigger LEILA with 25 watt into a 9 x 9's circularly polarised on Mode U, which suggests a pretty good Rx on board AO-40. From what I understand the Mode L Rx is a touch deaf. Cannot speak from experience. Here on 2.4 GHz I copy the Middle Beacon at a level peaking 25 dB above my reference, which is cold sky noise. At 60,000 kilometres MB is 20 dB above Tcoldsky. Colin VK5HI

Weekend DX at Burnie (VK7 that is!)

Andrew VK1DA reports on his recent operations from Northern Tasmania. The following is an extract from several of Andrew's reports.

On 16/10/01 operation was from Table Cape just west of Wynyard. Rob VK3EK assures me this is located in QE29. Arrived on site around 6:30 and was on air at 7:00, worked 3AFW, 3FMD, 3EK on 2m. Then 3AFW, 3FMD, 3EK on 432 and Rob advised that my signal on 432 was distorted. I observed odd behavior on the RF output, suggesting there was an incipient oscillation, presumably RF induced. This may have been due to being about 12 ft from the antenna. Changing the microphone did not change anything, but the effect was sensitive to the position of the mike, supporting the theory it was due to RF in the "shack". I was operating from the back of the Suzuki rather than the front seat used yesterday. There may have been slightly better shielding from RF by the body of the car yesterday but today the back door was wide open to the antenna.

Then between 2147 and 2240 worked 3HY, 3II, 3AUU, 3KEG, 3KAI, 3DMP, 3DUT, and 3CGR. Paul 3CGR is in the east near Rob 3EK and first worked on 144 SSB 15/10/01 so it was a "plus" to give him a contact to VK7 on his second day using the low end of the band.

At 2250 I was considering packing up as the band seemed fairly dead and the noise from Channel 5A T.V. was continuing. Then I felt the first drop of rain, so that decided it. Within a minute the wind had come up from 20 knot to about 40 in gusts, several items were picked up by the wind, like the blue tarp that I had been standing on at the back of the car. I packed up in bursts, when the rain seemed to ease, but still managed to get drenched in the fairly icy rain. The wind was still blowing strong when I drove away from the site at about 2330....

On Saturday 22/10/01 morning Trevor 5NC and I did hear each other, on both phone and CW, but we didn't complete a contact. Conditions were OK but I believe the contact would be even more feasible in summer with one of those nice highs across the pond. Thanks to all the operators who came up on 144 and 432 (and one on 50 MHz) to work me. It was great fun Andrew VK1DA/P7

50 MHz is still happening?

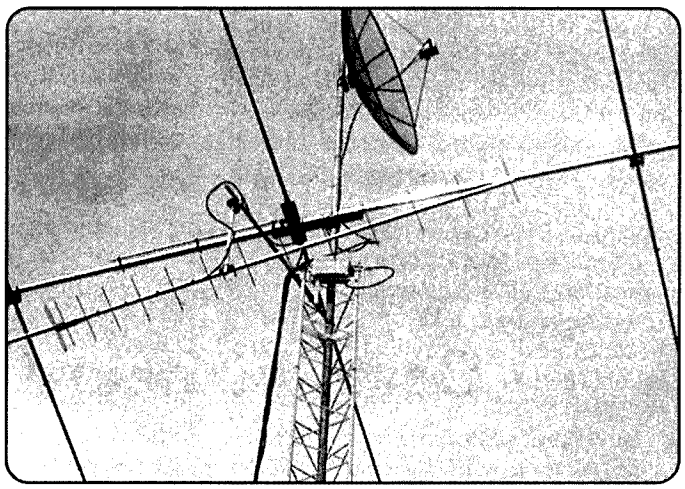
Reports on 50 MHz activities have been few and far between perhaps indicating that this equinox has not been traveling as well as the last few.

From space weather news ...SOLAR FLARE: A powerful X-class solar flare erupted Monday morning, Sept.24th. The explosion hurled a spectacular coronal mass ejection (CME) into space — and it appears to be heading our way. The CME will likely sweep past Earth late Tuesday or (more likely) Wednesday and trigger geomagnetic storms. Sky watchers should prepare for Northern Lights during the nights ahead.

Ray VK4BLK, Yeppoon QLD, reports ... *The Dx season has started; here is an extract from my log. 5/9 0343 W4CLM/MM. S59 R59 (Grid BL54), 7/9 0026 K6LIG 57 57 DM12, 0049 KG6KH 55 55 DM12, 0055 KB6NAN 51 51, 8/9 0216 N6RV. 539 559, 0730 KH6SX 559 559, 16/9 0134 XE2EED 54 52 DM12, 0934 JD1BKZ 539 519 Chichijima Island. 3/10 0138 N6XQ 54 54, 2243 K6LIG 55 55, 4/10 0131 K6QXY. 549 539, 5/10 0127 N6XQ 56 55, 5/10 0155 K5SW. 539 519 Grid EM25* Ray VK4BLK

On a slightly different note but of interest to those who look for 6m repeaters during summer, comes the following from Mike ZL3MJS. *The Christchurch 6m repeater is now officially on air, 53.850 MHz o/p, 52.850 i/p, into a 5/8th vertical, on its tower, about 120ft above the ground. It's*

PLL Digital Readout for 10 GHz ATV FM Transmitter



VK5SFA's @ GHz ATV antenna

running 18 watt into the antenna. It is sited at the Eryewell Fire Lookout Tower, in the Eryewell Forest, north west of Christchurch on the plains. Mike, ZL3MJS.

For the record two 6 m repeaters are operational in VK5, those being VK5RAD Crafers, 53.775 MHz (-1 MHz input) and VK5RSB Summertown 53.750 MHz (-1 MHz input). Both run around 25 watt from locations in the Mt Lofty ranges approximately 600 m ASL.

Microwave Primer Part Eighteen:

ATV & Microwaves.

This month we will cover ATV, in both UHF and Microwave bands. Microwave ATV activity, in particular, has been steadily rising over the last ten years for reasons much the same as narrowband activity ... the better availability of equipment and cheaper consumer Camcorders. This part will give a brief overview, the following two parts will dig deeper into equipment and operation.

Activity on UHF ATV, chiefly AM TV on 420 – 450 MHz and to a lesser extent 579 MHz and 1240 – 1300 MHz has been popular since the sixties. 576 MHz is no longer available for general Amateur use and is now restricted to the 3 remaining licensed Repeaters that use 576.25 MHz as an output subject to ABA requirements. The development of ATV transmitters followed along the lines of the AM transmitter development with similar technology albeit for video and higher frequencies.

Nearly all AM TV transmitters used in VK were (and still are) DSB Video, occupying a full 11 MHz of spectrum! The extra complexity and the spectral pressure have kept VSB transmitters a rarity. In Europe and other parts of the world, where only 430 – 440 MHz is available, the choice of VSB is mandatory.

In the seventies and eighties, ATV repeaters came into existence. The VK5RTV repeater was the first of what was to become typical, in 1977. Today it is still operational with 426.25 MHz input and 576.25 MHz output. Other repeaters use either in band 444.25 MHz or 1286.25 MHz outputs.

ATV repeaters have helped get many on ATV but suffer from one major drawback. Only one person can operate in a geographical area at one time tying up two channels. In the early days, when the ratio of those who had transmitting equipment was low compared to those with just receiving equipment, this wasn't too much of a problem. But if you have multiple groups wanting to operate at one time you soon run out of channel space in the 420-450 MHz band (only 4 VSB channels or 2 DSB channels). In one case, locally, two co located repeaters use both 420-450 MHz DSB channels plus one 579 MHz and 1286.25 MHz. This means simplex activity on the bottom two UHF bands is almost impossible anywhere in the Adelaide area!

So what do you do? Go higher of course! Overseas trends started moving towards FM TV on 1200 MHz and higher frequencies towards the late eighties. For some time, low power 10 GHz FM ATV activity had been possible with Gunnplexers (see earlier parts of the primer).

In VK several groups started 1250 MHz activity around 1991. Various designs came from both UK and DE magazines, but soon local adaptations evolved. At first all receivers were made up, but the abundance of ex satellite analog receivers now makes it even easier to get a receiver going. Transmitters were originally based on PLL designs locked to a crystal at 1/256 of the final frequency. After a while, it was found that the free running oscillators could be made acceptably stable, after all a couple of hundred kHz drift does not matter when you have a 18 MHz wide FM signal!

It wasn't long before it became evident that the extra power available from the same PA in FM duty vs. linear AM duty (+6db) more than compensated for the extra bandwidth (18 MHz vs. 11 MHz DSB) penalty! A Mitsubishi M57762 module can be coaxed to produce 23 watt of RF with 1 watt in, so long as you have enough heatsink to handle continuous operation! And with the availability of substantial power some surprising results have been obtained over short to medium paths with obstructions.

The progression to 2.3 GHz (before we lost the bottom 98 MHz) occurred around 1993 in VK5 at least. Again the availability of reasonably priced RF devices in amplifiers originally designed for narrowband use helped. 2 GHz transmitters simply used a doubler after the same generic 1.2 GHz design. This manner of RF generation has now been extended to 3.4 GHz (3X) 5.7 GHz (X5) and 10 GHz (X9).

With MDS being introduced around this same time, 10 watt power devices made it possible to obtain up to 25 watt on 2.4 GHz as well. The VK5RLZ 2 GHz ATV translator has operated almost continuously from 1994 running a pair of MGF0907 FET's at 20 watt, originally on 2372 MHz and now on 2415 MHz.

5 and 10 GHz ATV is now in regular operation in VK. As I speak, local ATV operators Steve VK5ASF and Barry VK5BQ have a regular almost 100% reliable path on 10 GHz ATV over 86 km QTHR to QTHR!

Next month, how and where to start.

In closing

For obvious reasons my Middle East trip has been "postponed" till next year, this column has gone in very late this time though!

Joe VK5UJ reports ... the pulsing interference on all three of Adelaide's 2 m repeaters, on the 8th and 9th of October 2001, has now been rectified thanks to the ACA successfully getting the operators of the offending transmitter to effect a fix. A spurious transmitter, installed at Greenhill SA, caused the QRM. Interference up to at least 7 Mhz away from it's fundamental was found up to 30 km away! I have done a quick write up of how we found the TX that was causing the problems and the quick ACA response. You can find it on my website at http://www.vk5uj.com/docs/2m_qrm_1.htm ... Joe VK5UJ

I'll leave you with this thought, ... "Isn't it amazing how much gets done to services and roads leading up to an election, maybe we should have elections every six months to keep things happening!"

73s David VK5KK

ar

Repeater Link

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
will2@iinet.net.au VK6UU@VK6BBR

Good News!

Following on last month's comments re the spiralling costs of repeater sites, is some good news from VK2. Negotiations have been able to reduce the asked for rent cost from thousands down to hundreds.

All those who tackled the cost problem should be well pleased with the results. Other repeater groups should contact their fellow repeater groups in VK2 for any advice they may require, if they are experiencing similar high rent costs for repeater sites.

Mobile Phone Coverage

During the month of September I spent several weeks in Victoria travelling up to the snow fields for a week of excellent skiing followed by touring around East Gippsland and Wilson's Promontory. No amateur radio equipment went with me but I did have a CDMA hand held phone throughout my travels. Knowing a bit about getting radio signals to handheld radios I was in constant amazement at just how well these CDMA phones work. Driving through dense forest, down in valleys with no visible sign of civilisation or radio towers, these hand held CDMA phones, with only their small pull up aerial, work with noise free signals. The coverage really is quiet extraordinary. With just the aerial on the phone inside the car, phone contact was available almost throughout my entire travels through central and southeast Victoria.

Sure there is lot of money and investment in radio sites to provide this coverage but it still amazes me at just how a few hundred milliwatt goes so far. The aerials on the mobile phone towers do have considerable gain and from what I have read on the Internet can have gains of around 17dB. CDMA phones are digital spread spectrum and as such have a noise free gain advantage over conventional analogue FM signals. Put all this together and your CDMA phone works in the most out of the way places. I have tried a magna base aerial on the car with considerable improvement over the already impressive coverage.

Laugh if you must at the mobile phone user, lost without his mobile phone, but it sure made rendezvous on the ski mountain with friends, after a couple of hours of skiing, for the much needed hot chocolate easy.

ar

QSL Collection

Ken Matchett VK3TL

Your QSL Collection is a Winner!

The WIA's National QSL Collection (which belongs to all members of the WIA) has now achieved the ultimate! The last of the wanted DXCC Country QSLs, namely North Korea, arrived recently. A spare Martti Laine P51BH from this rare country was kindly, donated by DXCC champion Jim Smith VK9NS of Norfolk Island. The National QSL Collection now has at least one QSL card from every country in the DXCC listings from 1946, together with every deleted country since that year. The DXCC Collection is just one of the several individual collections such as the Thematic Collection, Pictorial, German DOKs, American County QSLs, Special Issue QSLs, Pre-War QSLs etc., making up the National QSL Collection, but it is a very important one. If you too can lend a hand to add to this Collection and save something for the future please contact the Hon. Curator, Ken Matchett VK3TL on (03) 9728 5350. It will be appreciated - after all, how long has it been since you have taken even a glance at your own QSL collection?

ar

The WIA regrets to announce the recent passing of:-

J E Aldred L30240
G N (Geoff) Chapman VK2AIT
I N (Ivan) Thomas VK2NJ
P K (Peter) Bennie VK3KR
G E Strange VK3QS
W L Robb VK3YR
AR E (Ern) Nitschke VK5EN
R H (Harry) Atkinson VK6WZ

L Harvey Utber VK3AHU

With quiet courage, Harvey died from cancer on 3rd of May 2001.

Harvey received his education at Frankston P.S. and Melbourne Grammar School, and later attended the Marconi School of Wireless, where he qualified as ship's radio operator.

With his best friend, he decided to join the RAAF and in 1941, they went to S. Rhodesia to train as pilots under the EFTS (Empire Flying Training Scheme). When in the UK, Harvey was transferred to Spitfires. In 1943, his group was sent to Darwin and joined the 452 Squadron as first replacements. With characteristic modesty, Harvey reckoned that he did more damage to friendly machines than to the enemy's.

I first met Harvey when the Utber family home was at St. Kilda, and he was Lessee of the Golden Fleece service station in King St. Melbourne, a business the Utber's carried on for over 25 years. The "works" vehicle was (from memory) a Holden EH wagon. His daughters had playfully stencilled "Harvey" in bright colours upon the driver's door, where it remained.

His many interests included jazz and classical music, church and choral activities, Legacy, RSL, Probus, and the many and various aspects of amateur and vintage radio. As a keen Morse man, and supporter of the "Early-Bird" CW net, Harvey's excellent sending fist was a joy to hear. He once received a letter addressed to "the Morse Code man, Violet Town"- which greatly pleased him. In true amateur spirit, Harvey invariably offered real encouragement to persons wishing to improve their Morse skills.

Only about a week before his death, Harvey attended a regular meeting of his cherished Vintage Radio Club of North East Victoria, at which he was granted Life Membership. This event was one of the few things that I ever heard him boast about—he was so genuinely appreciative of the gift. Harvey's entries in that club's radio building competitions were seldom conventional. One crystal-set effort, which in appearance was no great beauty, having been hurriedly made simply in order to "have a go", actually went on to win a prize on account of its excellent sensitivity and selectivity. In another "mantle-set" competition, his model needed a pretty big mantelpiece because, in order to get a pleasing sound, he had used a 12" speaker! Of the many sets that Harvey lovingly restored, I particularly remember his HRO receiver project, which he had stripped down to bare metal chassis, then painstakingly re-built to look and work like new.

Harvey will be fondly remembered for his many qualities, which included beautiful manners, good humour, infectious enthusiasm, and a great sense of fair play. He leaves his wife Kath, daughters Carolin and Rosemerry, and grandchildren Adele, Macs, Ted and Miriam.

Drew Diamond, VK3XU (with the assistance of Bob Young and Rodney Champness of the Vintage Radio Club of N.E. Victoria)

Geoff Chapman VK2AIT

On Wednesday 19 September in tragic circumstances, Amateurs lost the services of Geoff Chapman VK2AIT.

Graduating from Sydney University's Engineering faculty, Geoff's career spanned dredging for gold in New Zealand; Open-cut mining at Yallourn; and service with an American Small ship unit in New Guinea during WW2.

He was Manager of Remington's electric shaver operations in America and closed his business career with responsibility for site preparation for computer mainframe installations in Australia for Sperry and later Univac.

Geoff was a perfectionist. His workshop skills with lathe and hand tools were legendary. He pushed the frontiers of every field of interest. With his friends Clay K6AEP (at IBM Silicon Valley) and Doug VK8KK (now VK3UM but then at Radio Australia) he helped move slow scan television out of the flying spot scanner age.

Then came the challenge of self-training on Motorola 6800 series computers, followed by participation in every phase of amateur satellite activity. His encyclopedic knowledge of software, hardware and imaging was shared with overseas amateurs on the Internet and a group of VKs with whom he had almost daily contact on HF for more than thirty years.

Geoff's passion was to know the strengths and weaknesses of new equipment and software. Competent in many programming languages he attracted hard questions. Concise logical answers were his forte, Beta testing of software another. Never one to force his views on others, his quiet manner, technical competence and seemingly unruffled patience with those less knowledgeable, will be sorely missed.

Vale Geoff. VK2AIT SK.

C G Harvey VK1AU
16 Leane St, Hughes A.C.T 2605.
Ph. (02) 6281 3607

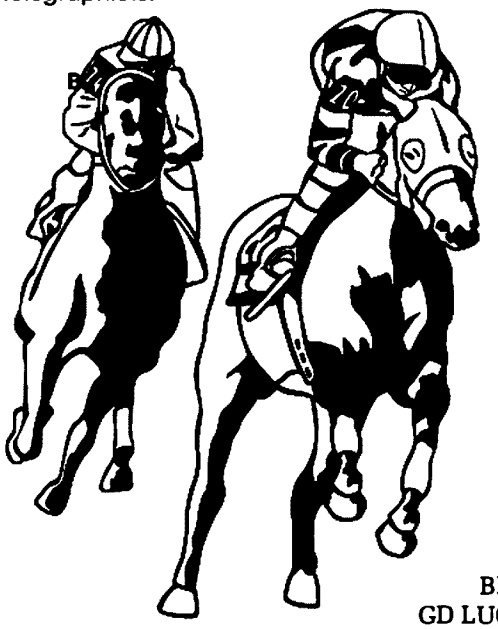
C W and the Horses

submitted by David Pilley VK2AYD who thinks it came from the Morsecodians

As an avid CW operator I was very interested in the uses telegraphy has taken over the past one hundred years. In early Australia the only means of communication was by telegraphy and I know many readers were part of this evolution and served the then General Post Office as Telegraphists.

Being a "new" Australian, I was fascinated to learn how "out-side broadcasts" were performed from the race courses, where Telegraphists transmitted the race event to the broadcast station where an announcer, using studio props, turned the broadcast "live".

I have no idea from where the following ode/poem originated, but I thought it interesting just how Telegraphists transmitted the message and the abbreviations used to speed up the transmitting time. It's a cypher within itself. Perhaps "Spru" Spuham is still around and can tell more. Perhaps you were one of these Telegraphists and can also tell us a real life story?



Coming Round the Bend

"Spru" Spruhan

I well remember Charlie Teede,
Who used to word the races;
No need, indeed, to ask the speed,
He'd pace it with the pacers.
Lord help the man who "broke" him once
Or questioned his "creations";
On him a flood of scorn was turned
The atmosphere with brimstone burned,
And Pitman, green with envy, squirmed
At his abbreviations...
THE FIELED GOT WL AWA TO TI
& AS TY SETTLED DWN
THE SCHICER 1ST T BK TE LI
WAS FLWD BI JO BROWN.
IN CLOSE PROXIM WS TIRED TIM
TN CME ARBTRATN,
BHND TE BUNCH WS CNTR LUNCH
GD LUCK & HI TAXATN.
TY WHISSED ALNG (and so did Charles)
WTOUT TE LEAST CESSATN.
C R T B TE TOPWT JUMPED
& GOT ON TRMS WI SHICR,
WO TN & TRE HS BUNDL DUMPD
WN LABLD HM A TWICER.
I scrambled after Charlie
Like a trailer round the bend
Then gave OK – but queried:
C R T B U SEND.

NOW WHAT IS THAT IN AID OF?
ENLARGE A BIT MY FRIEND.
The sounder nearly hit the roof
As Charlie scorched the line.
U ORT T B ON TE RABTPROOF
OR UP AT DOODLEKINE.
CHASIN PODDIES RND TE YD
SHD B UR CHF PASTIME.
T TNK U CDNT WRK IT OUT
IT NRLY MKES ME SIK
ANI OLE GIN OR ROUSABT
CD WRITE IT W A STICK.

FANCI A MAN WHO CALLS HMSLF
A TGST ASKG TT
A RECORD O S VACUUM
IS LOCATED NEATH UR HAT
D U WANT IT IN OILS SI LAMBERT?
OR CARVD ON A MARBL STONE?
OLE WINJA MORTILL CD TKE IT
& UD NEVER HR A MOAN,
NOT SPELT OUT LI IVE DUN FR U
BT CUT DWN TO TE BONE
WL I MST SA ITS TE BST DSPLA
OF IGNRCE IVE HRD
O ALL TE SQUTRS IN W A
UR CRTNLI TE BIRD.
& ANI HRSH REMKS IVE MIST
TY ALL ON B INFERD
C R T B, ITS KNOWN BY ROTE
WT WD U HA ME SND?
ITS CMG AND TE BND, U GOAT
COMING ROUND THE BEND!

The Australian Amateur Radio FAQ

VK's online amateur reference for the net generation

Peter Parker VK3YE
12/8 Walnut Street, Carnegie, Vic, 3163
E-mail: parkerp@alphalink.com.au

Once people are aware of amateur radio's existence where do they go to find out more? If they're lucky, someone might put them in touch with a radio club. If they're not, they might glean some snippets from a 20-year old ARRL handbook at a local library.

Neither option is likely to present the newcomer with the full range of activities in which today's amateurs are now involved. Amateur radio's future vitality is too important to be left to disparate websites or shelves of dog-eared books that in many cases contain information outdated or irrelevant for Australian conditions.

Enter the Australian Amateur Radio Frequently Asked Questions (or FAQ)! This online reference allows anyone with internet access to find out about all facets of amateur radio activity in Australia. The FAQ, compiled by amateurs expert in their field, is updated regularly. Information on study, licensing operating, special interests and sources of information are available on the FAQ. However it is written in such a way that it does not duplicate other sites that cover particular facets of amateur radio in greater detail.

This article outlines the history and content of this most useful resource for the Australian amateur. If you wish to explore it for yourself, please refer to the URL at the end of the article.

FAQ History

Though the FAQ is now hosted on a website, its formation predates the widespread adoption of the world wide web. The FAQ was founded by Mark Cheeseman VK2XGK in 1993.

Mark recollects that he mistakenly asked on the aus.radio group (now renamed aus.radio.amateur.misc) if it had a frequently asked question (or FAQ) list. The idea of having an FAQ list was to provide a source of answers to common questions so that newcomers would not be cluttering the group with the same questions that had been asked a short time before. It transpired that aus.radio did not have an FAQ, and it was suggested that Mark write one!

Mark wrote the first version himself, with help from others regarding factual details and the like. As well as being posted to aus.radio each month, it was also distributed via the then popular FidoNet telephone bulletin board network. At the time Mark was running a telephone BBS and was able to forward messages to internet news and mail. The FAQ was never distributed via packet radio as its main purpose was to raise interest in amateur radio amongst non-amateurs.

By 1995 the FAQ had grown to 5000 words. It included an outline of what amateur radio is, the licence system, various facets of amateur radio, radio-oriented BBS directory and WIA information. Because the FAQ was initially pitched at computer enthusiasts (these being virtually the only people who used telephone BBSs and email at the time) detailed information on packet radio was also provided.

That year the FAQ's stewardship was transferred to Andrew Davis VK1DA, and it underwent further revision and expansion to cover more facets of amateur radio. In 1996 it had grown so much that the monthly postings on aus.radio.amateur.misc were replaced with the current web-based format on Andrew's web page.

This arrangement has continued to this day, with the FAQ receiving a major update and expansion in early 2001. The changes included even more detail for beginners, addition of new sections on emerging aspects of amateur radio and more internet links to special-interest pages.

So that's pretty much where the FAQ stands today. Those who contributed to its development over the years include Mark Cheeseman VK2XGK, Carl Makin VK1KCM, Michael Butler, Dave Horsfall VK2KFU, Rod Gamble VK2DAY, Dean Davidson VK2ZID, Paul W. Schleck K3FU, Leigh Baker VK3TP, Doug Rickard VK4ZDR, Andrew Davis VK1DA and Peter Parker VK3YE.

FAQ Contents

The FAQ is divided into several key sections. These are as follows:

- General
- Licences
- Operating
- Special Interests
- Associations, Clubs Periodicals and Information
- Equipment
- Software
- FAQ administration

The general section explains what the FAQ is about and provided an overview of amateur radio. It compares it with CB and explains what can and cannot be done with amateur radio. *Licences* introduces the reader to licence categories, exams, certificates and reciprocal licensing. The next section, on operating covers the basics of getting on air. The largest part of the FAQ is devoted to special interests. DX hunting, awards, contests, digital modes, mobile operating, VHF SSB and ATV are a few of the special interests covered in this section. The Clubs section introduces the reader to the WIA, news bulletins, available magazines and internet resources for the amateur. The remaining sections cover equipment and software availability and a revision history of the FAQ.

Conclusion

The Australian Amateur Radio FAQ has become a leading source of online information about Australian amateur radio activity. It is an education for aspiring and already-licensed amateurs alike. Point your browser to http://www.ozemail.com.au/~andrewd/hamradio/hamfaq.html and discover what it offers. Bookmark it. If you have a website, make a link to the FAQ from your page, so that your visitors can easily find out more about amateur radio.

Acknowledgements

The author wishes to thank Mark Cheeseman VK2XGK and Andrew Davis VK1DA for assistance rendered during research for this article.

ar

HF Predictions

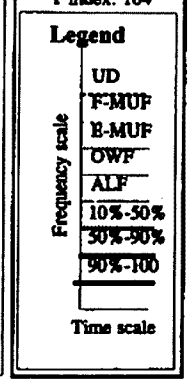
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

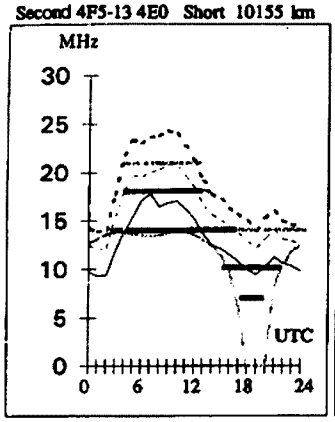
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

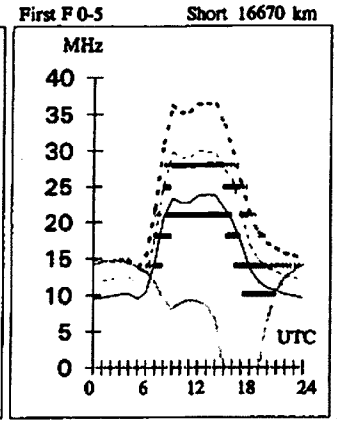
November 2001
T index: 104



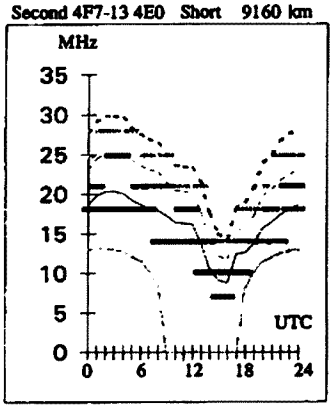
Adelaide-Capetown 30
Second 4F5-13 4E0 Short 10155 km



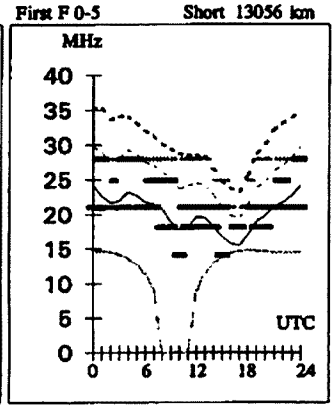
Brisbane-Dublin 335
First F 0-5 Short 16670 km



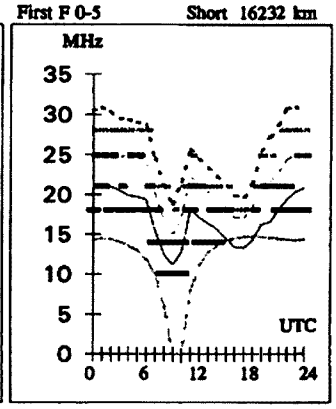
Adelaide-Honolulu 57
Second 4F7-13 4E0 Short 9160 km



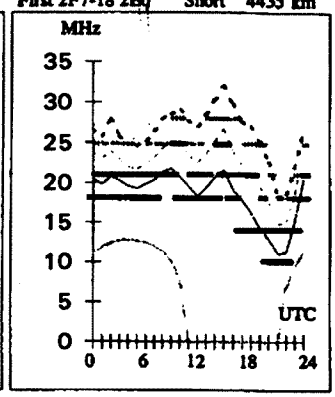
Brisbane-Lima 122
First F 0-5 Short 13056 km



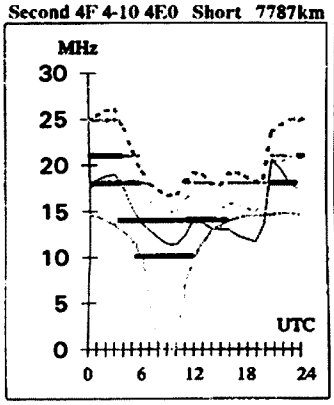
Canberra-Barbados 123
First F 0-5 Short 16232 km



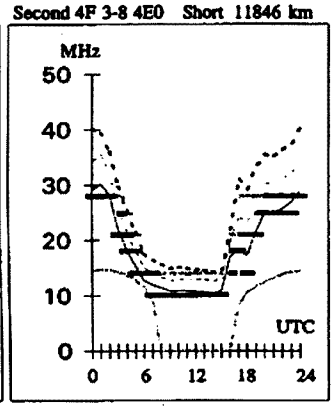
Darwin-Bangkok 310
First 2F7-18 2E0 Short 4435 km



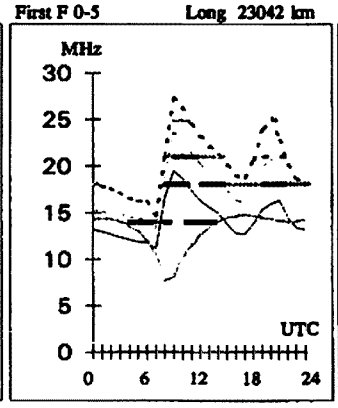
Adelaide-Osaka 246
Second 4F 4-10 4E0 Short 7787km



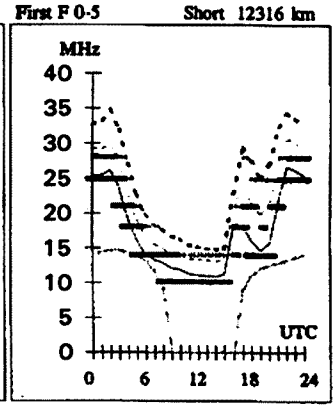
Brisbane-Seattle 44
Second 4F 3-8 4E0 Short 11846 km



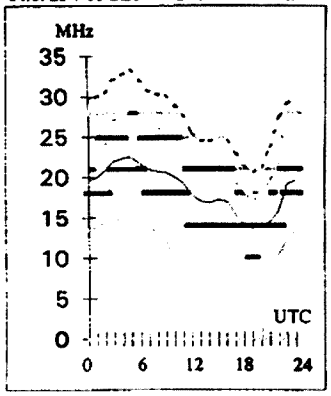
Canberra-London 136
First F 0-5 Long 23042 km



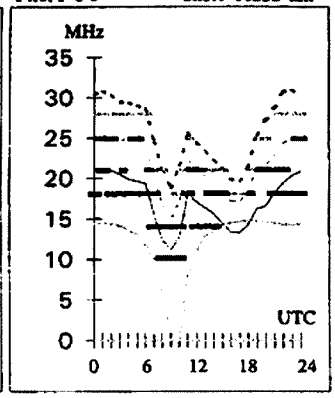
Darwin-San Francisco 54
First F 0-5 Short 12316 km



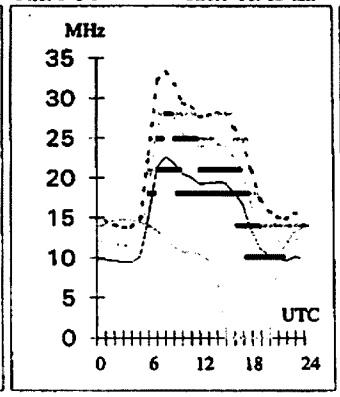
Adelaide-Singapore 311
First 2F4-11 2E0 Short 5414 km



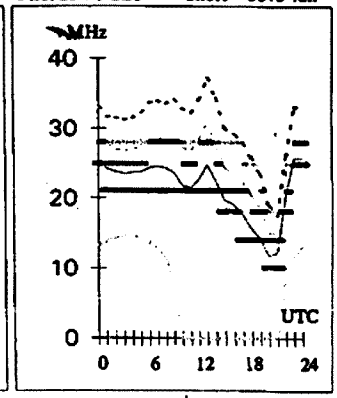
Brisbane-Barbados 123
First F 0-5 Short 16232 km



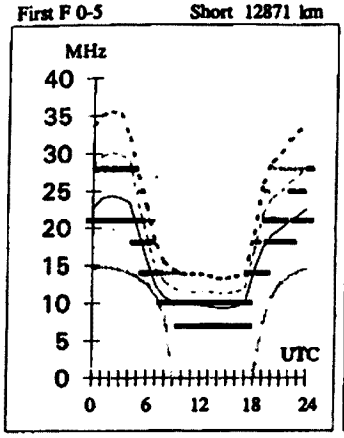
Canberra-London 316
First F 0-5 Short 16982 km



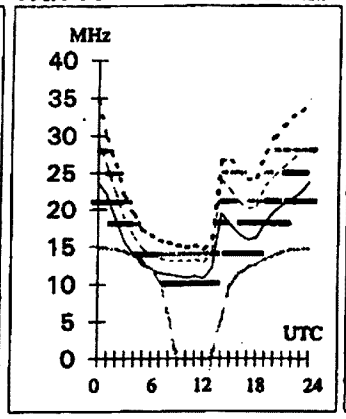
Darwin-Seoul 356
First 2F4-9 2E0 Short 5575 km



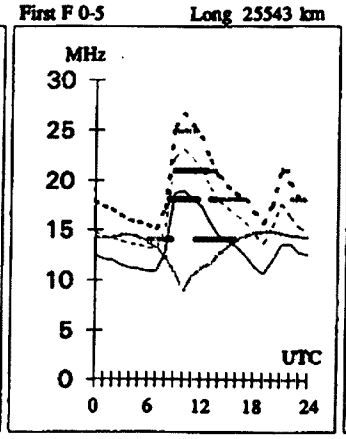
Hobart-Anchorage 28
First F 0-5 Short 12871 km



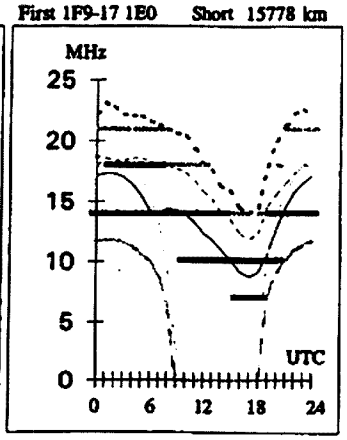
Melbourne-Chicago 67
First F 0-5 Short 15568 km



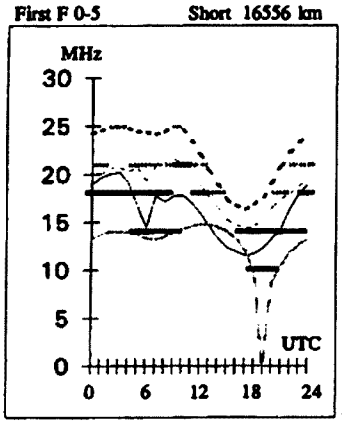
Perth-London 133
First F 0-5 Long 25543 km



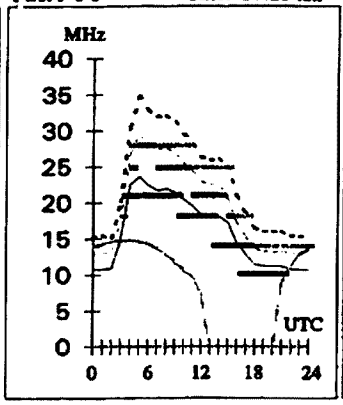
Sydney-Invercargil 138
First 1F9-17 1E0 Short 15778 km



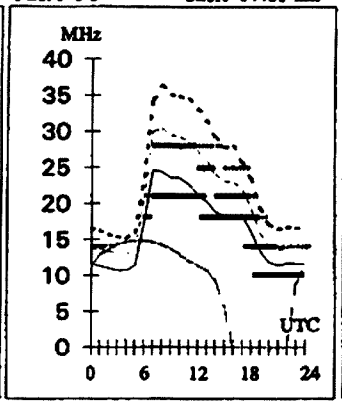
Hobart-Dakar 209
First F 0-5 Short 16556 km



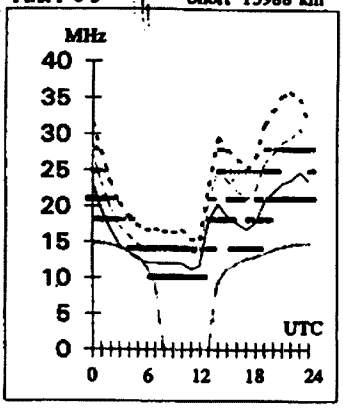
Melbourne-Moscow 316
First F 0-5 Short 14428 km



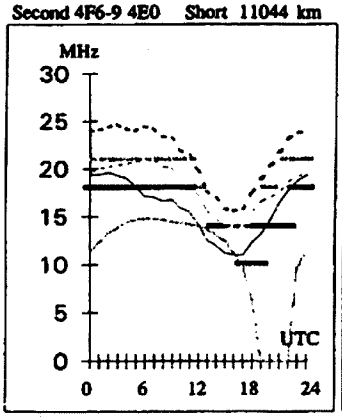
Perth-London 313
First F 0-5 Short 14481 km



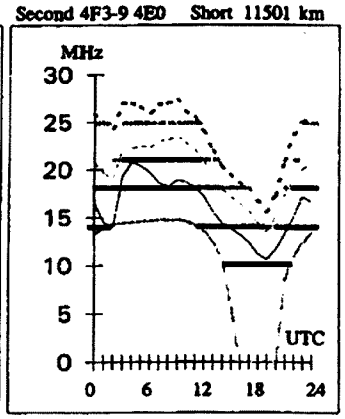
Sydney-New York 58
First F 0-5 Short 15988 km



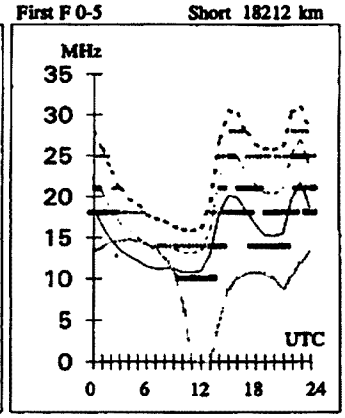
Hobart-Montevideo 161
Second 4F6-9 4E0 Short 11044 km



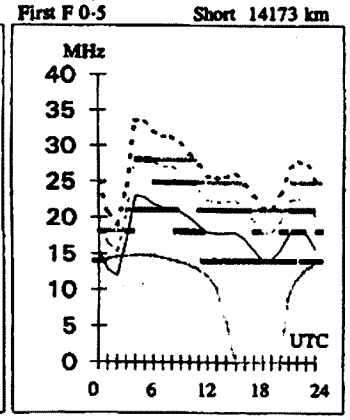
Melbourne-Nairobi 258
Second 4F3-9 4E0 Short 11501 km



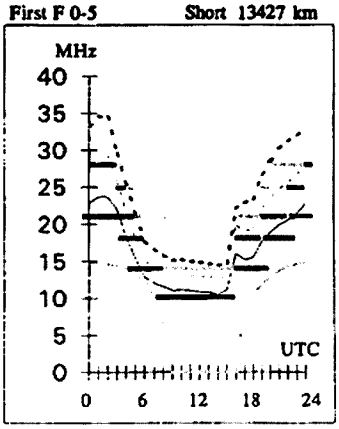
Perth-Ottawa 30
First F 0-5 Short 18212 km



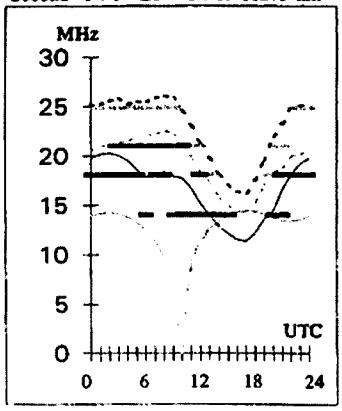
Sydney-Tel Aviv 287
First F 0-5 Short 14173 km



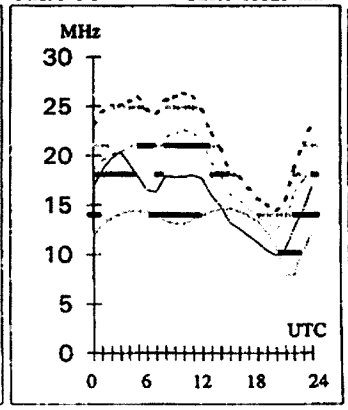
Hobart-Vancouver 49
First F 0-5 Short 13427 km



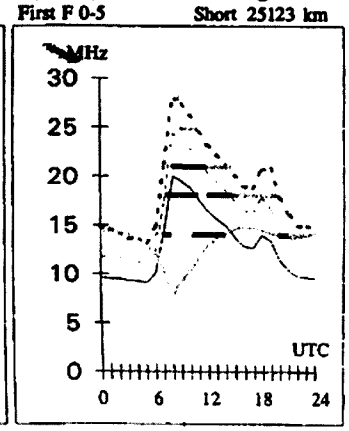
Melbourne-Santiago 150
Second 4F4-9 4E0 Short 11273 km



Perth-Rio de Janeiro 203
First F 0-5 Short 13523 km



Sydney-St Petersburg 143
First F 0-5 Short 25123 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE ACT

• KENWOOD TS-430 all filters FM board checked by Kenwood $500. TS-680 HF 6 m checked by Kenwood $700. TS-440 $1050. TS-50 $1150. TS-751 2 m all mode $450. ICOM 3200 2 m 70 cm FM $300. MB-430 mounting bracket $20. All with handbooks. Freight paid in VK. Glen VK1GL. Phone 02 6254 8002

FOR SALE NSW

• DUMMY LOADS 50 ohm 25 W (conservative). Good to 1 GHz ex Telstra $20. Posted Goulburn Amateur Radio Society. David VK2BDT. Phone 02 4821 5036.

• OSCILLOSCOPE BWD539C two channel 20 MHz serial no 34926. Manual (includes schematic) and X10 probes (qty 2) included $100.Alex VK2LB, QTHR. Phone 02 9808 1031, alexford@ozemail.com.au

• Deceased Estate: KENWOOD TS-130S, with manual, microphone and very well made 20 amp power supply (metered, over voltage protection), $450. KENWOOD AT-250 AUTOMATIC ANTENNA TUNER, $200. 2 METRE HANDHELD ICOM IC-2GAT with battery and charger, $150. TET DX-433 DX TRI-BAND ANTENNA, $200. All items in excellent condition. VK2BMZ. Phone 02 9869 2498.

• TINY 2 Mk 2 TNC plus PacComm 9600 baud module with manual, $150 the lot. Ron VK2WB, QTHR. Phone 02 4232 1794

• ANT HUSTLER 5BTV HF TRAP VERT (unused) $400; HUSTLER 90-MTK 30m kit for 5BTV (unused) $90; ICOM IC-735 HF Tcvr $2000; ICOM 20 amp PS-55 $400; OSKERBLOCK SWR-200 $50; CDE ANT. ROTOR $10; 100 m COAX CABLEDSE RG58CU 50 ohm (unused) $90;100 m CABLE H/D 26/030 red/blk (unused) $100. Cyril formerly VK2ACQ Phone 02 97014312 (leave message if unattended).

WANTED NSW

• MULTI BAND HIGH FREQUENCY VERTICAL ANTENNA for mobile use only. Preferably remote tuned type but any type considered. David VK2IX, QTHR. Phone 02 4751 6124

• KENWOOD R-820 COMMUNICATIONS RECEIVER plus operating manual. Contact John VK2TH, QTHR. Phone 02 6925 8627

• TWO MOTOROLA MIXERS IC1496/1596 or FAIRCHILD 796AC to complete a project begun 25 years ago. Vince VK2ALZ, QTHR. Phone 02 6947 2198

• SERVICE MANUAL OR SCHEMATIC FOR REALISTIC PRO-2035 SCANNER. Richard VK2SKY, QTHR.Phone (0413) 000 842 or richardm@zeta.org.au

FOR SALE VIC

• MAST WIND-UP SELF-STANDING for removal. VK3BLR, QTHR. Phone 03 9874 3583

• YAESU VX-5R 50/144/430 MHz 5 watt FM H-held Tcvr. E.C. $525. YAESU FT-2500, 2 metre 50 watt FM Tcvr Rx 130-180 MHz. Scans. New in box. $425. Len VK3BMY Phone 03 5862 3116

• Deceased Estate. ICOM HF rig IC-751A with PS-30 power supply $980. YAESU FT-101 HF rig $300. LEADER LDM-810 GRID-DIP METER $80. WELZ DUMMY LOAD 200 W or 1kW $80. LINEAR POWER AMPLIFIER 400 W (with spare tubes) price negotiable. CVS450 UHF POWER AMPLIFIER $85. MFJ-9490 VERSA TUNER $100. Manuals. Apply VK3DFE, QTHR. Phone 03 9807 3995

• KENWOOD TS-711A 2m ALL MODE TRANSCEIVER, VGC with operating manual, hand mike and service manual $600 ONO. ICOM IC-R7100 VHF/UHF RECEIVER, like new condition with original carton and operating manual etc. $1400 ONO. Damien VK3RX. Phone 03 5427 3121

WANTED VIC

• YAESU FC700 ANTENNA TUNER. Ray VK3RD, QTHR. Phone 03 9726 9222

• POWER SUPPLY BOXES in any condition for WIRELESS SET No.11 and any plugs/leads to suit these. For the radio I need the Tx tank coil and switch assembly and the two front panel bakelite jack covers and any original jacks to suit. Clem, VK3CYD. Phone 03 5126 2064 or clem@dcsi.net.au

FOR SALE QLD

• Shack clearance of items I no longer need or use. KENWOOD HEAVY DUTY PS-32, 22 amp power supply $250. HIDAKA VS-33 TRIBAND 10-15-20 metre HF trapped Yagi antenna, made in Japan, complete with balun $250. Brand new in factory sealed carton KENWOOD PS-52 POWER SUPPLY $450. New SHURE 404C HAND MICROPHONE in box, same insert as Shure 444D desk microphone with 8 pin plug wired for Kenwood $110. AWA UHF FM REPEATER Model FM-702D works very well $250. Two KENWOOD DM-81 DIP METERS complete $100 each. YAESU YD-184 dynamic golf ball style gooseneck selectable hi or lo impedance $55. CPI (USA) AMPLIFIED HAND HELD DYNAMIC MICROPHONE (USA) $50. John Abbott VK4SKY, QTHR. Phone 0417 410 503, email japat5@bigpond.com, PO Box 1166, Coolangatta 4225, Queensland.

WANTED QLD

• WWII No 19 set also Type A Mark III SUITCASE TRANSMITTER/RECEIVER and Type 3 Mark II (B2) TxRx. Ray VK4FH. Phone 07 3299 3819. Fax 07 3299 3821. PO Box 5263, Daisy Hill Qld 4127

• BUTTERNUT HF6V-X VERTICAL ANTENNA. Erection and tuning instructions at my cost. VK4PJ, QTHR. phbrown@powerup.com.au

FOR SALE WA

• PHILIPS FM-92, 2 m mods $100, SOLID STATE 70 cm LINEAR AMP, VHF Engineering BLE 10/80, 10 W in 80 W out $220, SOTA 70 cm TRANSVERTER, 432-436 MHz to 10 m IF, 10 W output $180, VK5EME AO40 S-BAND DOWN CONVERTER, 2 m IF $120. Phil VK6APH, QTHR. Phone 08 9245 2973, philh@start.com.au

WANTED WA

• AZIMUTH AND ELEVATION ROTATORS. Phil VK6APH, QTHR. Phone 08 9245 2973, philh@start.com.au

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

FOR SALE ELECTRONIC VALVES

If you are looking for valves you can contact, Gamini Liyadipitiya at email: gamini@ee.unsw.edu.au Small negotiated fee — first come first served.

AMIDON FERROMAGNETIC CORES:

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please. 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports.

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne and Mildura: Tower Communications, Perth: Haven Electronics, Nowra

http://www.hamsearch.com
a not-for-profit site that is a search engine for hams

Did Tesla really invent radio?

THIS LETTER WAS SPARKED (?) off by John Wagner's article in April AR, a reprint from an earlier publication. There appears to be quite a few people who, like Wagner, consider Tesla to be some kind of universal genius. Maybe he was, but the claim that he invented radio is dubious. Tesla's claim, supported by an American Supreme Court decision in the 1930s, centres around a lecture Tesla delivered before the Franklin Institute in 1893. Other than a demonstration of power transfer from one tuned circuit to another across several feet on a bench, and then by using quite high power, the only reference in that lecture that could possibly be taken as related to radio comes after that demonstration, to quote from his own lecture notes: "I would say a few words on a subject which constantly fills my thoughts and which concerns the welfare of all. I mean the transmission of intelligible signals or even power to any distance without using wires." He goes on to say "I no longer look upon this plan of energy or intelligence transmission as a mere theoretical possibility, but as a serious problem in electrical engineering, which must be carried out some day." This does not sound like a person who has fully thought out the way of making a working system of radio communication!

Of other names that have been put forward as the "inventor" of radio which include Mahlon Loomis (who claimed to have transmitted messages over a distance of 18 miles as early as 1866), Nat Stubblefield, and even Ernest Rutherford, Oliver Lodge is my pick. In 1894, Lodge, using a Herzian oscillator, tuned circuits, a Branly coherer and a Muirhead morse printer, gave a demonstration in an Oxford lecture by transmitting the alphabet across a space of about 60 yards and through several brick walls. Lodge, however, was a busy physicist uninterested in the exploitation of the radio idea. He left that to Marconi, whose initial transmissions amounted to broadband noise, possibly around 2 MHz and 900 MHz.

One problem for those who argue for one another of the names mentioned above is that "inventor" can mean anything from having an idea or speculation, to being the first to produce a successful working device. Tesla's 1983 remarks seem only speculative at best. There is no evidence that, in his 1893 lecture/demonstration, there was any attempt to transmit any sort of signal that carried intelligence. Nor, apparently, did he have such an immediate possibility in mind. Therefore he cannot be accorded the honour of being the inventor of radio, in spite of a legal judgement in his favour.

Rex Newsome, VK4LR ,
58 Prospect Terrace, St Lucia, QLD 4067
email: lnew@bigpond.net.au

Countdown to Commonwealth Games

FROM THE 25 JULY 2001 until 5 August 2002, 9 special event stations will be operating from the Manchester area of England. The special event will mark the 12 month count down to the start of the 17th Commonwealth games.

There is an award set up for this event and an internet gateway is being provided so that the VHF operators can work the award also. HF modes of operation will be CW, PSK31, SSTV, AMTOR, RTTY and PHONE, A list of all stations and further details are available from http:www.geocities.com/gbgames2002.

We will look forward to hearing from VK.

Kev G0TOG

Response to 'Hams, exams and Tim Tams'

IN RESPONSE TO Ian Jackson's letter in October AR I would like to make the following comments.

I would agree we should make it easier for would be radio enthusiasts to get on the air. We cannot afford to be elitist and Morse code is only one mode of communication.

I would definitely agree we need publicity, although we should be wary of the "full in the face" variety as it tends to have the opposite effect. Many people are unaware of the existence of Amateur radio as a hobby and, those who do know about it, tend to see it mostly as an extension of CB. Demonstrations to schools, Scout and Guide groups, in shopping centres etc. would achieve some positive publicity. I have heard that VK6 is considering a vehicle fitted out for this purpose, but I would like to see an emphasis on the aspects of Amateur Radio that set it apart from CB.

Graham Dixon G8CGK tells me narrowband television tends to attract a lot of attention. I could see NBTV as the basis for a challenging project not beyond the capabilities of average high school students or Scout or Guide groups with appropriate support. This would be a bandwidth suitable for HF or recording on an audiocassette recorder.

As well as NBTV there are three other video modes, eleven digital modes and space communication. All used appropriately in our bands from 1.8MHz to 250GHz.

Although nostalgia can be part of Amateur Radio, the days of the 807 are over and focusing on that type of technology will not attract new members. The upside is that new technology is safer, affordable and a lot easier to work with. It is possible for a novice to get on the air with a direct conversion receiver, built around a 602 chip or similar device.

It is easier now for people who wish to be constructors and experimenters, however, people can loose interest if they find it hard to obtain parts or if they are not too sure how to do things. This is where clubs can perform an active role in addition to being places to meet and chat. I think it would be beneficial to our hobby if the clubs were to perform a more active support role. As well as holding AOCP classes they can be sources of ongoing education and problem solving. PC based courses and data banks could be used. Clubs can be sources of parts and how to use them eg. SMD.

Some clubs could have test and fabrication facilities; not everyone these days has room for a workshop. So this could help membership and encourage experimentation.

Well that "my two cents worth". Who else would like to have a say?

James Robertson VK5ASE
PO Box 110, Flagstaff Hill, S.A. 5159

I FOUND IAN JACKSON'S letter under this heading (AR Oct2001) interesting and constructive and I offer the following comments as well as offering support in achieving some of his objectives.

Idea One. Ian proposes ways to get people on air without passing any examination for technical knowledge. Bad idea Ian. If you want to get people on air without testing technical knowledge get them into CB radio which can be very interesting and indeed is a path many amateur radio people have followed. Amateur radio is not a technical knowledge free zone and we are supposed to be people who show evidence that we understand why and how our radios do or do not work.

Idea Two. Get some real publicity going says Ian. Great, lets get going. The WIA family unfortunately lacks corporate memory on such things but over the years many have asked for publicity material including posters for publicising amateur radio in schools, clubs, libraries etc hut despite the good intentions of various office holders the need gets forgotten. So lets all put our shoulders to the wheel and support this initiative and get some professional publicity about our hobby into the market place.

Idea Three. Simplify the exam procedure by combining the novice and full call exams with two pass marks, one for novice and the other for full call. An excellent idea Ian and obviously you are a brilliant chap because I had never thought of that solution. So, again lets all get behind Ian and push to achieve this objective. There are some obvious difficulties with the proposal but they are minor compared to the benefits to be obtained from implementing Ian's approach

Well Mr Editor, a very interesting set of ideas from Ian Jackson VK3BUF and you are to be complimented on giving him the space to get his ideas out into the open. I for one intend to spread support for his ideas numbers two and three. If there is anything I can do to help, I would be glad to put some effort into it.

Ken Fuller VK4KF
PO Box 396, Wynnum 4178
Ph 07 3901 1037
email patken@powerup.com.au

Address Letters to:

The Editor,
Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

YAESU SUPER DE'AL!

Yaesu FT-1000MP Mark V Deluxe HF Base Station

Yaesu is proud to enter a new chapter in the history books with the new premier-class MARK-V FT-1000MP. Offering new features such as 200W PEP RF output, a Class-A RF power amplifier, interlocked Digital Bandwidth Tracking, a variable RF front-end preselector filter and improved control layouts, the MARK-V represents the highest overall performance ever offered in a Yaesu HF transceiver.

Whether your interest is in ragchewing or contest operation, the MARK-V's outstanding hybrid analogue/DSP receiver IF chain incorporating a new 10 pole Collins SSB filter and the use of Enhanced Digital Signal Processing (EDSP) with improved front panel access provides dramatic improvements in readability under tough conditions. For ease of use, the new MARK-V uses an external FP-29 power supply which can be mounted next to the transceiver, or under your operating desk. Yaesu's IF-based EDSP system provides noise-reduction protocols, audio enhancement with equalisation programs for Tx and Rx use and an automatic notch filter which identifies and eliminates multiple interfering carriers.

The MARK-V FT-1000MP also features selectable receiver front-ends, High-stability Reference Oscillator, an internal high-power auto antenna tuner, two main antenna sockets, selectable tuning steps as small as 0.625Hz, dual-mode noise blankers, 500Hz and 6kHz IF filters, an RS-232C computer interface, plus easy digital mode interfacing. With so many new and improved features, why not ask for a copy of the 8 page colour brochure today to learn more about this amazing new transceiver.

D 3450

2 Year Warranty

$5990

SAVE $500!

YAESU

On display at selected PowerHouse stores only. Please call for details. All Yaesu products are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia.

Offer expires 30/12/2001.

DICK SMITH ELECTRONICS

That's where you go!

3572D IBC 4 col.

ICOM'S GREAT CHAMPIONS

IC-756PROII NEW!

Sharp & soft IF filter shape · Improved 3rd IMD & wide dynamic range · One-touch record/play · Digital voice memory · Extended 1/4 Tuning step & BPF functions for SSB-D mode · 32-bit floating-point DSP and 24-bit AD/DA converter · SSB/CW synchronous tuning · 4.9-inch color TFT LCD

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional AF DSP capabilities, including noise reduction & auto notch function. It's versatile, compact & loaded with features.

IC-910H The new dimension in the VHF/UHF world!

Tri band multimode transceiver · 2M -100W, 70CM - 75W, (optional 23CM, 10W) · 9600GPS packet operation · Satellite communication · Reverse/normal tracking doppler shift compensation · CIV capability for PC control

IC-706MKIIG HF · VHF · UHF

The amazing evolution of the legendary 706.

Now includes 70cm @ 20W and output power has been increased to 50W on 2m. You get base station performance and features in a mobile rig sized package.

IC-T81A

A remarkably compact tri bander.

VHF/UHF Multiband FM · 2M, 6M, 70CM, 23CM · 124 alphanumeric memory channels · Ni-MH battery Tone squelch · "Joy Stick" operation

ICOM Clearly Ahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

2 YR WARRANTY

December 2001
Volume 69 No 12

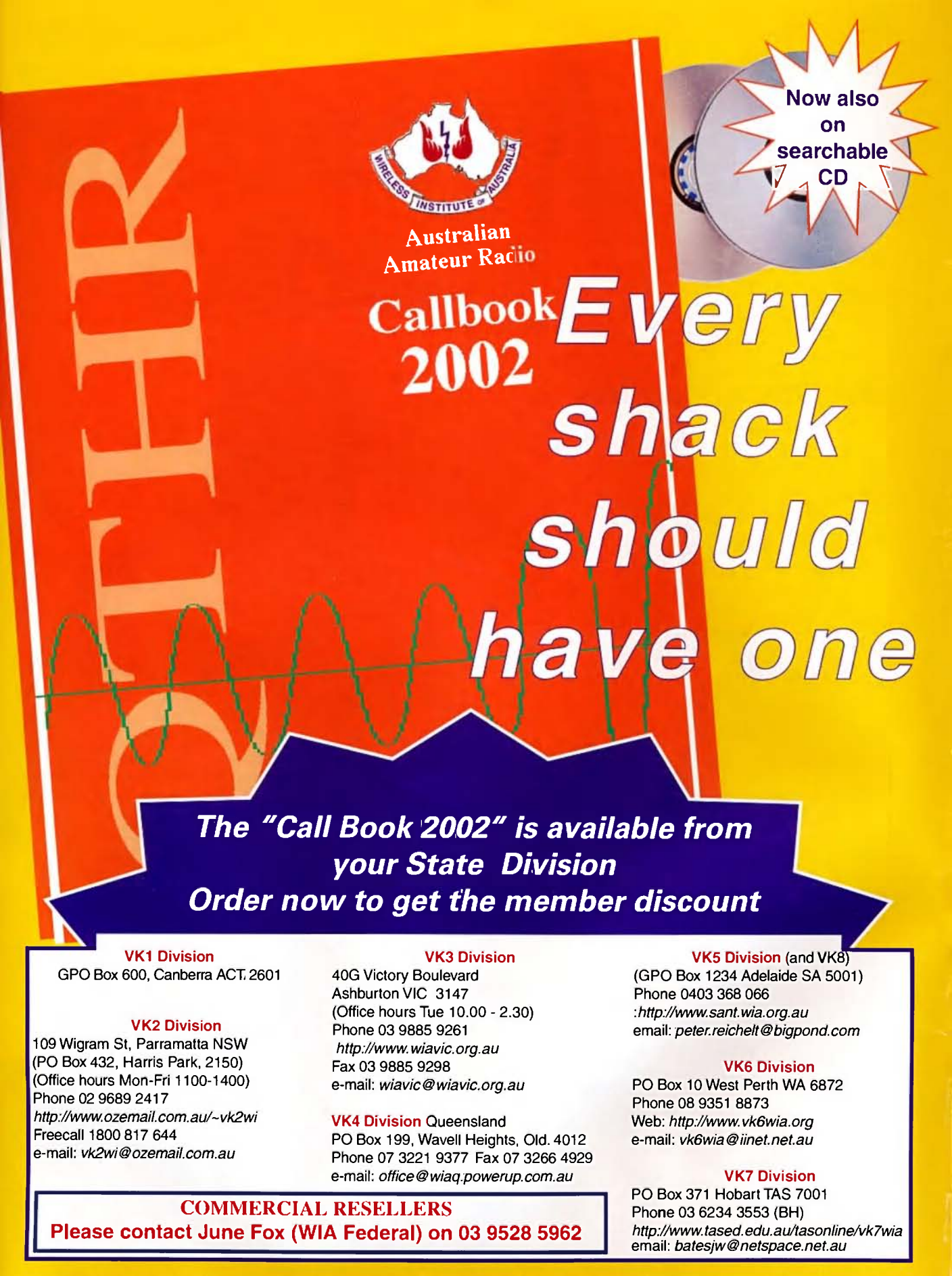
Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

More QSLS from the WIA QSL collection

Let's go WARCing

- A X1000 probe for high-voltage measurements
- The Outback 813 amplifier—A single 813 on 20 metres
- Taming the quad antenna
- New ways to improve SSTV images
- Noise Reducing Aerial


Now also on searchable CD
Australian Amateur Radio
Callbook 2002
Every shack should have one
The "Call Book 2002" is available from your State Division
Order now to get the member discount
VK1 Division
GPO Box 600, Canberra ACT 2601
VK2 Division
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
http://www.ozemail.com.au/~vk2wi
Freecall 1800 817 644
e-mail: vk2wi@ozemail.com.au
VK3 Division
40G Victory Boulevard
Ashburton VIC 3147
(Office hours Tue 10.00 - 2.30)
Phone 03 9885 9261
http://www.wiavic.org.au
Fax 03 9885 9298
e-mail: wiavic@wiavic.org.au
VK4 Division Queensland
PO Box 199, Wavell Heights, Old. 4012
Phone 07 3221 9377 Fax 07 3266 4929
e-mail: office@wiaq.powerup.com.au
VK5 Division (and VK8)
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
:http://www.sant.wia.org.au
email: peter.reichelt@bigpond.com
VK6 Division
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: http://www.vk6wia.org
e-mail: vk6wia@iinet.net.au
VK7 Division
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
http://www.tased.edu.au/tasonline/vk7wia
email: batesjw@netspace.net.au
COMMERCIAL RESELLERS
Please contact June Fox (WIA Federal) on 03 9528 5962

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 69
Number 12
December 2001

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031

e-mail: *newsletters@ozemail.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191

Business Hours 9:30am to 3:00pm weekdays

Postal

The Editor AR
34 Hawker Crescent
Elizabeth East
South Australia 5112
Email edarmag@chariot.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

General

Technical

Columns

Our cover this month

Bill Rice VK3ABP was granted Life Membership of the WIA in recognition of his service to Amateur Radio in general and Amateur Radio Magazine in particular. Brenda Edmonds VK3KT Federal Director WIA made the presentations at the Amateur Radio Magazine Publications Committee Meeting on 13th November 2001. The presentation consisted of a Life Membership Certificate, a Life Membership Pin and a cheque.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Federal Secretary

Peter Naish VK2BPN

Federal Office staff

June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

Council

President	Ernest Hocking	VK1LK
VK1 Federal Councillor	Gilbert Hughes	VK1GH
VK2 Federal Councillor	Barry White	VK2AAB
VK3 Federal Councillor	Jim Linton	VK3PC
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6UU
VK7 Federal Councillor	Phil Corby	VK7ZAX

Executive

Brenda Edmonds VK3KT
David Pilley VK2AYD
Don Wilschefski VK4BY

Federal Coordinators

AMSAT	Graham Ratcliff	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	Mal Johnson	VK6LC
Contests	Ian Godsil	VK3VP
Education	Brenda Edmonds	VK3KT
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Grant Willis	VK5ZWI
Intruder Watch	Harry Andersson	VK8HA
International Travel Host	John Miller	VK3DJM
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (VK9, VK0)	Neil Penfold	VK6NE
Videotapes	VK2 Division	
Web	Joe Burford	VK5UJ

ACA Liaison Team

Ernie Hocking VK1LK
Gilbert Hughes VK1GH
Keith Malcolm VK1ZKM
Peter Naish VK2BPN

Canberra Liaison Officer Richard Jenkins VK1RJ

Editor's Comment

Colwyn Low VK5UE
edarmag@chariot.net.au

"What is Amateur Radio? "

This topic came up recently. I suppose those of you who read Editorials have an idea of where I stand, but I think I might try and put a few thoughts to you.

1. Amateur Radio must have something to do with electromagnetic waves and the transfer of information.
2. It is not a professional activity though it aspires to high professional standards.
3. The development of electronics last century has seen considerable additions to simple systems to make them more efficient both in the transmitter and the receiver.
4. We now have access to a wide range of activities covering specific regions of the EM spectrum from tens of kilohertz to light and there are many different ways of processing the information we seek to share with others. This brings continual new challenges to how we operate and what we operate.
5. We all try and operate to a code of practice. A good example of this is that used by the ARRL and published in their Amateur Radio Handbook.
6. There is also a motivation that gets you up in the dark to work DX, to camp out on Field Days, to stay awake in a contest for 24 hours, to spend weeks getting a circuit to work just right, to climb mountains in the rain and snow to fix a repeater plus many other things

Then we also need to have a link into the Government regulatory body to ensure we still have access to spectrum and that we can work with other users of this finite resource. The WIA is the Australian National Radio Society recognised by the Commonwealth Government. So it is very important that it continues to be effective. We need to be always mindful that all the Office Bearers of the WIA are VOLUNTEERS. WIA Federal has only two paid part time staff, in its Melbourne Office.

The viability of any organisation is bound up with how it meets its members needs and how the members are able to come together and express these needs. One of the roles Amateur Radio Magazine plays is to provide a place where members can air their views.

Well we are now into the Christmas Season. This means holidays, it means parties, it means religious celebrations and it means opportunities to try and spread good will in our present troubled world. One of the great things about Amateur Radio is its ability to bring people of all races into contact in a non threatening atmosphere where they can share a common bond and hopefully erase some of the artificial barriers nations build up between themselves.

I pray that you may all have a Christmas season that you enjoy and that you may be able to spread a little 'Good Will' and some 'Good Cheer'. Some of you may even get some new equipment from Santa !!!!

ar

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of OCTOBER 2001

L50368 MR I E WESTGARTH
VK3ALC MR D BRENNAN
VK3JDE MR J DUNBAR
VK3URC MR R CRAWFORD
VK3VYD MR R L MARCHANT
VK4CBT MR F TIEPPO
VK4GQ MR P M BENNER
VK4JDP MR D PENNYCUICK
VK4KXL MR M MAGILL
VK4NBC MRS B E CLAYTON
VK4PA MR A L PRICE
VK4SKL MR A MCCASKILL
VK4TMZ MR M C ZUERCHER
VK4VKZ MR D J CANTWELL
VK4WDM REV W D MELROSE
VK4WIT TOWNSVILLE ARC
VK5NIU MR T D MOORE
VK6YLW MR L W KOAY
VK7CQ MR D WESCOMBE-DOWN

WIA Comment

Ernest Hocking VK1LK, WIA Federal President
Email: president@wia.org.au
PO Box 691, Dickson, ACT 2602

Marconi Day

By the time this copy of AR reaches you we should be in the middle of the Marconi Day celebrations. I know that a number of Division and clubs have made special arrangements including obtaining special callsigns for the event. I would like to take this opportunity of wishing all amateurs well at this time and trust that you all experience great conditions for communications. Also well done to all those amateurs who have been able to use the event to promote the hobby through both the local and national media.

AR Matters

Many of you will have heard by now that Dick Smith Electronics have been forced to cut back on their advertising throughout Australia. This will have an immediate impact upon the budget allocated to producing AR. Earlier this year I reported on the New Zealand experience with the production of *Break In*. Due to financial restrictions NZART was forced to reduce *Break In* to 6 issues per year. In the current financial situation, factors such as loss of advertising will force the WIA into making some difficult decisions about the way we publish AR in the future.

The costs of AR are not in the development of the content but rather in the costs of production and distribution. I have heard many comments in recent months about the recent improvements to the quality and content of AR. Well done to all of those members involved in this effort. However many of us still experience delays in receiving AR. These delays are not due to the date of publication but rather problems with the distribution (and specifically a conscious decision by the executive not to pay the high costs of speedier delivery).

We need to act to address this matter of reducing advertising budget and increasing costs. At the moment the executive are looking at a number of alternatives:

- Do nothing and accept that AR will cost more to produce and simply raise membership costs.
- Find alternate sources of funding or advertising revenue to make up the current shortfall
- Reduce AR to 6 issues per year
- Consider the option of piggy backing AR onto another magazine. This would see AR as a self contained insert in another magazine. The WIA would retain full editorial rights and the insert would to all intents and purposes be the same as the current AR. Any such proposal would require that the new AR was mailed directly to members as is currently the case. The major difference with this approach rests in that the AR insert would then also be available to the wider public when that magazine reached the newsstands.

I have already asked the councils for their opinions on these issues. This is your chance to make your opinions known. If you have a point of view, please let me and your Divisional Councillor know what your thoughts are.

The 2002 Callbook

Many of you will have seen the advertisement in last month's AR for the Callbook. This year we have made a number of changes. The first is to restrict the Callbook to a callsign listing only. We still hold a large number of copies of the 2001 Callbook with the reference material included within it. Therefore we decided that we would offer members the option to buy both this year's callsign book along with last year's Callbook at a reduced price. Members wishing to buy only the 2002 Callbook will be able to do so at a reduced price reflecting its lack of reference material. In future this separation of callsigns from reference material will allow us to consider the option of publishing the reference material in a separate WIA reference or handbook.

The second difference is to publish the Callbook on CD ROM. This is inevitably a contentious issue. I know a number of people will have concerns about illegal copying and distribution. This is an issue faced by many publishers of electronic media. My research indicates we would be failing the membership if we do not embrace modern technology to deliver information and services. The raw callsign listing is already available from the ACA both on the web and via CD ROM and thus already able to be copied. Given this, I believe the WIA should pitch in and make its version available.

The executive and I will be closely monitoring sales of the new style Callbook and CD ROM to assess your reactions. If you are interested in seeing the reference material published separately please let me know. It would be a real achievement for WIA to be able to publish an annual reference book along the lines of the ARRL and RSGB handbooks.

2002 Convention

The executive has already begun planning for the 2002 WIA convention. As I noted in my NZART trip report there are number of things that we can do to improve the current convention format. These include:

- Dealing with as many matters as possible by postal vote prior to the convention in order to release time to concentrate on strategic issues
- Setting time aside to consider the future structure of the WIA and how it will need to operate in the next few years.
- Providing some form of on-air reporting of matters under discussion using perhaps HF, RTTY, or IRLP to achieve this
- Organising a dinner event open to any WIA members who wish to attend and have a chance to make their opinions known to the executive and the council.

Please let me know if you have any thoughts or suggestions that can serve to make the next convention a great meeting of amateur radio operators.

Recent Correspondence

One of our members asked me the question "what is at the core of amateur radio?" Many of us will have different responses to this question. If you have a particular view please write to me.

ar

A X1000 probe for high-voltage measurements

Drew Diamond, VK3XU,
45 Gatters Rd.,
WONGA PARK, 3115.

In electronics, radio and TV work, there are instances where it is necessary to measure a high voltage potential. Most ordinary digital multimeters (DMM or DVM) generally only measure up to perhaps 1000 or 1200 Vdc, and maybe 750 to 1000 Vac. But beyond about 1000 V- what can we do? For popular 10 megohm input impedance instruments (such as a DMM) the most widely accepted method is to use a high-voltage multiplier probe to scale the voltage down to a more appropriate value.

The "HV multiplier probe" is so named because the DMM's range is multiplied, but what actually takes place is a division of voltage by some known factor, usually 1000 : 1. For instance, if it is required to measure say, the 22,000 V (22 kV) potential on a TV receiver's picture tube, when contacted to the tube the HV probe would deliver 22.00 V to the input of a 10 megohm DMM or VTVM. Similarly, the 3 kV plate/anode supply for a high-power transmitting amplifier would measure 3.00 V, and so on. The physical construction of the probe also permits the user to examine the circuit under test without risk of receiving a 'bite' through the probe.

Such probes are available commercially (generally from suppliers to the TV service trade), but for the amateur worker, who might only make occasional (albeit vital) measurements, the cost of a suitable probe would seem high. Here are details of a home-made probe which, if made in accordance with the following, may be used to make quite accurate HV measurements up to 25 kVdc.

Circuit

The goal was to construct a probe using ordinary parts from our customary electronics/electrical suppliers. The highest catalogue value 1 W resistors are 10 megohm, so it was decided to try a string of resistors to obtain the necessary division ratio. A number of these were purchased from Jaycar, their value measured, then 'soaked' by applying 1500 Vac rms (2100 V peak) across each resistor for several hours. No measurable change in resistance value was observed, nor did any voltage break-down or excessive heating occur. Interestingly, although they are specified 5%, all of my samples were well within that tolerance.

A string of nine 10 megohm resistors, and a parallel combination of a 100 k 1% and 1.2 megohm resistor form a voltage divider network, which, when connected to the conventional 10 megohm input of a DMM (or VTVM) divides the input voltage by close to 1000. In practice, measured dc voltages are within 2% of applied voltage.

For AC voltage measurements, the measured voltage will always be a little less than actual applied voltage, by up to about 5%. This error is caused by the necessary shielded connecting cable between the probe and meter, which may have a capacitance of typically 250 pF/metre, whose 12 megohm reactance (at 50 Hz) effectively appears in shunt with the bottom divider resistance.

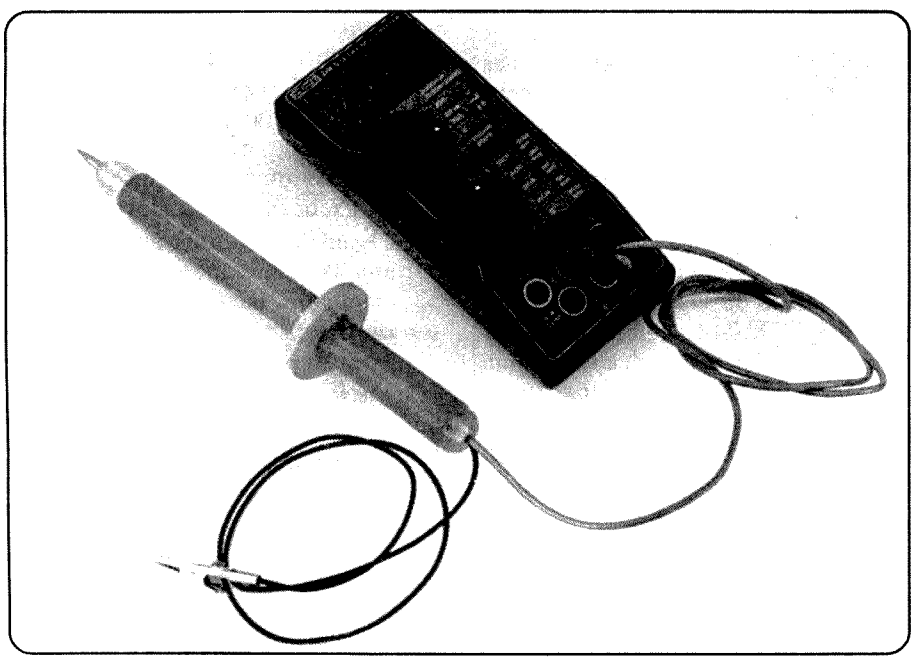


Photo 1. Probe and DMM

Construction

The main body of the probe is made from a 185 mm length of ordinary 20 mm o.d. electrical conduit tube. The nine 10 M resistors, and the shunt resistors are accommodated upon a 175 mm length strip of plain circuit board- phenolic or

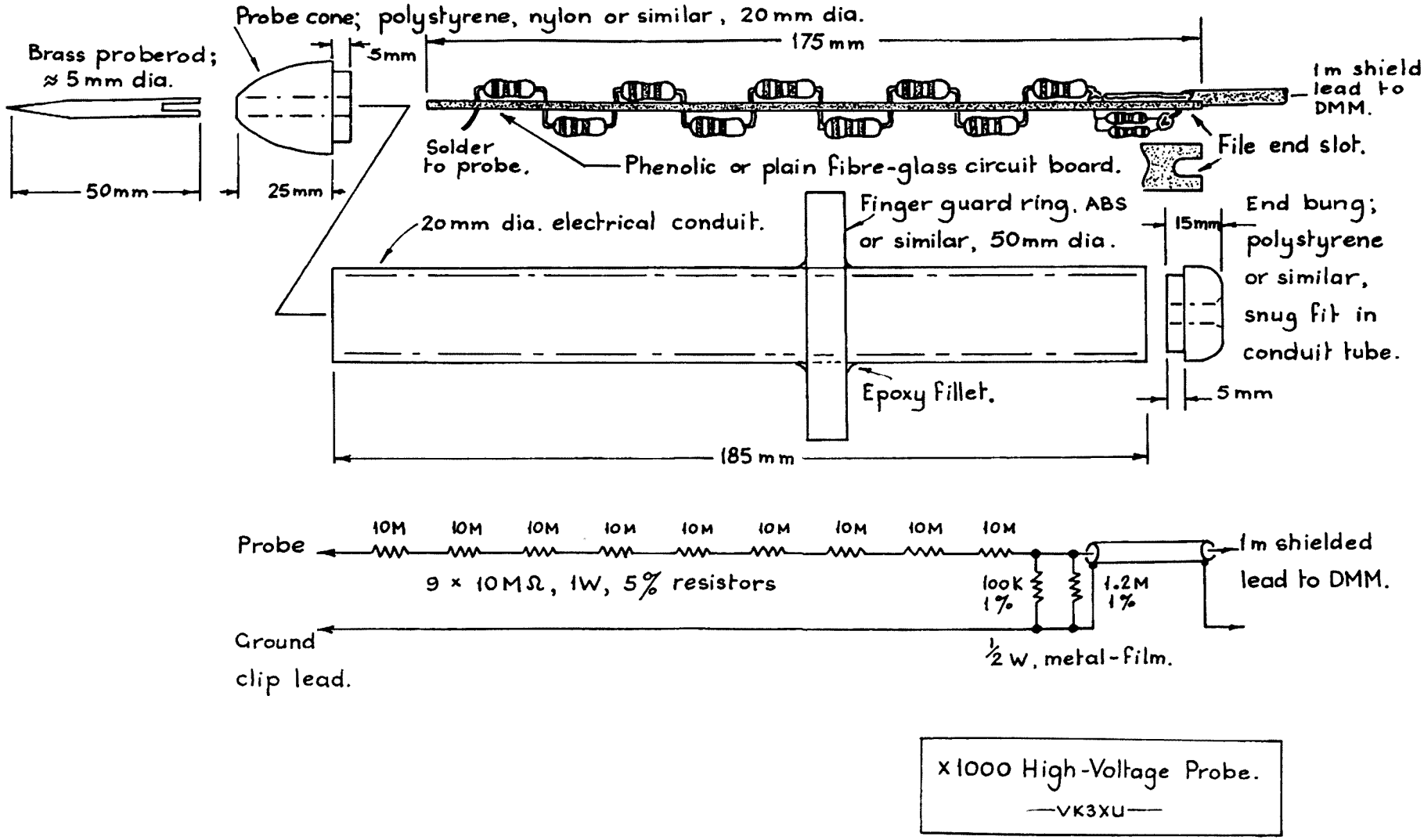

Probe cone; polystyrene, nylon or similar, 20 mm dia.
Brass proberod; ≈ 5 mm dia.
5mm
175 mm
1m shield lead to DMM.
Solder to probe.
Phenolic or plain fibre-glass circuit board.
File end slot.
50mm
25mm
20mm dia. electrical conduit.
Finger guard ring. ABS or similar, 50mm dia.
15mm
End bung; polystyrene or similar, snug fit in conduit tube.
Epoxy Fillet.
5mm
185 mm
Probe
10M 10M 10M 10M 10M 10M 10M 10M 10M
9 × 10MΩ, 1W, 5% resistors
100K 1%
1.2M 1%
1m shielded lead to DMM.
Ground clip lead.
½ W, metal-film.
x1000 High-Voltage Probe.
—VK3XU—

Figure 1

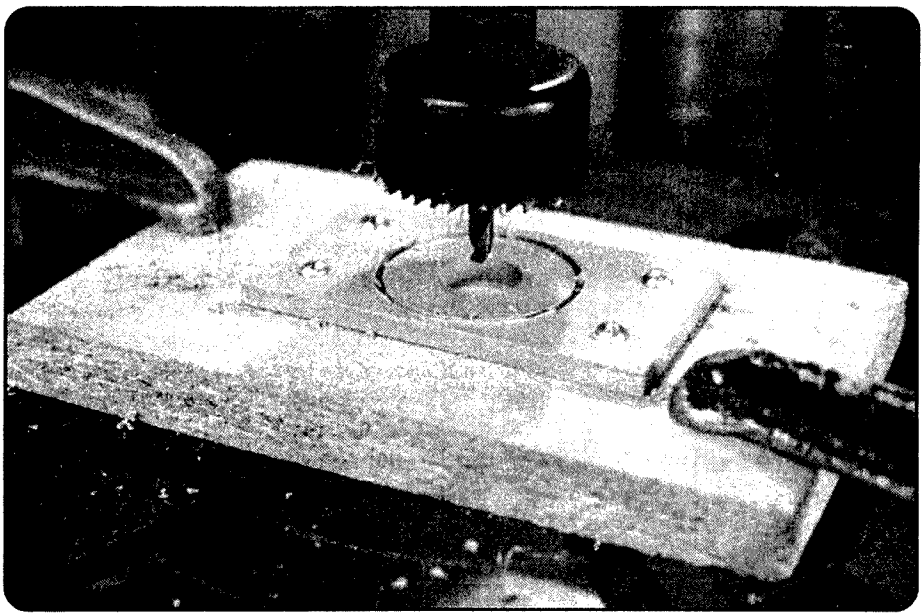


Photo 2. Hole-sawing the guard

plain fibre-glass (copper etched off), made to slide fit into the conduit. The resistor leads should be inserted through #55 (or 1 mm) holes drilled in the board, and their leads soldered together at each join. The resulting assembly will fit best in the tube if the resistors are alternated, as shown in the drawing. File a small notch at the bung end of the circuit board to permit the cable to exit without bending. Remember to allow also for the flexible ground connection clip lead.

The cone or bullet-shaped probe insulator and end bung were made in the lathe from 20 mm dia. polystyrene rod, although nylon or other similar excellent insulation material may be used. They should be turned carefully to size in order to provide a good interference fit inside the conduit tube, thereby making them self-retaining. If no lathe is available, these parts may be fabricated by adapting suitably sized items such as rubber grommets etc.

A finger guard is mandatory, as it reminds the user to hold the probe well back from the tip. That shown was hole-sawn from a rectangle of 12 mm thick ABS (the grey or orange plastic material, much used in electrical work) before which the central 20 mm hole was bored and hand-reamed to exact size. A suggested method of hole-sawing the ring is depicted in Photo 2, where the ABS is attached to an off-cut of chip-board with four screws, which in turn is affixed with G-clamps to the drill table. Clean up rough edges with a bastard file. The guard ring is slid onto the conduit- about 2/3rds the way along, and fixed there with a fillet of epoxy glue.

Plain (or threaded) brass rod, about 5 mm diameter is ideal for the probe tip. The point may be formed in a "poor-man's lathe" by fitting the rod into the chuck of a vice-mounted electric drill, where a file is applied to the rotating brass to form a point. The other end should have a slot filed (with a needle-file) as shown, for a slide fit onto the HV end of the circuit board. Drill a #55 or 1 mm hole through the brass, and a matching hole in the circuit board, then the resistor's lead is looped through and soldered, thus providing an electrical connection and physical anchor for the probe tip.

Upon assembly, the cone insulator is first fitted into the conduit, then the circuit board and tip may be inserted into the tube so that the probe tip enters the hole then "bottoms out" as the board abuts the insulator. The end bung is then carefully pushed home. Fit a dual banana plug (or other suitable plug(s) to suit your DMM's input) to the meter end of the screened cable.

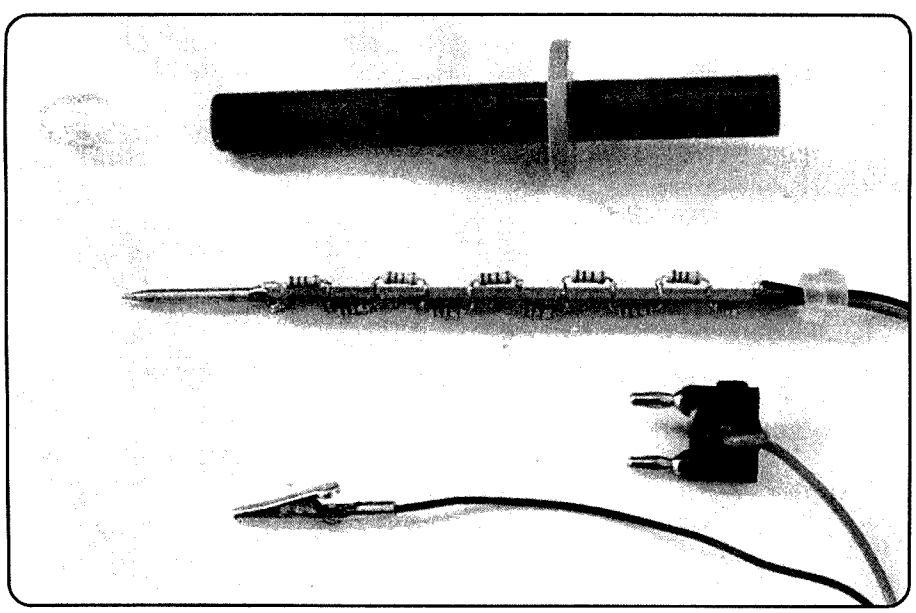


Photo 3. Probe components

Operation

In use, all measurements MUST be taken with reference to earth or chassis ground- which is usually the case with ordinary voltage measurements, so the ground clip lead is attached to the "earthy" side of the circuit under test. The probe is held with fingers behind the guard, and carefully touched upon the test point. If, for example, a voltage of about 3 kV is to be measured, the DMM is set for a range which includes 1/1000th that potential, eg. 20 V. Now a reading of (say) 3.12 V represents an actual voltage of 3.12 kV or 3120 V. AC voltage measurements are done similarly, but keep in mind that the measured voltage (at 50 Hz) will generally be about 5 % below actual due to the capacitance of the connecting cable.

Continued next page

Amateur Licence Renewals

5 year term still available

The five-year renewal option is available. The renewal cost for a 5 year Amateur licence is $224.80.

These two internet links will give you all payment options.

http://www.aca.gov.au/publications/info/amateur.htm#Fees_and_Charges

http://www.aca.gov.au/licence/fees/alfs.pdf (Table 4 Non Assigned Licence Fees - on page 45)

You can either pay by mail to Australian Communications Authority
GPO Locked Bag 3370
MELBOURNE VIC 3001

Or in person at any ACA office;
http://www.aca.gov.au/contact.htm

Or by BPay by entering the biller code of your renewal notice.

For further information contact:
Jean-Guy Célestin
Australian Communications Authority
NSW Regional Office, Sydney Customer Access Team
Tel: (02) 9245 4028
Fax: (02) 9245 4099

AMSAT chief to visit Melbourne

A world expert on amateur satellites will be the guest speaker at Melbourne's Moorabbin and District Radio Club in February. Robin Haighton VE3FRH will be talking about the Phase 3D/AO40 satellite, which is now successfully operating despite some post-launch difficulties, and the next exciting generation bird known as "Project JJ".

Moorabbin District Radio Club President, Keith McCarthy VK3JNB said he extends a warm invitation to all to attend the club's monthly meeting on Friday 22 February. Keith VK3JNB said the night will be a rare opportunity to hear first hand about the world of amateur satellites from the leader of AMSAT NA. The club committee believes the presentation will be equally of interest to those who now use amateur satellites, and those just thinking that one-day they would like to do so.

Robin VE3FRH said his presentation lasting about 45 minutes is to include the latest developments from AMSAT and questions from the audience will be most welcome. In a recent article in QST magazine he discussed the "Project JJ" satellite which promises to make satellite working even easier.

Robin VE3FRH said: "We would like people in apartments to have access to satellites with relatively compact equipment and not have to swing large antennas around. We're looking at our next satellite to provide that." He said it also might employ digital modulation capabilities that could make the new satellite "probably at least 10 dB better than anything we're currently using."

Like AO-40, the new satellite will have an elliptical orbit to provide hours of access every day. As conceived, the new satellite would at least be useable by radio amateurs with omnidirectional antennas at perigee, plus users with good antennas at UHF as well as L-band and S-band. AMSAT-NA is already negotiating with satellite launch agencies, preliminary design work will begin mid-2002, and Robin VE3FRH believes the project could reach fruition within three years.

Come along and meet Robin VE3FRH at the Moorabbin District Radio Club on Friday, 22 February, 2002, at the combined clubrooms, Turner Road, Highett (Melway 77J9), starting 8pm.

Supplied by WIA Victoria Tel. 9885 9261 40G Victory Boulevard Fax. 9885 9298 Ashburton 3147

A X1000 probe for high-voltage measurements (continued)

Some salient rules for high-voltage work are;

1. Locate and identify all high-voltage points of the equipment under test before making measurements.
2. Work with one hand in your pocket.
3. Ensure that no part of your body touches ground whilst making a measurement.
4. Remember that any point in an item of faulty equipment may be at high potential- use a HV probe when in doubt.
5. Avoid working alone on high-voltage equipment.

To measure the anode voltage of a TV or monitor tube, the probe tip is carefully inserted under the silicone connector cover, then worked inwards until contact is made. You may observe some corona effects (a blue arc, and a hissing sound) as the probe is brought into proximity with the test point.

Parts

The 10 megohm 1 W resistors (P/N RR-2870), 100 k 1% 0.5 W (RR-0620) and 1.2 M 1% 0.25 W (RR-1650) are available from Jaycar Electronics. Ask an electrician mate for an off-cut of ordinary 20 mm conduit for the tube body, and some ABS plastic material for the guard ring (bet he asks you to make him one too- for those microwave oven jobs).

References and Further Reading

1. "Measuring High Voltages"; I. White, (G3SEK) "In Practice"; RadCom Apr. '94.
2. "Extend Your DVM's Measurement Capabilities"; R. Fowler, N6YC, Ham Radio (USA) Oct. '89.
3. Vacuum Tube Voltmeters (2nd ed. 1951); John F. Rider, Rider Publications.

ar

The Outback 813 amplifier

A single 813 on 20 metres

Steve Page VK6BGN/AA6SN
PO Box 383
Wickham WA 6720

After successfully converting the *Twin Crystal Filter 40 Metre QRP Transceiver*, designed by Drew Diamond VK3XU, on to the 20 metre band, I decided to build a single-band amplifier comparable to the 100 watt output of the modern transceiver. It was to be compact, and with low drive requirements from the QRP rig for those evenings when the band was not favourable for just four to five watts and a dipole at 30 feet. After much thought, the decision was made to use a single 813 beam power tube wired in the not-so-famous G2DAF configuration.

There have been many 813 amplifier articles written over the years in a variety of radio magazines. This one is not much different except for some outback engineering and humour in building it. Recently there was a very nice article, written by C J Bourke VK4YE, featured in *Amateur Radio* magazine not so long ago. It used two 813s in the G2DAF configuration, with Part 1 in March 1999 issue, and Part 2 in April 1999. I highly recommend you read this fine article.

I have decided not to include the theory, and concentrate on what someone is up against when trying to build a linear amplifier whilst living in outback Australia. You can only pester your mates for so long before they get annoyed at all the requests to source parts and post them to remote locations. It turns out that the local rubbish tip can be an excellent choice for parts if you have access to it, and you don't mind being seen there.

Anyone interested in reading the original G2DAF amplifier article can do so by down loading it at http://www.ifwtech.demon.co,uk/g3sek/g2daf.htm. It is about 720 kb and in the .PDF format.

The usual warning applies here. *This project uses high voltages and high voltage can and could kill you.* If you don't feel that you're competent with this, possibly you should pass on this project or look into building a solid state amplifier.

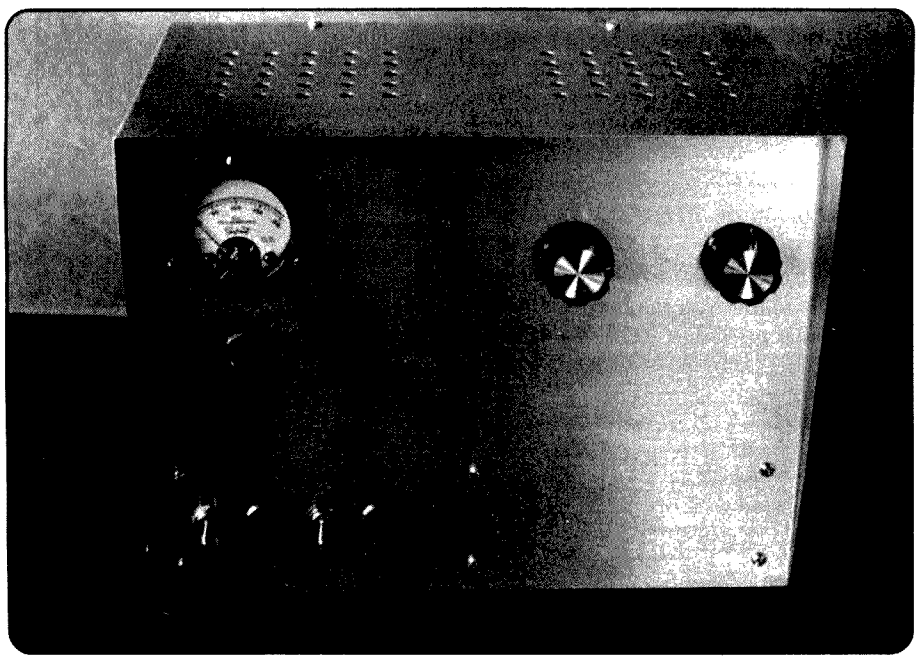


Photo 1 – Front panel of the completed 813 amplifier.

The Transformers

The HV transformer is from a microwave oven found at the tip. It is about 400 VA in size, according to its core cross sectional area, and a few modifications must be done to it before it can be used.

First, the flux shunts must be removed. These are the two small stacks of steel laminations between the primary and secondary windings. A small length of 6.5 mm square key steel and a hammer were used to do this. This leaves plenty of room to wind the extra turns on the primary, as described later.

Secondly, one side of the HV secondary is tied to the actual steel laminations of the transformer. This must be removed so that no windings on the HV secondary are touching the core laminations!

The primary voltage on the transformer is 240 Vac, but the secondary voltage was unknown. Not having any sort of HV probe to test the transformer, it was decided to apply an accurately known low AC voltage of 6.30 V on to the primary, and accurately read the results on the secondary. After this was completed it was found that the transformer had a turns ratio of 1 to 9.72, or for every volt applied to the primary, there would be 9.72 times the primary volt on the secondary. With 240 volts on the primary, there would be 2333 volts on the secondary. After rectifying and filtering, this would rise to about 3300 Vdc. Just a bit too high for the 813!

Looking at the secondary, which was totally encapsulated in varnish, it was

decided to add turns to the primary to try to reduce the turns ratio, hence, reducing the secondary high voltage. Enough turns were added to the primary to bring the secondary voltage down to about 1980 volts AC. Now, after rectifying and filtering, the voltage is a respectable 2800 Vdc.

The filament transformer is of the 50 VA vintage, again found at the local tip. It had a 240 volt primary but the secondary needed to be rewired to accommodate the 10 Vac, five amps, and centre tapped requirements for the filament of the 813.

The control voltage transformer was removed from a discarded portable stereo found at the tip. It had secondary ac voltages of 9 and 18. When rectified and filtered they produced 12.75 Vdc and 25.50 Vdc. Almost exactly what was needed! *(See Technical Editor's Note 2.)*

HV Electrolytic Capacitors

While at the local tip one afternoon, dropping off grass clippings and tree limbs, I spotted four abandoned computers and monitors that were heavily bombarded by bricks and large stones. In the back of each of these monitors were two 180 mf, 400 Vdc electrolytic capacitors. This was a real money saver. I believe they would have been at least $10.00 each if I needed to buy them new.

Just as a side note, I have yet to find a computer monitor or TV set at the local tip without some sort of brick, stone or metal object protruding out the front of the picture tube! What a shame!

The Plate Choke

Having used the only plate choke I had in a previous amplifier project, it was decided to cut about 150 mm off of the end of a standard 22 mm OD wooden garden-rake handle. This was put into the chuck on the drill press and turned down. Crudely made lathe tools, which I will not discuss, were used to turn the first 75 mm +/- down to about 13 mm in diameter. The next 8 mm was left at 22 mm OD; the next 8 mm turned down to 17 mm OD; the next 8 mm was left at 22 mm OD; the next 8 mm turned down to 17 mm OD; and the last 10 mm was left at 22 mm OD. The remaining length of the handle was cut off and discarded.

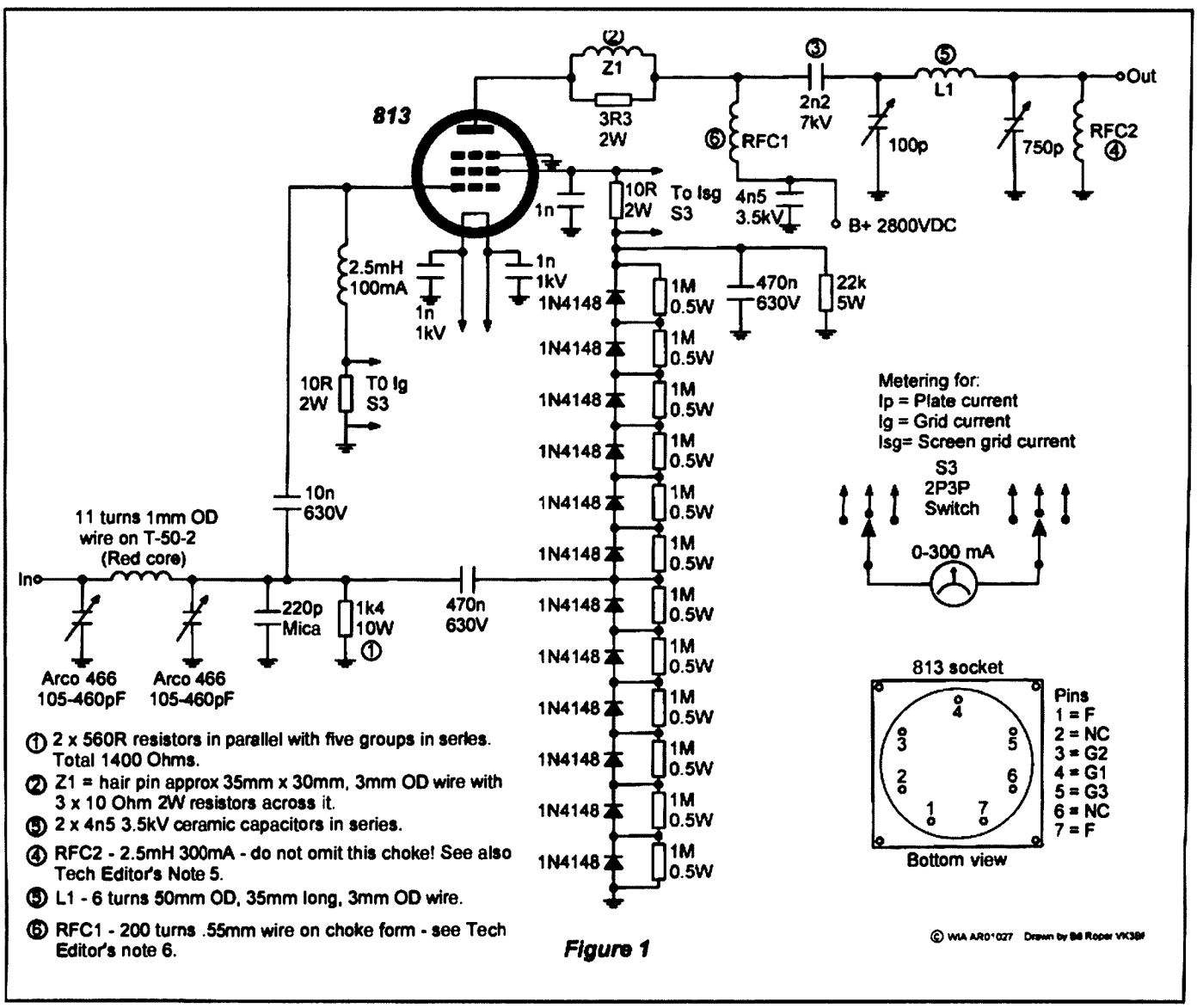


Fig 1 – The Outback 813 Amplifier RF deck circuit diagram.

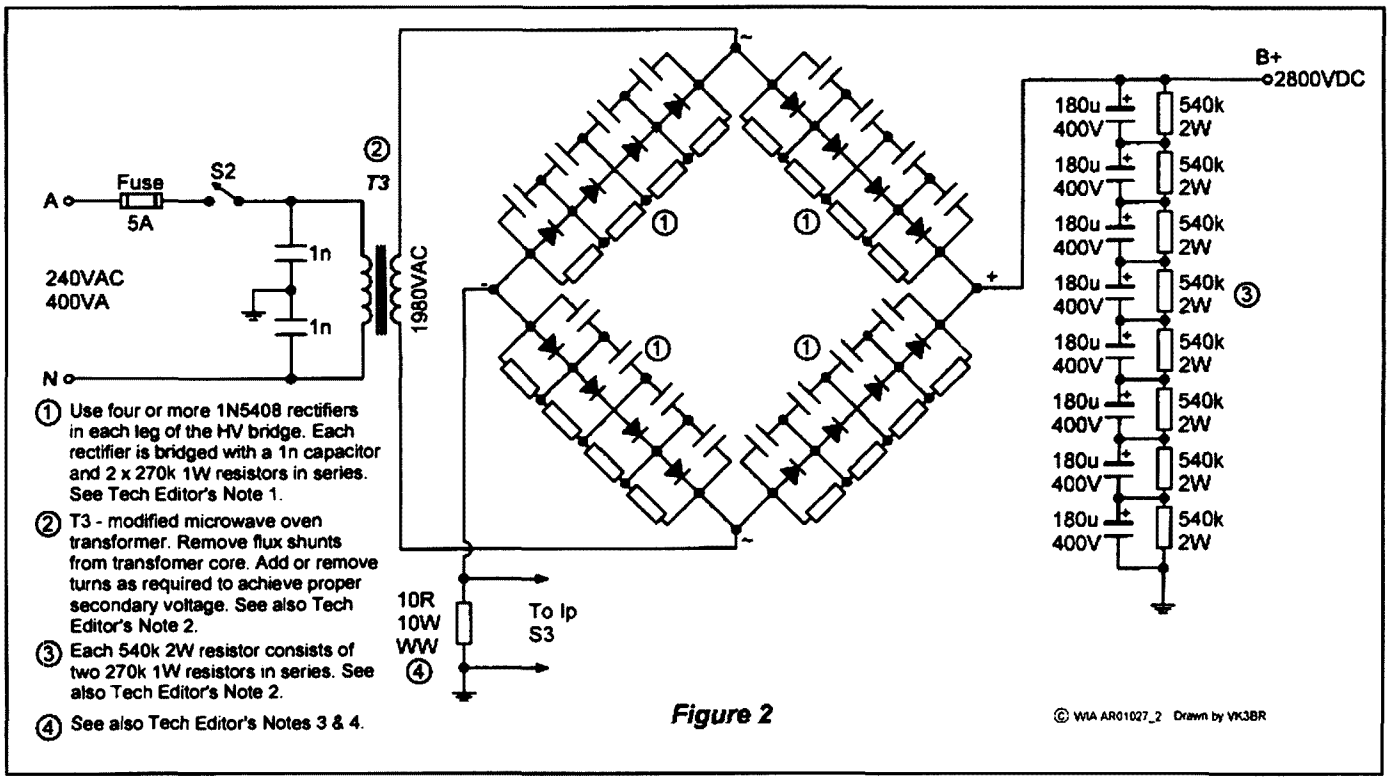


Fig 2 - The 813 amplifier HV PSU circuit diagram.

The overall length of the choke form is about 120 mm. A 3 mm hole was drilled on centre in each end of the plate choke form to accommodate a sheet metal screw. One screw is used on the bottom for attaching the form to the chassis, and the other to attach the lugs from the plate blocking capacitor and parasitic suppressor to the top of the choke form.

Enamel covered wire from a motor starter contactor coil was used to wind the choke. I'm not sure exactly how many turns are on it, because I can't see that well, but I think it's about 200. A few coats of varnish were brushed on to the windings. Beware not to overdo it, like I did. I later tried to remove a few turns from the top of the choke but found it difficult because the varnish brushed on was so thick that it had encapsulated the fine wire. *(See Technical Editor's Note 6.)*

The Tuning Capacitor

Looking in the junk box during the construction of this amplifier, I could only find one capacitor with a value of about 100 pF: however, the plate spacing was definitely too close. The capacitor was initially installed in the completed amplifier but, as foreseen, it arced over between the plates.

To fix this problem, all the stationary stator and movable rotor capacitor plates were removed, except one stationary plate on the end. A small piece of circuit board material was used as a spacer and placed on top of this last stationary plate. Now one of the movable rotor plates earlier removed was placed on top of the circuit board material and re-soldered back onto the rotor. The circuit board material was now removed from between these two plates and placed on top of the newly soldered-in movable rotor plate. A stator plate was now placed on the circuit board material and re-soldered in place. This continued until as many plates as possible could be re-soldered back on to the capacitor stator and rotor.

Now that the newly modified capacitor was complete, a new problem arose. The capacitor seemed to have lost a lot of its capacitance because the plate spacing was almost tripled! So, to cure this problem, a small 30 pF doorknob capacitor was placed in parallel with the newly modified tuning capacitor. This doorknob is not shown in the photographs.

Plate Coil

The plate coil was made from 3 mm OD wire that was removed from a transformer used in a earlier project. The wire was straightened by putting one end of the wire in the vice, holding on to the other end with pliers and pulling the wire tight. This wire was then wrapped around an Aerogard® can as a temporary form. The wire was then removed, and the excess turns cut so only six remained.

Tension was then put on to the coil ends so the turns were permanently spaced by the thickness of the wire. The coil is now six turns, 50 mm ID, and 35 mm long. Appropriate lugs were soldered on to the wire to fit the threads on the insulated stand offs.

Panel Meter

A 0-200 mA meter was the only meter available from the junk box. I highly recommend a 0-300 mA meter be used, if possible, as the plate current will peg the needle point to the far right when the amplifier is driven with about 10 watts or more.

Chassis Parts

The heart of the chassis is the 3 in x 7 in x 12 in aluminium rectangle box. The front, back, bottom and internal chassis partitions were all made from wrecked aluminium signs recovered from the tip after the clean up from Cyclone "John"

which crossed the Northwest coast in December 1999. The top was the last part of the chassis to be made. It was cut from existing 1 mm thick aluminium sheeting that was on hand, and bent with a home-made sheet metal brake.

It was decided to recess the 813 socket by the length of the metal base of the tube to reduce the height of the chassis, and to give the amplifier a lower profile look. More along the lines of a lower and wider chassis rather than a taller and narrower look. Recessing the tube dropped the height by the thickness of the metal base of the 813 and the ceramic socket.

The majority of the chassis parts were "finished" by sanding them with water and 120 grit wet-and-dry sand paper. Sanding should be done all in one direction and done long enough to remove any pencil or pen marks, or scratches in the aluminium. After sanding, a light coat of cheap clear lacquer was sprayed on. The longer you sand the chassis parts the better they will look; but, beware that you may get sore fingers!

The Passive Grid

The passive grid resistor was originally 50 ohms, made up of five 10 ohm, two watt resistors in series, which were salvaged from an old commercial AVR (automatic voltage regulator). It was found during tune-up and testing that the small QRP rig just didn't have the power with 4 - 5 watts to develop enough screen voltage to properly drive the amplifier to full output.

A suggestion by Doug VK6ER was that the passive grid resistance be increased into the hundreds, or even thousands, of ohms and a tuned circuit be placed at the input of the amplifier. From the junk box a new passive resistance was made up at 1400 ohms, consisting of two 560 ohm one watt resistors in parallel, with five of these groups in series. Don't leave out the tuned circuit. If you try to drive the 1400 ohm passive grid from a 50 ohm 4 - 5 watt QRP rig, you'll really qualify for QRP. Probably in the micro watts!

Testing and Tune up

Before getting too anxious to fire up your new outback 813 amplifier, first check all your wiring and connections. Then check them again, and then check them yet again! You're bound to make at least one mistake. I actually made three.

Two were spotted in the under chassis before power was applied and the third was later found in the RF deck and was a connection I had forgotten to solder. Believe me, you'll see sparks and a bit of smoke from an amplifier trying to pass 300 watts on a connection that has not been soldered! Something a bit similar to a small Tesla coil!

Tune up was a cinch! A small amount of drive (single tone) of a few watts on 14.175 MHz was applied to the input of the amplifier with the SWR/Watt meter inserted in between. The two Arco mica trimmers on the input were adjusted until the SWR reading was flat. SWR at the band edges rose only slightly when driving it at the top and bottom of the 20 metre band.

Now the SWR/Watt meter was inserted in between the amplifier and a 50 ohm high power home-brew dummy load. Five watts was applied to the amplifier. The screen voltage rose rapidly to about 95 Vdc. Output on the watt meter indicated 135 watts. Ten watts was applied, screen voltage rose to 150 Vdc and output on the watt meter indicated 225 watts. 15 watts was applied, screen voltage rose to 175 Vdc and output on the watt meter now indicated 300 watts! Beware, with a high value of passive resistance it can be lightly driven, and the 813 bottle will take off like a rocket!

If plagued by low output but everything else seems to be working fine, try testing for shorts in the stack of

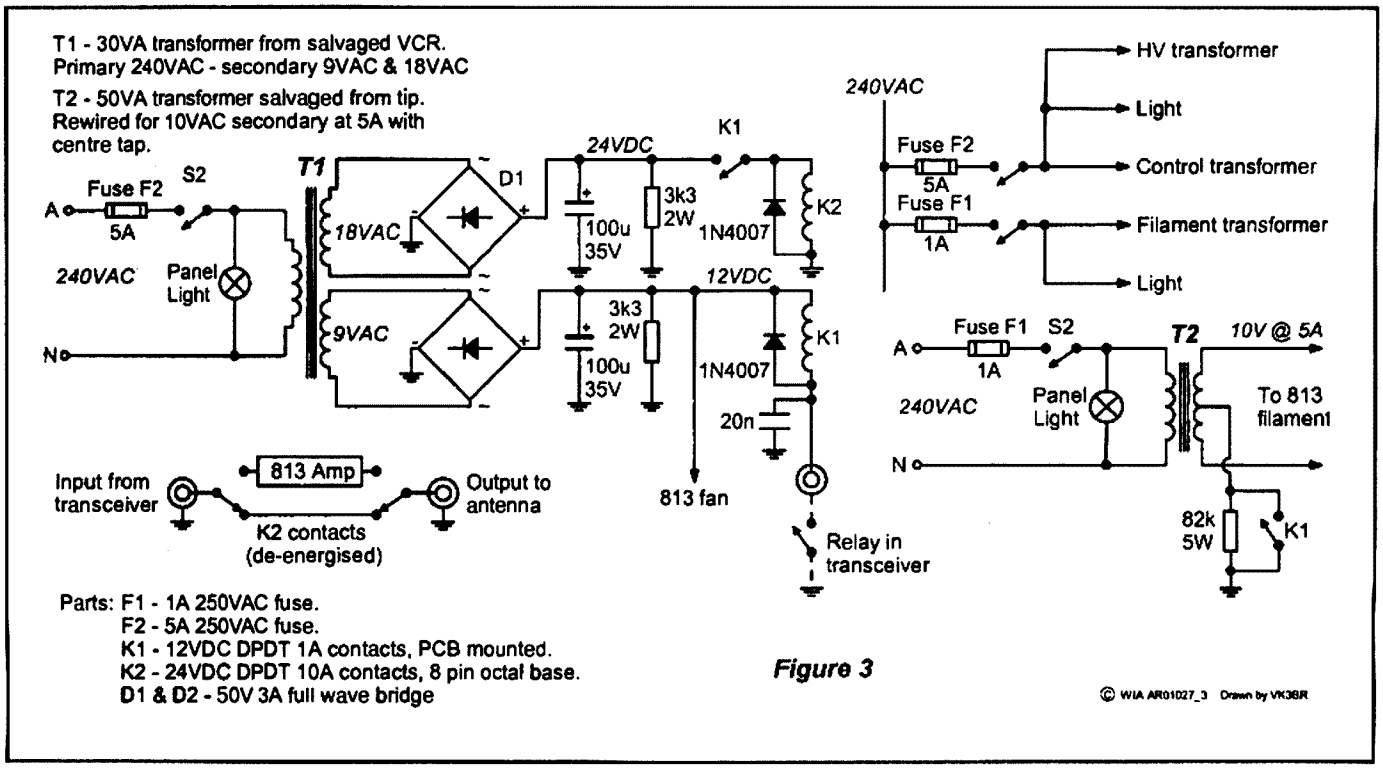


Figure 3

Fig 3 - The 813 amplifier low voltage PSUs and control circuit diagram.

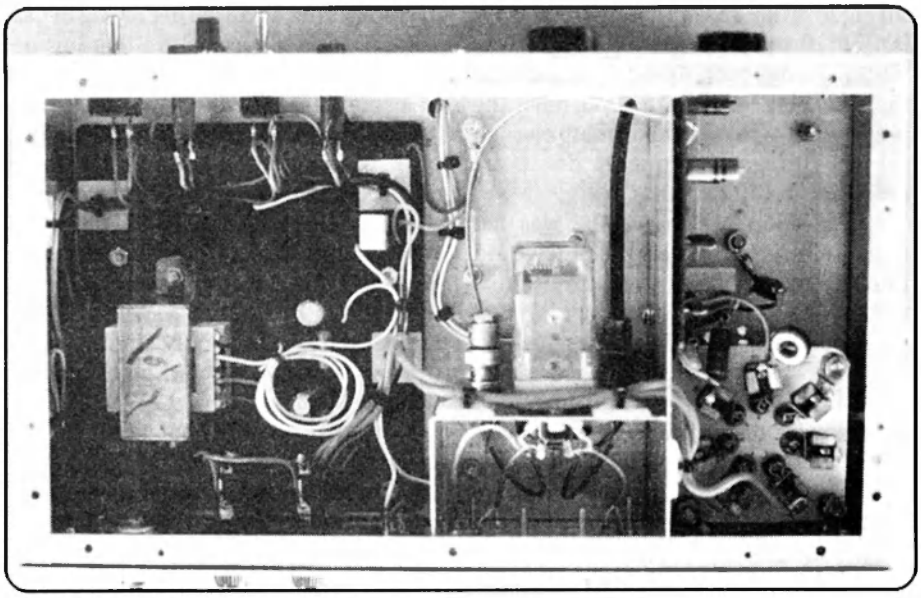


Photo 2 – Below chassis view of the 813 amplifier.

1N4148 diodes. I unknowingly drove the 813 for one very brief 50+ watt key up and shorted out one half of the diode stack. This plagued me for a few hours until I noticed low screen voltage being developed and finally traced the fault back to the diodes.

Summary

I realize that true QRP operators are probably shaking in their boots at the thought of connecting an amplifier to the QRP rig. But I consider myself an "all rounder" who dabbles in many aspects of the hobby, such as SSTV, QRP, satellites, packet and sometimes a plain ol' QSO on 20 metres.

All in all I feel this project has been a success. It has met all my initial requirements before construction, such as low drive and a compact amplifier design to fit nicely on the desktop, and exceeded my expectations with more then 100 watts output with just five watts drive.

During the construction of this project the only test equipment available was a digital multi-meter. All other equipment either didn't work properly or was unavailable. So, the only post construction testing available was on-air QSOs to other stations.

Total cost of the amplifier was around $25.00! Fair dinkum! Of course, that's not including my time.

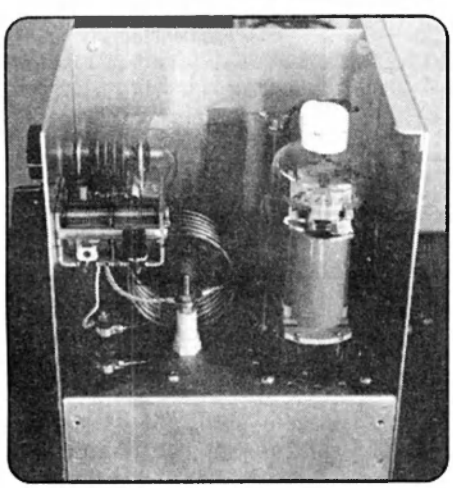


Photo 3 – A view of the above chassis RF deck of the 813 amplifier.

References

1)The original article by G Thornley G2DAF.

2)G2DAF article by C J Bourke VK4YE, March 1999 and April 1999 Amateur Radio magazines.

3)ARRL Handbook 1990.

4)*Construction techniques from books and articles* by Drew Diamond VK3XU.

Technical Editors Notes

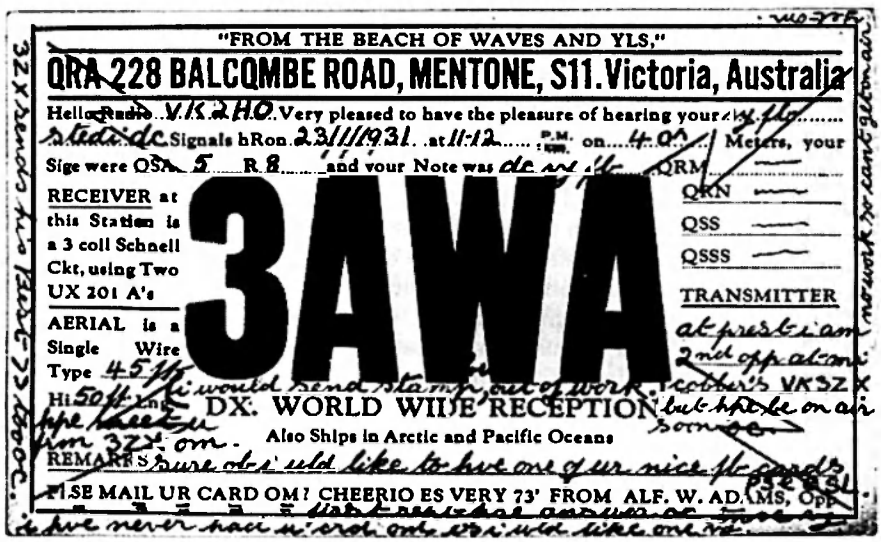
1. Resistors are normally rated at 350 V – 400 V peak voltage. You should make sure that this is not exceeded. Use more resistors in a series string if in doubt.
2. Some microwave oven transformers have differing insulation levels at each end of the main winding. They are purpose built for their intended use. Check the insulation if using in other than their intended circuit. This is particularly important if use in bridge or voltage multiplier rectifier circuits is intended. They may be adequate, but don't assume anything as an error may well be both dangerous and spectacular.
3. The 10 ohm metering resistor in the negative HV supply lead is in a potentially stressful position. In the event of a HV short or arc it may experience the full output of the HV supply and, in particular, the discharge current of the HV electrolytic capacitor string. This can result in the metering circuit becoming alive at high voltage. Ian White G3SEK, mentioned in the introduction as a source of the G2DAF article in *Reference 1*, uses a 100 W resistor in his amplifier designs. Use a generously rated component and don't skimp on safety.
4. HV Safety. An interlock is recommended to prevent accidental contact with High Voltage when opening the lid. Also a HV bleeder resistor is strongly recommended so that the HV electrolytic capacitor string is rapidly discharged when the supply is switched off. This is most important with HV capacitor blocks which pack a lethal charge.
5. Safety RF Choke. This needs to be a substantial item as it must stand the full discharge of the power supply filter and blow the primary fuse in order to protect you. The choke used in *Reference 2* would be OK.
6. The former used for the plate RF choke should be chosen with care. While wood may be OK in a dry climate if it has a low enough moisture content, you should proceed cautiously. Good quality plastic, or a ceramic former, may be simpler for many constructors. I note that wood has been used in HV apparatus but it has been selected with care and subjected to tests.

ar

Hon. Curator: Ken Matchett VK3TL
4 Sunrise Hill Road
Montrose 3765
Tel: (03) 9728 5350

QSLs from Pre-war Australia, Japan and Brazil

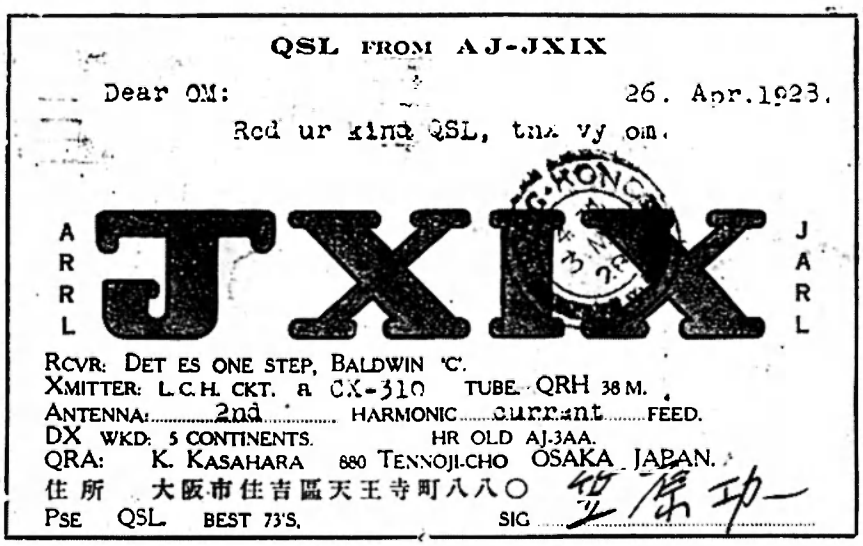
3AWA



To recent licencees the above QSL may look very like the callsign of a commercial radio station, but it is one of many forms of short wave QSLs issued before World War 2. In those days both SWLs and radio amateurs themselves often requested and received callsigns bearing their own initials. The SWL of this card was Alf W. Adams, hence the 'AWA'. Other forms of SWL QSL cards were VK-OSL, OA BCL, (OA was the older Australian -prefix) or simply OA, 0A3, Australia, SWL. The situation was the same in several other countries, particularly the USA

Rectification of AC was not as efficient in early days as it is now, hence Alf's signal report of 'vy fb stedi dc signals'. He also uses the early form of signal report QSA 5 R8, (Strength 5, readability 8) which was replaced by the RST system. Sometimes QSA W5, QRK5 Tone 1'9 was used. Some operators used QRI to indicate tone. The QSS on his card was used to indicate any fading of signal. His receiver was the popular Schnell receiver. Schnell was the Traffic Manager of the ARRL and one of the pioneers of DX operations, in fact the first amateur operator with John Reinartz to bridge the Atlantic from USA to France, but that is another story. The code QSSS meant 'Is my signal swinging?' Both QSS and QSSS codes are not found in official Q-code publications. The UX201A valve was one of the most popular valves of the 1920s and was a simple triode frequently used, as a detector and audio amplifier. The date of the QSL is 31 January 1931, which was a difficult time for all economically. Alf s comment 'i would send stamps but out of work" would seem to reflect this fact.

JX1X



This QSL from Japan dated 26 April 1928 and posted from Hong Kong the following month shows the rare prefix JX. Nowadays allocated to Jan Mayen, the JX prefix was the first prefix to be allocated to Japan. The letter J had been allocated by the ITU to Japan from an early date. Even in 1913 it had been allocated by the Bureau International de L'Union Telegraphique of Berne to Japanese ships and coastal wireless stations. When experimental stations became recognized by governments their prefix allocation closely followed, but was not always identical to that given ships and coastal stations. In the January 1928 issue of QST I came across a notice concerning Japanese amateurs, and I reproduce only relevant portions of the text:

The Japanese amateurs have at last won the right to build and operate amateur experimental stations. ... The only wavelength on which transmission can take place is 38 metres. The maximum power output is 10 watts and some licenses allow only 4 watts output. These private experimental stations are strictly prohibited from handling messages and also from 'chewing the rag'.... a report on each and every such communication must be sent in to the government official who handles the matter.

The article lists several stations with the prefix JX which are said to be those already assigned this prefix. However in this particular listing the JX prefix is not followed by a numeral but with a letter eg. JXAX.

SB-2AR

This pre-war QSL from Brazil carries the 'intermediate! SB. These prefixes, which were the precursors of our present day prefixes, were allocated according to the continent where the radio station was sited, for example N = North America, S = South America, E = Europe, A = Asia. O = Oceania. F = Africa. Following the continental symbol was the country identifier. For example, Australian QSLs carried the prefix OA, Brazil QSLs the callsign SB. the QSL SB-2AR was sent to an English operator EG2CX in May 1928 not lone before our present system of prefix came into being in January 1929.

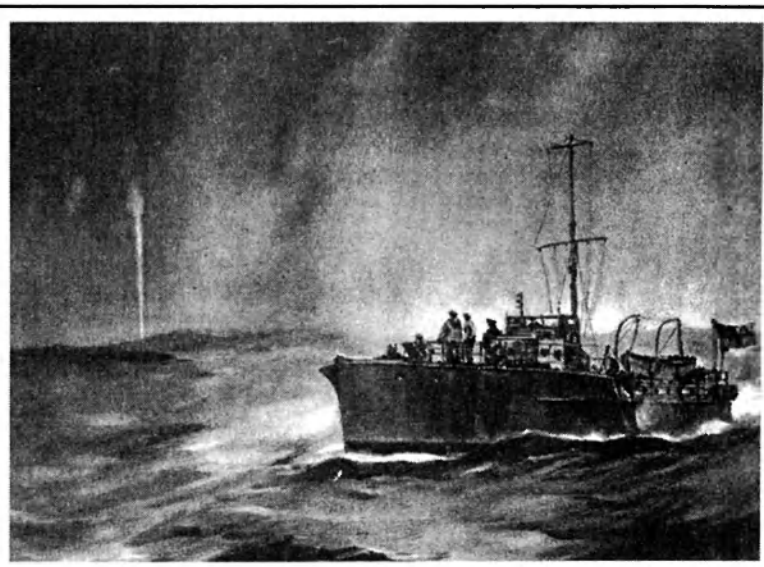
The QRK symbol indicated the degree of readability on a scale of 1 to 5. Often the letter 'R' preceded or followed this symbol. The code QSB originally meant 'Is my tone bad?' or 'Is my spark bad?' and was used to indicate the quality of the C.W. signal. The sender of the QSL has written 'rac' next to QSB meaning not 'raw AC' but "rectified AC'. Although it may be thought that D.C. rectification might give rise to a fairly pure note, this was not the case in early days. The reason for this was the lack of efficient filtering. Chokes and smoothing condensers, especially electrolytic types, were often not used at all due to their cost. The now disused QRH symbol indicated the wavelength transmitted, in this case 20 metres. (What appears like 202 is really 20 followed by the Greek letter lambda indicating wavelength.) His transmitter was a T.P.T.G. (tuned plate, tuned grid) type using a UV203A with 1200V on the plate. This valve, popular in the 1920s, was made by RCA of New Jersey and was a popular '50 watter' triode.

ar

Submorse!

Submitted by Fred Smith VK2BN

WW1 Submarine signaling surface craft using expelled air and water. From Illustrated London News November 15 1919 page 781 a drawing by F.H. Mason



Let's go WARCing

Bill Day VK3SWD
33 George Street
Nhill VIC 3418

The need for an antenna on the WARC bands that was not too large was the reason this antenna came about. Any amateur whose QTH is a standard residential block knows how important this is. I had good results with an 80-40 m trap antenna using traps wound with coaxial cable. I decided to make a similar antenna for the WARC bands.

This antenna should be quite easy to make using minimal equipment that is readily available and inexpensive. All that is needed is a GDO and an SWR bridge (an analyser would make the job easier but it is not essential), 11 metres of copper antenna wire, 0.5 metre of 43 mm OD PVC pipe, three metres of RG-58 coax cable (use solid dielectric coax, not foam, as it reduces distortion of the cable when going through the start and finish holes in the PVC pipe), and two insulators.

First cut four 110 mm lengths of 43 mm OD PVC pipe. Then drill the holes as shown in Fig 1. Relieve the holes for the coax by elongating and chamfering with a drill or a file to avoid distortion of the coax as it passes through the PVC former.

Next, prepare the coax into the lengths as shown in Fig 2, pulling the centre through the braid at the end of the outer sheath. Pass approximately 1.5 cm through the "start" hole and wind 3.75 turns for traps 'A' and 5.1 turns for traps 'B'. You should find, in both cases, about 1.5 – 2 cm of cable will be through the finish hole. Join and solder the shorter inner and outer start and finish leads as shown in Fig 1. This now allows the braid to become the inductance and the inner conductor the capacitance to form the resonant trap circuit.

Using a GDO, tune traps 'A' to 24.90 MHz by spreading or compressing the winding. Tune traps 'B' to 18.1 MHz using the same method. Make sure both pairs of traps are matched pairs. A receiver tuned to the frequency can be used to make sure that the GDO is on frequency.

Now, assuming you have a 1:1 balun for the centre feed point, fit the two by 27.55 metres of wire to the balun and the braid (input ends) of traps 'A' using screw type electrical connectors at this stage. Join the 515 mm wires to the centre conductor (output) of traps 'A' to the braid (input) of traps "B", again using screw connectors.

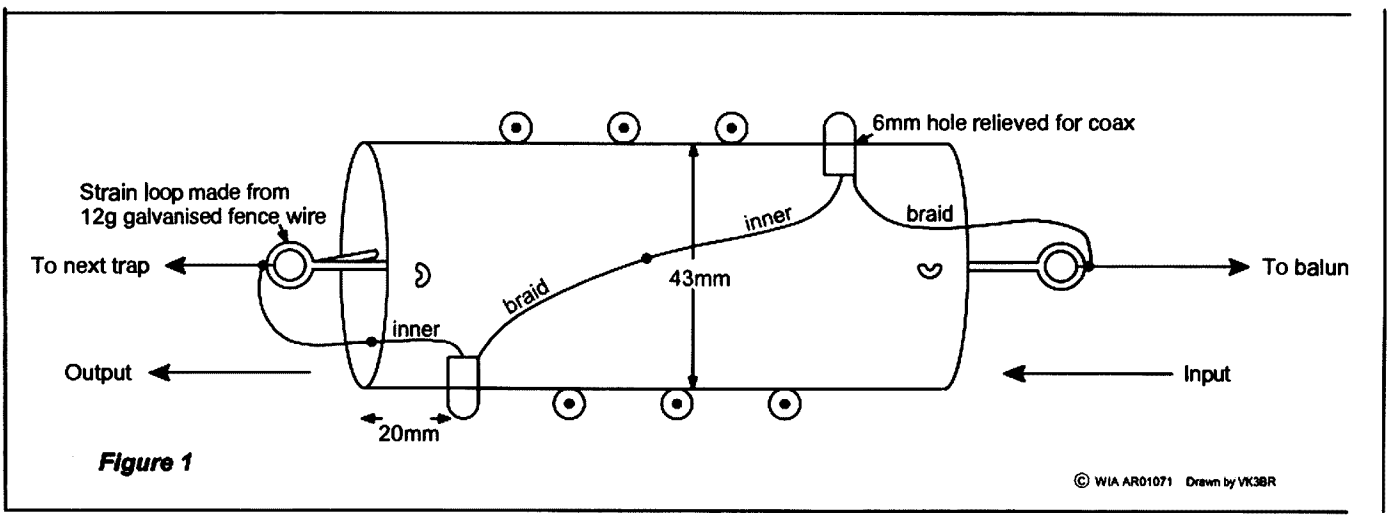


Fig 1 - Coaxial cable trap construction.

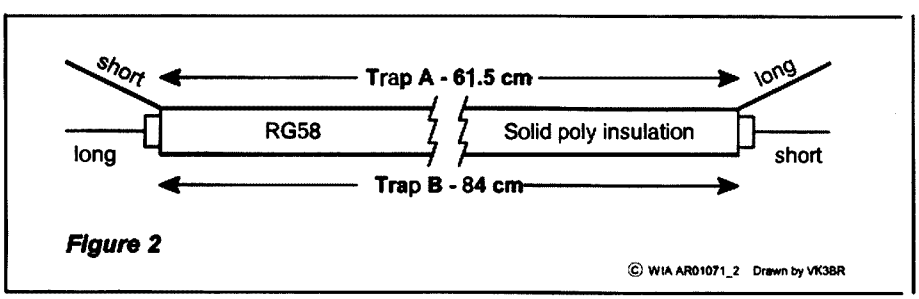


Fig 2 – Details for cutting and stripping the coaxial cable used in the traps.

Sorry! We were wrong

Gippstech Photographs AR October page 27 were taken by John Patterson VK3ATQ and passed to the Editor by Ron Fisher VK3OM. Sorry John for the delay in acknowledging your handy work. Editor.

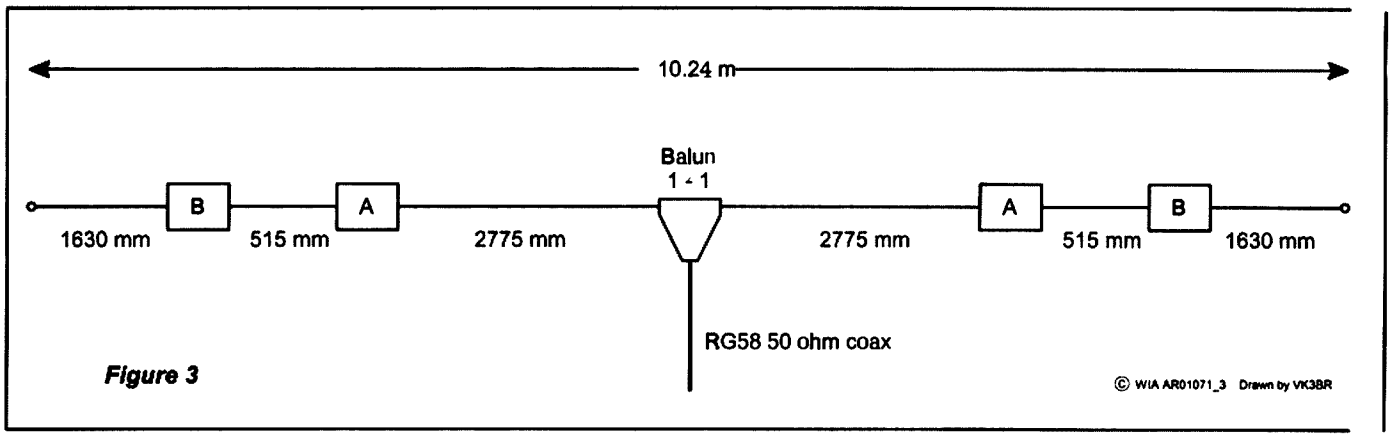


Fig 3 - Dimensions and layout of the WARC bands antenna using coaxial cable traps.

Last, connect the 1.63 metre wires from the centre conductors (outputs) of traps 'B' to the insulators, allowing a little extra for tuning. It's now time to raise the antenna and connect the SWR bridge and transmitter.

If you have an antenna analyser the job is easy. First tune the 24.9 MHz section by shortening or lengthening at the input of traps 'A'. A 1.2:1 SWR should be easy to achieve. Then tune the 18 MHz section using the same method. I found this 515mm length to be very critical indeed.

Last, tune the 10.1 MHz section, occasionally checking the two previous results.

When all tuning has been done, remove the screw connectors and solder the joints. Use silicone to seal all ends of the coax in the traps, and the solder joints.

Now it's all done. So let's you hear you on the WARC bands!

Technical Editors Note

The Silicone Sealing compound used to seal the coaxial cable ends and joints should be chosen carefully. The compound should be one that does not produce a potentially corrosive compound when setting. This may be called neutral cure or similar. Any compounds that release acetic acid when setting should be avoided. Refer RSGB publication *HF Antenna Collection*, published 1991, P184 for further information.

ar

Try this

A home brew reference library

Peter Stuert, VK2BEU

I was running out of space to store my 25 year collection of AR magazines. Thinking about it, I realised I am really only interested in the technical articles and some history. So I decided to cut out and file all the articles of my choice, and give the unwanted parts of the magazines to the paper recyclers.

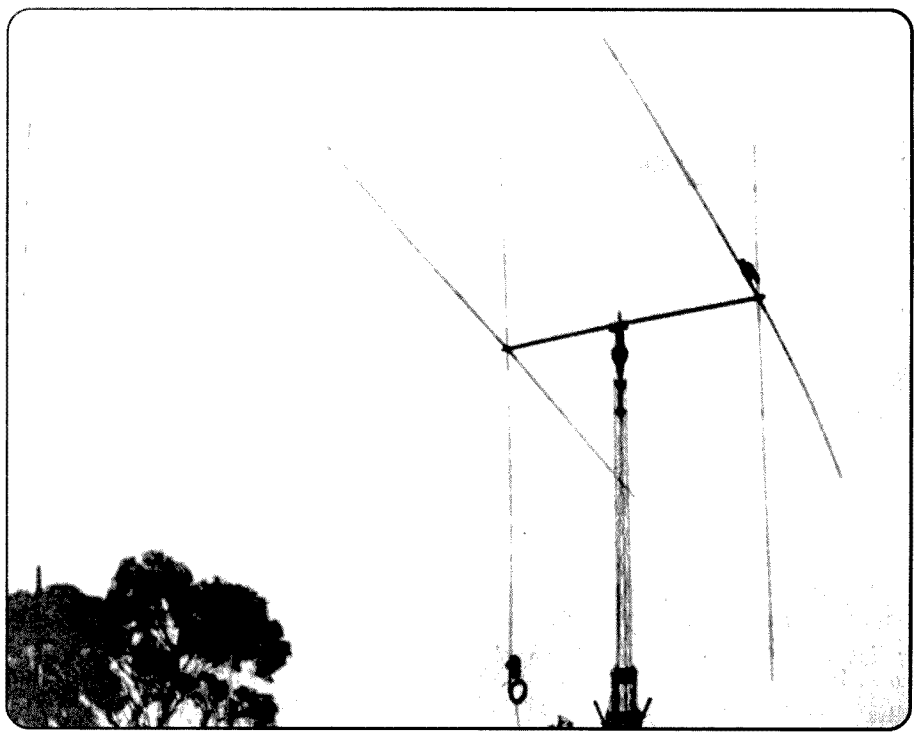
I carefully cut out the pages I wanted, using a Stanley knife, and filed them in three Marbig office files. Where two wanted articles were printed back-to-back on the same page, I photocopied one of them. Using plastic dividers available from stationery suppliers, I filed the articles under headings such as Antennas, Receivers, Transceivers, Test Equipment, Interference, History, etc. There are some sub-divisions under these headings as well.

It has taken me about a year of occasional spare time (mainly because I find so much of interest to read as I work), but I now have a technical reference library the equal of (actually better than) the ARRL publications. As a side benefit, I've rediscovered project articles I had forgotten about and I've become interested in getting back into home brewing!

Taming the quad antenna

Godfrey Williams VK5BGW
14 Jenolan Crescent,
Hillbank S.A. 5112

During the course of the year 2000, I began the preparation of my equipment to take part in the operation of special event station VI5RAS. Because some of the planned activity would be on a portable basis, and requiring a spare antenna, I decided to volunteer the three band Yagi atop my windup tower.



The complete antenna (with magpie)

While considering a replacement my thoughts turned to previous times, when I had built and operated a two element quad for 14 MHz and enjoyed good results, however I always felt that it was not quite as good a performer as it should be. Not being well read on the subject, I assumed that at its operating frequency, I could adjust it for a minimum SWR by lengthening or shortening the elements and I also assumed that the antenna could be fed directly with 50 ohm coaxial cable.

The result was an antenna with an obscure resonant point and a fairly high SWR across the 20 metre amateur band. It was also apparent that after various adjustments were attempted near ground level, raising the height of the array changed the point of minimum SWR. Nevertheless I used the array for many months with sometimes surprising results until some storm damage occurred and although repairable, I disassembled it and replaced it with a commercial Yagi.

Now wishing to try again and armed with hindsight I consulted a few textbooks, (see references) and so discovered that the dimensions of the quad elements, for a particular frequency, are set in concrete so to speak. It also became apparent that feeding the array with 50 ohm coax, even though the antenna may have an impedance of 50 ohms at its chosen frequency, would result in unwanted feedline radiation, thereby not directing all of the power in the desired direction. In addition I leant that any adjustments made at one height would not be correct at another height.

The impedance of a two element quad at a half wavelength in height with both elements spaced for maximum gain is in the region of 80 ohms. This can be adjusted to 50 ohms by reducing the element spacing to 0.09 of a wavelength (about six feet on 14 MHz). Now, at the expense of some gain, (see fig. 1 & 2) and if the array is fed via a one to one voltage balun to eradicate feedline radiation (essential), the result is a workable antenna with a gain of around six dBd.

If a director is added, near optimum spacing is now allowable, as the effect of the added element is to reduce the impedance from 80 ohms to slightly less than 50 ohms. Some minor juggling with the spacing of the three elements will now give the desired 50 ohm impedance, assuming of course that this can be established at the operational height of the antenna. A three element quad would then seem attractive but with metal masts the driven element is too close to the structure causing unwanted interactions. A four element quad ie. having two directors seems a solution but tends to become a mechanical monster requiring a 30 foot boom together with associated bracing and strengthening required.

My desire was to achieve the maximum gain and efficiency possible with a two element quad, (figure 2) hence an element spacing at around 10 feet was required, plus a matching device for the feed and a means of preventing feedline radiation. Also I needed to be able to easily resonate the array at its operational height.

The matching circuit I chose was a refined gamma match ie. an omega match which is a gamma match with an extra variable capacitor (Fig. 3). The gamma wire in the case of a quad is more convenient if it is fixed and not adjustable so alternatively it is resonated by the omega capacitor. The dimensions for the gamma wire per band are shown in figure 5, note the narrow spacing between the element wire and the gamma

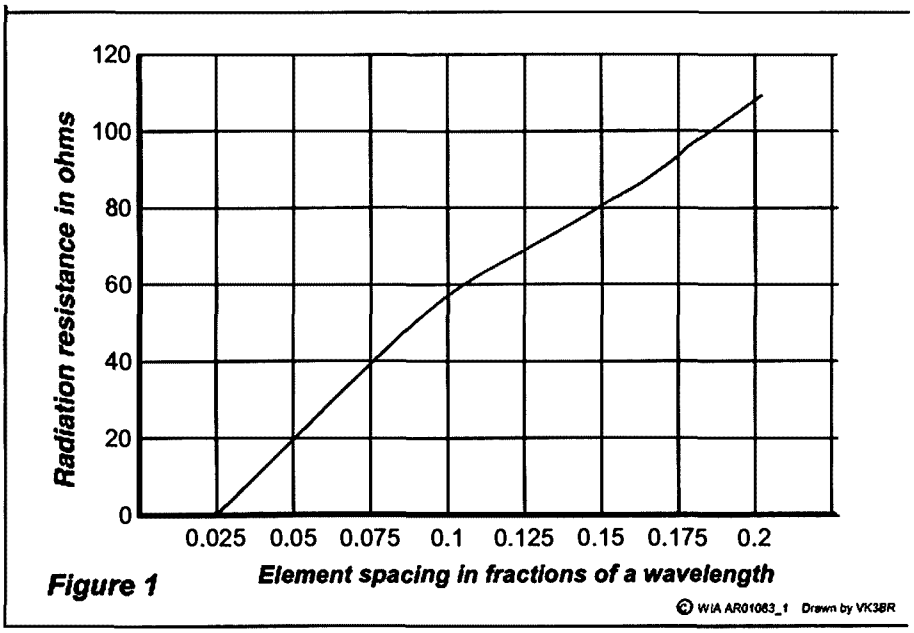


Figure 1. Element spacing in fractions of a wavelength

wire, this is due to the relatively small diameter of the conductors as compared to say the tubular elements of a Yagi.

The gamma and omega variable capacitor values per band are also shown in figure 5. The gamma capacitor should have well spaced plates; narrower spacing is allowable with the omega capacitor (Fig. 5). According to some publications a gamma/omega match prevents feedline radiation but one other publication states that it is not fully effective, so a choke balun being 8 feet of the transmission coax wound into a coil was used at the feedpoint as added insurance see figure 3). Note that a one to one voltage balun is not suitable for use with gamma or gamma/omega matching devices.

The quad driven element is cut according to the formula 1005 divided by the frequency and the reflector is cut to the formula 1032 divided by the frequency. In each case the wire is made two inches longer to allow for twisting together and soldering. If a director or directors are to be employed they are cut according to the formula 975 divided by the frequency.

Spacing of the elements for any band is calculated by the formula 1005 divided by the frequency the result then being divided by 7. As an example for a quad at 14200 MHz, 1005 divided by 14.2 equals 70.77 feet which is total length of the driven element. 70.77 feet is now divided by 7 which works out at 10.1 feet spacing.

Construction

Hubs that are fabricated by welding together thin walled steel tubing are relatively light and indestructible. However with care quite respectable hubs can be fashioned from a thick plywood plate using L brackets, together with an exhaust pipe clamp for boom attachment and sturdy U bolts for fixing the spreaders in place. Fibreglass tubing is an ideal material for the spreaders but expensive, bamboo can also be used but is difficult to obtain. My spreaders where made from a combination of aluminium tubing and eight foot lengths of close grained half inch timber dowelling, the dowelling being used on the outer part of the spreaders.

Holes are drilled in the outer parts of the spreaders to allow the wire to pass through, with only a small amount of silicone sealant being used to secure the joint while providing a little flexibility. The distance of the hole from the hub centre must be accurately positioned so that the wire is not too tight or slack. The measurement can be calculated by dividing the total of each element length by 5.655.

As an example assume a frequency of 14.200 MHz, for the driven element 1005 divided by 14.2 equals 70.77 feet divided then by 5.655 the result is 12 feet six inches being, the distance from the hub centre out to the hole on each spreader. For the reflector 1032 divided by 14.2 equals 72.67 feet divided then by 5.655 the result is 12 feet 10 inches.

One should not skimp on the wire used for the elements; thin or brittle wire

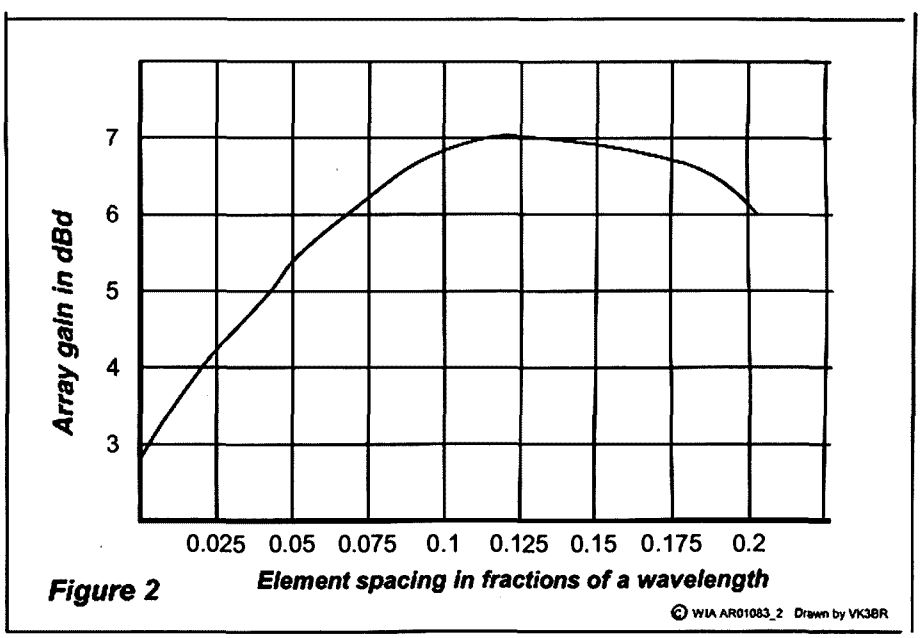


Figure 2.Element spacing in fractions of a wavelength

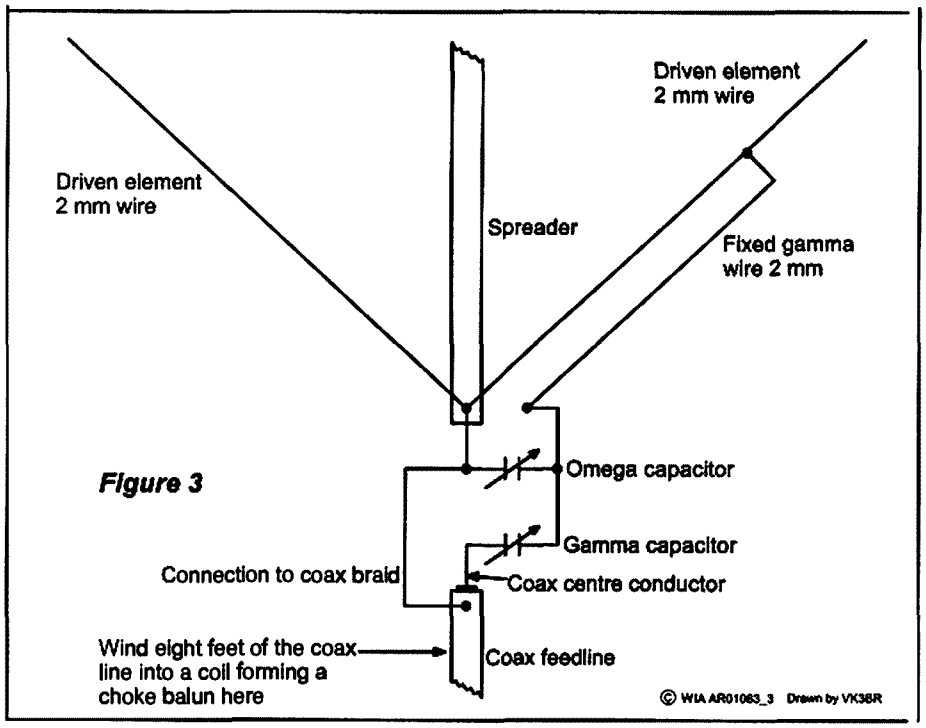
will break easily and is I believe the most common damage experienced with quad antennas. I used two millimetre winding wire purchased from a local transformer manufacturer. Avoid stranded copper wire because as the copper strands become oxidized and insulated from one another unknown lengthening effects may be introduced. Also avoid plastic insulated wire as the insulation changes the resonant length of the wire.

My quad was rotated 90 degrees into the diamond configuration, one spreader then being used for the attachment of a large jiffy box which housed the gamma and omega capacitors and served as a connection point for the feedline. Both capacitors were mounted so that their shafts protruded through the sides of the box then having pulley wheels attached, (discarded wire spools) this with the aid of long lengths of twine allowed me to adjust both capacitors for a one to one SWR at the array's proper operating height. The ability to do this was one of my reasons for choosing this type of matching circuit.

I used a ten foot length of 2.5 inch diameter aluminium tubing for the boom, but a wooden boom is also possible particularly if the hubs are made from plywood. Then a tight joint well glued between hub and boom will suffice without the need for any further fasteners. Needless to say any wooden structure used outdoors must be suitably protected, In my case some thinned estapol (for penetration) in two or three coats preserved the timber parts. The publications mentioned in references, give some useful hints concerning the materials used in the construction of quad antennas.

Assembly

I assembled my quad bit by bit; firstly the boom with hubs attached was carried to the top of the wound down mast and bolted loosely into its cradle. Now by revolving the boom each spreader is attached to the hubs, the boom being slid back and forth in it's cradle in order that each hub is within arms reach. The wire elements were fixed in place again by revolving and sliding the boom in its cradle. Each element is a continuous loop (see fig 3 and 4B) so the extra two inches of wire on each element is scraped and cleaned down to bright copper before twisting together and soldering.



fiogure 3. Omega Match Circuit

Durability

The main drawback of any directive quad is the potential for storm damage. Any attempt to beef things up will increase weight and cause strain on other parts of the array. These parts in turn will need strengthening and so it goes on. If a boom, which is supporting heavy elements, collapses at its pivot point the elements will be destroyed regardless of how strong or rigid they may be. The driven element will be

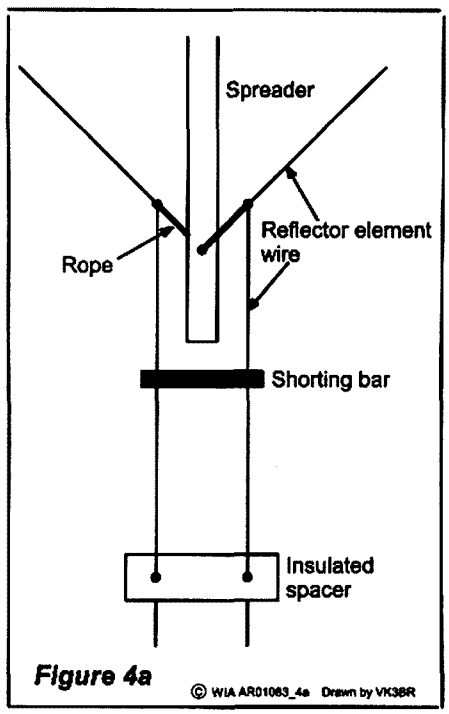


Figure 4a. Adjustable stub for the reflector

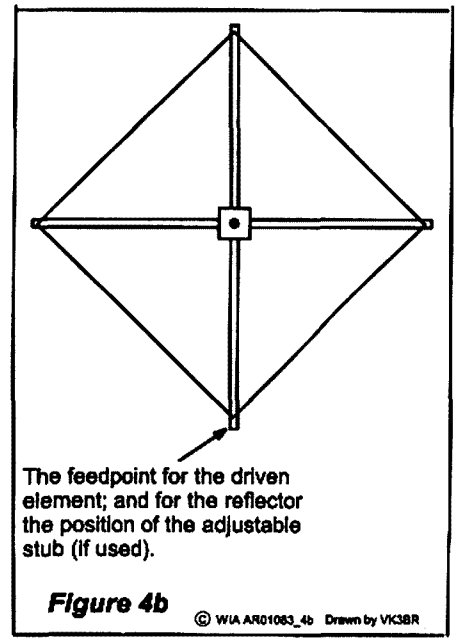
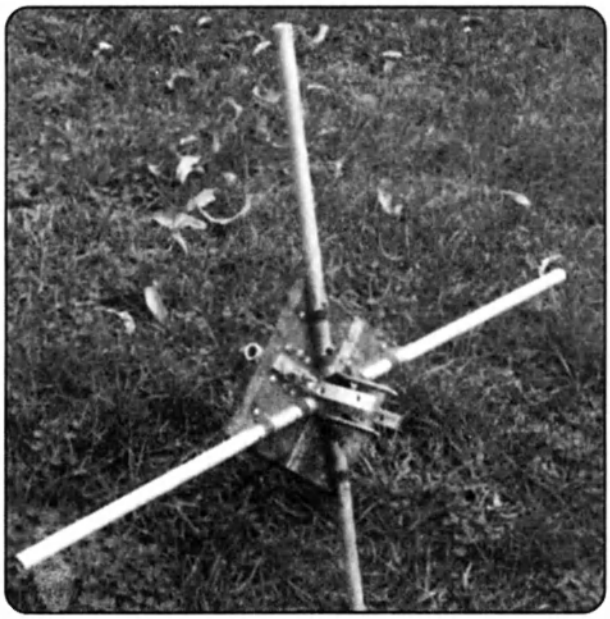


Figure 4b. Spreaders — element wire arrangement for the driven element & reflector



Quad hub using a plywood plate

heavier than the reflector so the boom pivot point needs to be adjusted accordingly. This will prevent undue strain on the boom's attachment point and also help it cope with the load of each element.

The two element quad in question has withstood windy conditions for many months, I attribute this to having sound hubs, outer spreaders using flexible timber dowelling being free of defects in the grain and relatively heavy element wire, plus an overall tendency towards light and careful construction.

Commissioning

There appears to be little or no interaction between the two variable capacitors. It is very easy to adjust them for a one to one SWR at the frequency at which the elements are cut and resonant, and at the operational height of the array. Figure 6 shows the resulting SWR curve, this could appear to be a lot flatter at the end of a long random length of coaxial cable. The best procedure is to first adjust the antenna using a half wavelength (Allowing for the velocity factor) of 50 ohm coaxial cable connected to your transmitter with a SWR meter in line, this will give a true picture of the SWR curve.

This may change if in actual operation the coax feed is a random or unknown length, possibly making the curve flatter but the one to one SWR point will not change. One bright idea I had was to install electric motors with gears in the jiffy box to adjust the capacitors remotely by wire. This would be the ultimate (and true) antenna tuner; I gave it some serious thought for two minutes and dismissed it figuring that my simple pulley system was far less trouble. My quad was constructed for 14 MHz as my rostered operating times for VI5RAS where mainly the midnight to dawn shift; however a quad can be built for any band by following the formulas presented here.

If " Murphy" has a law concerning antennas I am sure it would be, " A poor antenna will first be used when band conditions are such that any old bit of wire will work the world and the operator will be delighted with his completed project. Conversely " A good antenna will first be used when the bands are down and the operator will be so disgusted with his creation that the array is torn down without delay. The answer of course is to evaluate your creation over at least a number of days before coming to any rash conclusions.

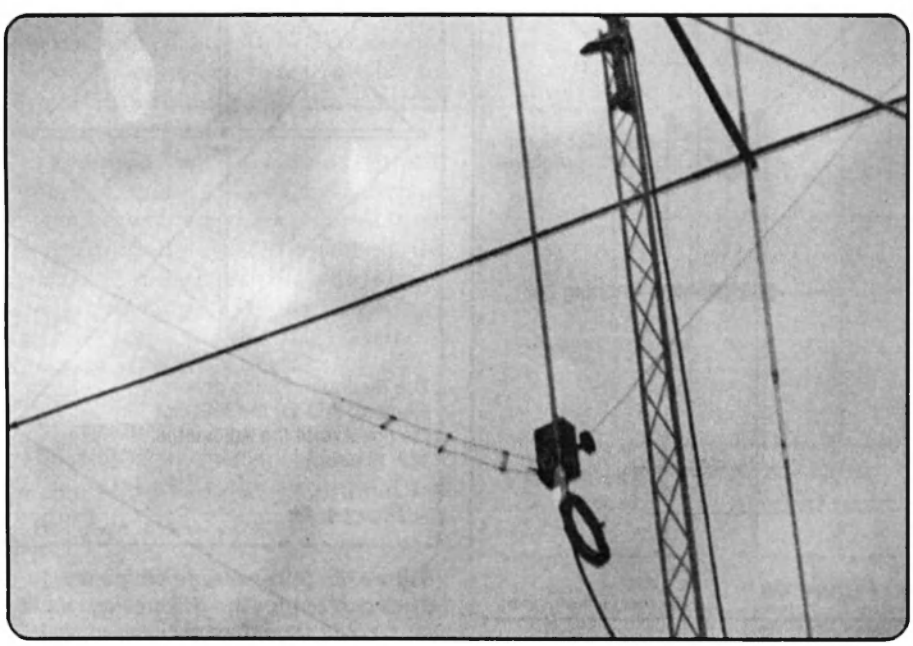
Performance and evaluation

Initial tests can be carried out on receive only, swinging the array towards and away from a distant station will indicate quite dramatically how the antenna is working. A 59 signal from a station 12000 km or more distant should drop to strength 2 when the antenna is pointed in the opposite direction. The comparison is not so defined when listening to a signal which is well in excess of 59 eg. A 59+10 db signal will only drop to 59 or so when the array is facing the opposite direction.

There will always be exceptions to the above, relatively close stations, the radiation angle of incoming signals, in which direction the received signal is being transmitted all have an influence on the transmitted and the characteristics of your "S" meter will all have an influence on the results. It will become apparent that the front to side ratio is slightly better than the front to back ratio, this is normal with a two element quad array.

On transmit one can only rely on signal reports received and again exceptions will always occur, but to quote an example, during poor band conditions on the long path to Europe a station using a kilowatt was barely making 58. On answering his call with 100 watts I received an immediate response and a signal report of 55.

During my operation of VI5RAS short path to Europe using 400 watts many



The driven element showing the gamma wire, feedpoint and coaxial choke

stations remarked about the strength of my signal. Sometimes while working a huge European pileup and South African stations began calling, swinging the quad towards the west brought these stations in nicely, whilst reducing the QRM from the European stations still calling,

I was pleasantly surprised to find that although my QTH is in a weak television reception area, TVI was all but non-existent with this array. During my midnight to dawn operating shifts I did record some programs and at 400 watts PEP only an occasional faint flicker was evident on speech peaks.

Modifications

One possible modification is to provide an adjustable stub to the reflector (Fig. 4), this making the element slightly longer, if required, to improve the front to back ratio if the antenna is operated at a lower frequency than it is cut for. As an example, the design frequency is 14.200 MHz, operation on 14.000 MHz is sometimes required the reflector is now 12 inches to short. On 14.100 MHz the reflector is 6 inches to short.

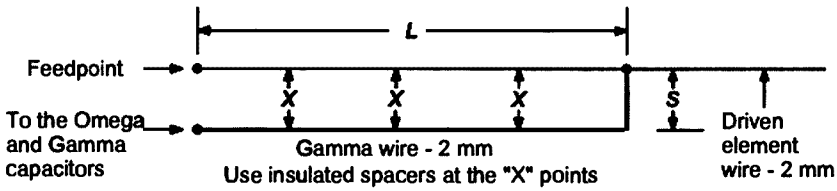
While the array is operated at or above it's design frequency the shorting bar on the reflector stub (Fig. 4) is left in its uppermost position at which the reflector length is correct for the design frequency. Any excursions to below the design frequency would require downward adjustment of the stub to lengthen the reflector element.

Without the use of an adjustable stub, having the reflector too long is not as detrimental as having it too short, so it may be wise to cut and resonate the array at the lowest part of the band you intend using. Any excursions to a higher part of the band will render the reflector too long and increase the SWR, however the array will still be performing near optimum gain.

This doesn't apply if a director or directors are used, as being too long is more detrimental than being too short. In my case I rarely operate SSB below 14.150 MHz so the two element quad was cut and resonated at that frequency. I would obviously lose some gain and front to back ratio down in the CW section.

Although not discussed here another modification possible is to interlace one or two more elements into the array to allow multi-band operation (refer to the publications mentioned in the references).

A two element quad is cheap and easy to build and doesn't make huge demands on one's metal working skills. It also tends to be more versatile than a three or four element array and if constructed carefully can shrug off the potential for storm damage. A quad has less wing span than a Yagi and in comparison, at low operating heights the quad will exhibit a lower angle of radiation.



Band	L Inches	S Inches	Gamma capacitor max pF	Omega capacitor max pF
20 m	35	2	100	100
17 m	27	2	100	80
15 m	25	1.5	80	75
12 m	21	1	50	50
10 m	18	1	50	50
6 m	10	1	50	50

Figure 5

Figure 5

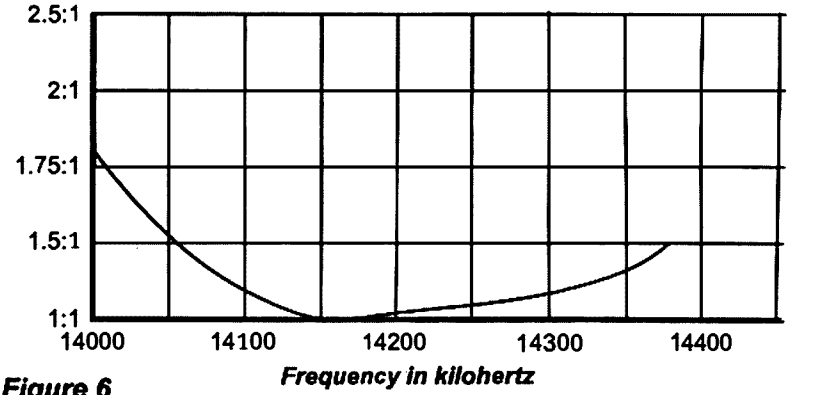


Figure 6

Figure 6

References

"All about cubical quad antennas" and "Beam antenna handbook" both by William I. Orr, W6SAI and Stuart D. Cowan, W2LX.

"Radio Communications Handbook" (5th edition volume 2) by the Radio Society of Great Britain.

ar

New ways to improve SSTV images

Friedrich Becker VK4BDQ

VariSSTV and IAL Inverse Alternate Line

Many amateurs, since computer power became very affordable, are sending and receiving pictures using SSTV programs. Many programs have been written for DOS and Windows. One of the latest arrivals MMSSTV, written by Mako, JE3HHT made a huge impact on SSTV. Not alone this program is well written and it is also free of charge.

From Version 1.02 on Mako has introduced two new methods to improve the quality of an SSTV picture. These methods are called VariSSTV and IAL Inverse alternate line, developed by Samuel Hunt and adopted by Makato. Both methods can be used together and applied to most of the SSTV modes.

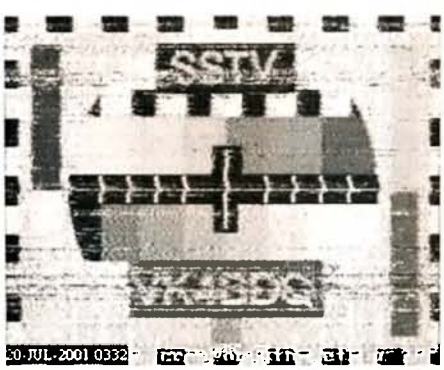
VariSSTV

I am not going too much into the theory behind it, but in general it is a way to transmit the colors of a picture using different output levels for every colour. As a result, your PA, valve or transistor, is driven at much safer levels.

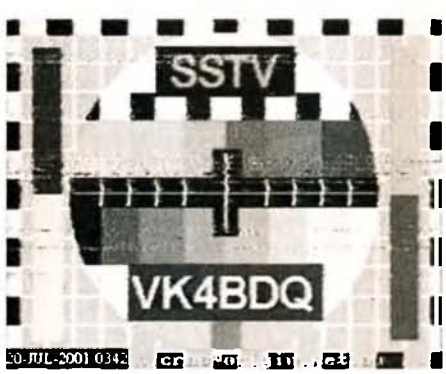
I ran some tests on different days, to find out more about this new method using the replay of the VK3DNH repeater for my tests. VK3DNH (14.236 MHz). Sending a picture through a repeater can not give the correct information, but reflects a fair idea of the signal strength at the repeater location. The distance between the repeater and my location is approximately 180 km. All tests have been carried out within minutes to avoid drastic changes in propagation (for the purists, I know conditions can change within seconds, and other parameters can influence the picture as well) The pictures shown here representing only one part of a sequence. Signal strength on my receiver was approximately S5 all the time. I will continue with my tests on the 20m band, to find out how fading, phase shifting and others variables affect the quality of the received image.

All pictures using VariSSTV have shown improved qualities; even a reduction in power to 50W has not affected the quality. It should be clear this method can and will not eliminate QRM or other interferences, but it will improve the image.

Output 100W and VariSSTV



Output 100 W without VariSSTV



Output 50 W using VariSSTV

IAL—Inverse Alternate Line

Hue

The Hue function shifts all the pixels in an image around the colour wheel to a different point. If you change the red pixels to green, the green pixels will turn to blue and the yellow pixels to cyan.

Saturation

The Saturation function alters the amount of grey in a colour. The level of grey increases as the saturation decreases.

After some trial period some people argued VariSSTV is causing an affect called Hue Shift. Hue Shift is introduced by changing the frequency of the modulation, (SSTV is using FM for the audio) causing a given colour to shift towards a different colour. (See box). This has nothing to do with colour saturation; colour saturation shifts the colour towards darker or lighter levels. To prove if a hue shift is taking place Samuel has introduced a small program called IAL – Inverse Alternate Line. This program applies a type of filter or overlay to half of the picture on the transmission side. On the receiving side the program is applied again reversing the process. Covering only 50 percent of the picture with this overlay makes it possible to observe any effects on the treated and untreated part of the image, I have provided three images send from a German Station, using VariSSTV and IAL, (IVAL for short), together. Even

under unfavorable conditions it is possible to recover at least a meaningful image. Marc, WA4IRE has conducted and continues an extensive test program with some US stations.

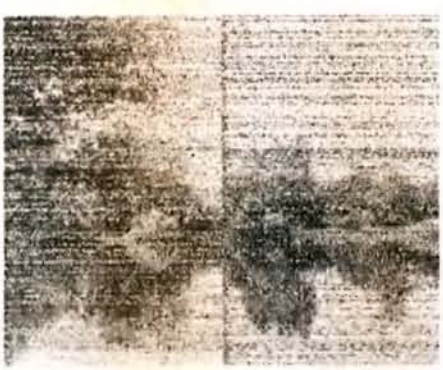
The program can be downloaded from Samuel Hunt's website, look at http://www.supersam.com.uk/ival/.

MMSSTV is available from http://www.geocities.com/mmhamsoft/mmsstv/index.htm

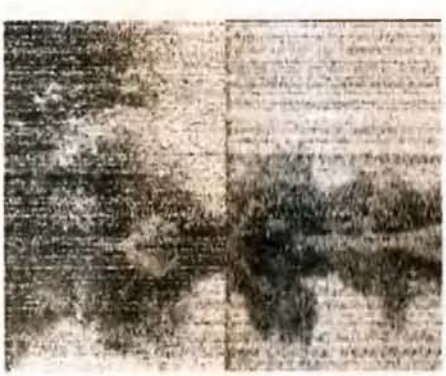
If you are interested, download this program and give it a go. If you need help or a partner, feel free to drop me a line at VK4BDQ@qsl.net

ar

Picture received



Picture processed



Processed and filtered

Classification of emissions

GL de Henry VK8HA FedIWCOORD
VK8HA@OCTA4.NET.AU

The following is the first episode of a few explaining classification of emissions:

Classification of emissions and necessary bandwidths

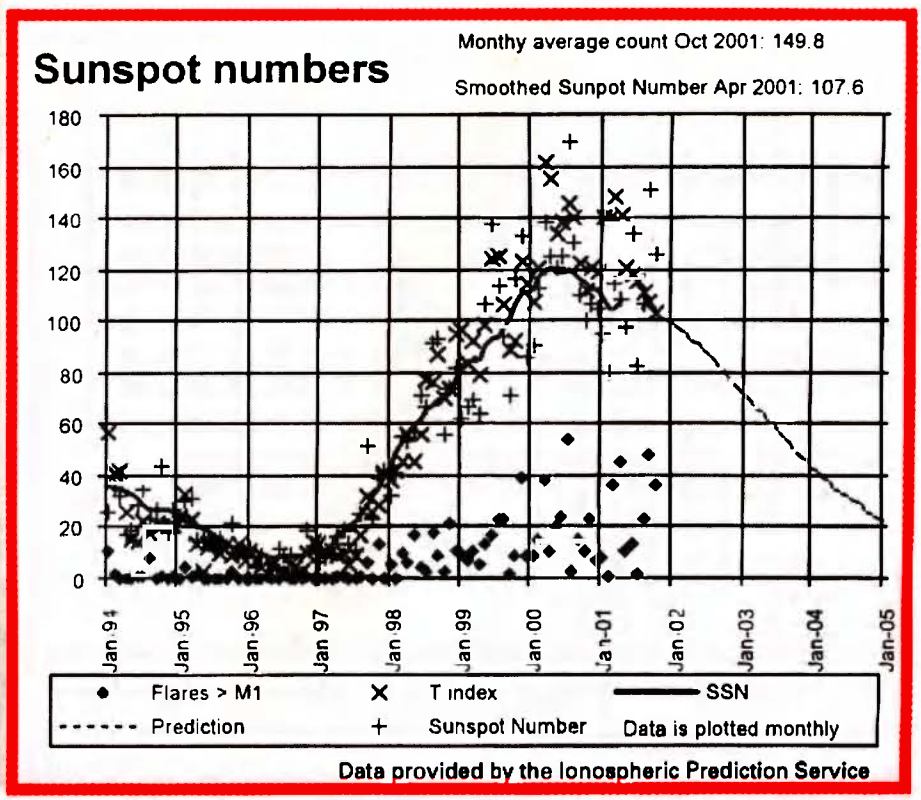
1. Emissions shall be designated according to their necessary bandwidth and their classification
2. Formulae and examples of emissions designated in accordance with this Appendix are given in *recommendation ITURR AM 11.38*. Further examples may be provided in other ITU-R recommendations. These examples may also be published in the preface to the Inter-national Frequency List.

Necessary bandwidth

1. The necessary Bandwidth shall be expressed in three numerals and one letter. The letter occupies the position of the decimal point and represents the unit of Bandwidth. The First character shall be neither zero, nor K, M or G.
2. Necessary Bandwidths.
   Between 0.001 and 999 Hz shall be expressed in Hz. (Letter H)
   Between 1.00 and 999 kHz shall be expressed in kHz (Letter K)
   Between 1.00 and 999 MHz shall be expressed in MHz (Letter M)
   Between 1.00and 999 GHz shall be expressed in GHz (Letter G)
   For the full designation of an emission, the necessary bandwidth indicated in four characters, shall be added just before the classification symbols When used, the necessary bandwidth shall be determined by one of the following methods:
3. Use of the Formulae and examples of necessary bandwidths and designation of corresponding emissions given in *Recommendation ITU-R SM.11.38.* computation, in accordance with other ITU-R Recommendation; measurements, in case not covered above.

Next instalment in January 2002 issue of AR.

ar



Noise Reducing Aerial

Gil Sones VKAUI
30 Moore Street
Box Hill South VIC 3128

Some interesting information regarding a noise reducing antenna was forwarded by Merv VK4DV. The information had originally been sent to Merv by the late Joe Reed VK2JR who passed away around 30 years ago.

The basic idea is that vertically polarised noise signals can be induced in an unbalanced feed line and coupled into the receiver along with the desired signals. The antenna dipole is horizontally polarised and is up high enough and oriented to minimise pickup of noise signals. However, the use of a coaxial feedline, and the resulting unbalance, may allow longitudinal signals picked up on the feedline to enter the receiver input and adversely affect the received signal to noise ratio. These signals may well have a large noise component.

Some improvement can be obtained by using a balanced feedline with a balun transformer at the receiver input (see Fig 1). The unbalanced longitudinal vertically polarised noise pickup signals cancel in the balun and the balanced horizontally polarised signals from the antenna pass without attenuation. Further improvement can be obtained by using a screened balanced feedline with a balun transformer at the receiver input. As the screened balanced line impedance may be different to the receiver input impedance and the antenna impedance, a balanced matching transformer may be required at the antenna feed-point and a balun and matching transformer at the receiver input (see Fig 2). High SWR should be avoided as it may exacerbate coupling between the unbalanced vertical component induced in the feed line and the balanced signal component from the antenna.

Thirty or more years ago a screened balanced 90 ohm impedance line was available locally and the information

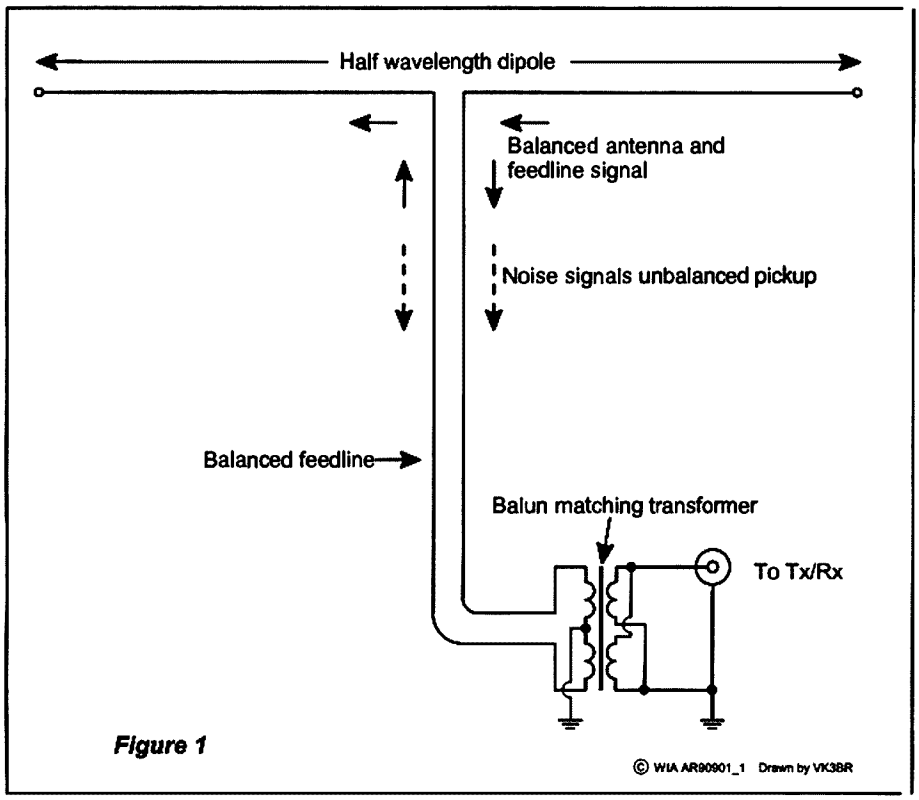


Fig 1 - Balanced antenna and feedline. A properly constructed balun attenuates the longitudinal transfer of vertically polarised noise. Horizontally polarised antenna signals add. Vertically polarised noise-pickup signals cancel.

Merv obtained from the late Joe Reed used this line with a purpose-built combined impedance matching and balun transformer. The screen was left floating at the antenna end and separately earthed at the end closest to the receiver. This earthing to a separate earth, and not to the same station earth as the receiver, was important in separating the noise from the signal from the antenna.

While suitable matching balanced transformers were described, they were designed for the 90 ohm feedline and are not reproduced here. For those wishing to experiment there are many designs which have been produced recently which could be used. The ARRL publication *Transmission Line Transformers* by Jerry Sevick W2FMI would be a good place to look. There have also been a number of articles by

the same author, and others, which have been reproduced in a number of publications. The main thing is to match the antenna to the feedline, and the feedline to the radio, whilst maintaining balance in the feedline and antenna system.

The feedline may be a problem but even a good unscreened balanced line should give some benefit. There are some balanced screened lines, such as TwinAx, which have been used for data and which may be useable. You would need to establish the impedance of the line and make transformers to suit.

A similar receive-only system was marketed between 30 and 50 years ago for broadcast reception. This system used balanced matching transformers at each end of the balanced feedline. The feedline used was probably similar to the 90 ohm screened balanced line. This system was used to allow the receiver feedline to pass through electrically noisy areas between an antenna mounted in the clear and the receiver. This was before the days of internally mounted ferrite antennas in broadcast radios. Many radios were also used to receive short-wave broadcasting in areas with only limited or poor medium wave broadcasts.

ar

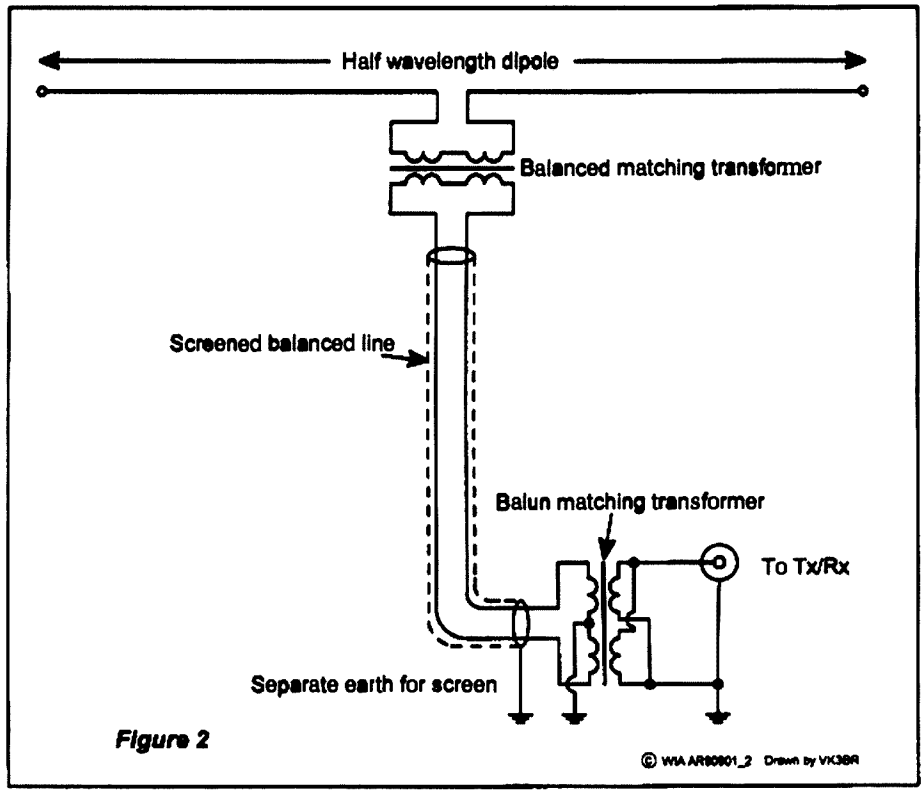


Fig 2. Balanced antenna with matching transformers and screened balanced feedline.

Club News

The Clubs' Convention In VK5

Over the first weekend of November a Clubs Convention was held in Adelaide. Over 20 delegates attended and at least 20 radio clubs were represented.

Topics discussed included Repeaters, changes to the band plans, and fees but the one that gave the most food for thought was

"Just who DO you contact in an emergency?"

If you heard a strange voice with an unrecognisable or no callsign calling within an amateur band with an emergency message what would you do?

By the regulations you should answer it but then what do you do if you are told that a major emergency has occurred in a remote place and that you are the first person to answer the call?

Do you ring 000?

Do you call your local politician?

Do you contact the SES?

Do you call an ambulance?

And when you do find someone to listen to you how do you convince them it is a real emergency?

Although we are a service that prides itself on being ready to help in an emergency whenever we are called upon to do so (as so many US amateurs did immediately after the September 11th attack) do we know what to do if we are the first person to hear of the emergency?

Something to think about!

More Club News on page27

Ross Hull Memorial VHF/UHF Contest

December 26 2001 to January 13 2002

How about working a few stations on VHF/UHF and putting in a log ?

See Contest Page 38.

ALARA

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

Planning ahead

There are two important meetings next year in the world of YL radio

In June there will be an International MEET in Palermo on the beautiful island of Sicily in the Mediterranean. If it is as interesting as the YL2000 in Hamilton there will be much renewing of friendships and happiness. The web address is

http:l/www.qsl.net/yl2002

The venue will be the "Mondello", Hotel Splendid La Torre, which is located in the beautiful gulf of Mondello, just a short bus ride from the centre of the town.

Ruth IT9ESZ is the co-ordinator of the meet. Her email address is

buscemi@skyol.it

ALARAMEET 2002 in Murray Bridge

Plans are well ahead for the 2002 ALARAMEET over the long weekend at the end of September. The website for this event is

http://alarameet2002.8m.com

There you will find all the information you need. The details are also in the October ALARA Newsletter.

There are several caravan parks. The "Avoca Dell", the "Long Island" and the "Princes Highway" are all large parks while the "Oval Caravan Park" is smaller. All the parks have cabins for families or for groups and there is a motel next door to the "Oval" park.

There are several other motels, the "Olympic Pool", the "Murray Bridge Motor Inn" and "Greenacres". Among others. The "Bridgeport Hotel" has both single and double rooms with or without en-suite facilities.

The centre of activities will be the "Boat Shed" Community Centre right beside the river and many outings are planned. ALARAMEETS are not business meetings; they are an opportunity to meet and talk and enjoy each other's company. Please come along.

If you are not a member of ALARA or not a licensed amateur, that is not a worry, come along and meet the other YLs. You may bring your OM, too. They enjoy meeting and talking as much as we do.

Watch this space for further updates but keep that weekend free.

Lunchtime meetings

At "Berties Pancake Parlour" in October there were six YLs. Because it was school holidays Tina VK5TMC was able to join us and, for the first time Sue, XYL of Steve VK5AIM, long time participant in ALARA, came too. Sue has allowed her membership to lapse recently so she was given a new application form which she filled in on the spot. It is called striking while the iron is hot.

Please remember that both VK3 and VK5 have luncheon meetings on the second Friday of the month. In VK6 the lunches are held on the third Friday. Do get in touch with a local member and join the ladies. Regular faces are great but visitors are also great.

Overseas visitors

Maxie DJ4YL and her sister Marile are in Australia again. They love it here and always plan very interesting trips for themselves and visit all the friends they have in VK. This time they also went to New Zealand for a week or so, their first visit across the water.

It was clever of Maxie and Marile to arrange to come from Melbourne to Adelaide along the Great Ocean Road. They were on their own with just the guide so they could stop and have a good look at the places they found most interesting. They have been up to the Flinders Ranges since arriving in VK5 and as usual they chose to get there by a normal bus service so they did not have to do the usual tourist things. They are very independent and enterprising tourists.

Whenever they can they say "Hello" to their YL friends. In Sydney they contacted Dot VK2DB and subsequently spent a day with Dot and OM John at Taronga Park Zoo. The photo shows the lovely views over the harbour you can get from that vantage point.

Another interesting word item from BYLARA

A New English Language

The European Commission has just announced an agreement whereby English will be the official language of the EU rather than German which was the other possibility. As part of the negotiations, Her Majesty's Government conceded that English spelling had some room for improvement and has accepted a 5-year phase in plan that would be known as 'Euro-English'.

In the first year, 's' will replace the soft 'c'. Sertainly, this will make the sivil

servants jump with joy. The hard 'c' will be dropped in favour of the 'k'. This should klear up konfusion and keyboards kan have I less letter.

There will be growing publik enthusiasm in the sekond year, when the troublesome 'ph' will be replaced with 'f'. This will make words like "fotograf' 20% shorter.

In the 3rd year, publik akseptanse of the new spelling kan be ekspekted to reach the stage where more komplicated changes are possible. Governments will enkourage the removal of double letters, which have always ben a deterent to akurate speling.

Also, al wil agre that the horible mes of the silent 'e's in the language is disgraseful, and they should go away. By the fourth year, peopl wil be reseptiv to steps such as replasing 'th' with 'z' and 'w' with 'v'. During ze fifz year, ze unesesary 'o' kan be dropd from vords kontaining 'ou' and similar changes vud of kors be aplid to ozer kombinations of leters.

After zis fifz yer, ve vil hav a reli sinsibi riten styl. Zer vil be no mor trubl or difikultis and evrivun vil find it ezi to understand ech ozer. Ze drem vil finali kim tru!

33 Rita

Christmas Greetings

HAPPY CHRISTMAS and HAVE A GREAT NEW YEAR. I hope all your antennas send messages further than ever before and they all come back with bells on.

ar

Club News

Adelaide Hills Amateur Radio Society

The October meeting was one of the most interesting and innovative meetings for a long time. Graham VK5ZLZ conducted a construction event. Members had been told to bring along their soldering irons and construction tools. Graham brought a number of bags and boxes of components and gave out a list of the parts needed to make a QRP FM transmitter for the 80-metre band. Members had to select the components and assemble the kit.

Rarely has there been such concentration. Every head was bent over the table, every eye was focussed. The only interruptions were the calls for the "Supa Glue". Some of the little rectangles of aluminium had to be glued in place and the IC had to be glued Right Way Up (one or two finished up wrong way up instead).

Graham had brought along a skeleton key and an FM receiver tuned to the 80-metre band and EVERY set tuned up somewhere within the band. One or two had to go back to the manufacturer for a rerun but they all finished up working.

Great was the feeling of satisfaction!!

News from the Moorabbin & District Radio Club

MDRC meets for Christmas

Members and friends of the MDRC are invited to the MDRC's Christmas social function. It will start at 8pm on Friday December 7. The venue will be the Combined Club Rooms, Turner Rd, Highett. Free food and soft drink will be provided.

More hands make light work

The MDRC is pleased to welcome Mal Maher (SWL) to its committee. We now have a full committee though we still need a volunteer to step forward as Treasurer.

Net now monitoring UHF CB

With the end of daylight saving, the weekly MDRC net has reverted to being two metres only. However our net control Tony VK3CAT and others also monitor UHF CB Channel 12 during the net. So if you have UHF CB, give us a call. The MDRC net operates each Monday at 7:30pm on 146.550 MHz.

APC News Christmas/New Year arrangements

The last APC News for 2001 will go to air on Wednesday December 19. APC News will enter its fourth year on Wednesday January 9, after a two week break.

Still on news matters, we are pleased to welcome David VK3ASE to our 160 metre relay team. David's potent AM signal on 1843 kHz has been heard as far away as NSW's south coast.

Items for inclusion in APC News can be sent to keith@lcd.net.au or parkerp@alphalink.com.au. If you wish to contact the news team on the air, try calling on 146.550 MHz or 53.900 MHz VK3RMS repeater.

The Moorabbin & District Radio Club wishes members and friends a merry Christmas and a joyous and safe new year

Peter Parker VK3YE, Publicity Officer
Moorabbin & District Radio Club
parkerp@alphalink.com.au (03) 9569 6751

SCOOP PURCHASE!

All-mode operation on the HF, 6m, 2m, and 70cm bands with full satellite capability...

Yaesu FT-847 'Earth Station'

Ready for action on SSB, CW, AM, FM and digital modes, the FT-847's compact size makes it ideal for a variety of portable/mobile applications as well as for serious base station operation. You get a solid 100W output on the HF and 6m bands, 50W output on both 2m and 70cm, dual fan cooling and a rugged diecast chassis. Plus, the ultra-quiet HEMT receive pre-amp on 2m and 70cm contributes to the FT-847's amazing sensitivity figures. Advanced Digital Signal Processing (DSP) circuitry enhances received signal/noise ratio for easier copy of signals under marginal conditions through the use of 16 selectable noise reduction algorithms, while the Bandpass and Auto-notch filters aid the IF based Shift and Noise Blanker circuits in reducing interference on crowded bands.

The FT-847 is ready for satellite operation, with crossband full duplex operation, normal and inverted VFO tracking of the satellite uplink/downlink, as well as 12 special satellite memories with alpha-numeric tags. Also provided is a low-noise Direct Digital Synthesiser (DDS) that provides tuning steps as small as 0.1Hz, plus there's an adjustable DSP bandpass filter as narrow as 25Hz for exceptional weak-signal CW performance. You can also install optional Collins® mechanical filters in both the transmit and receive chain for enhanced SSB operation, as well as a 500Hz Collins® filter in the receiver side for CW. An effective speech processor with adjustable frequency shift voice tailoring is also provided to add punch to your SSB transmissions. The FT-847 is ready for data modes, with a rear panel Data In/Out socket and a packet socket for 1200/9600 baud VHF/UHF operation. Other features include extended receive operation (36-76, 108-174, and 420-512MHz), a high-speed computer control interface, 10-key keypad for band/frequency entry, and a shuttle-jog tuning ring for fast QSY. Also included are encode/decode CTCSS and DCS operation, selectable channelised steps for FM operation, FM narrow/wide modes for 29MHz use, and a large LCD screen with adjustable backlighting.

Each transceiver is supplied with a hand-mic, DC power lead and a comprehensive instruction manual. Call us for a copy of Yaesu's 6 page colour brochure to learn more about this incredible value 'Earth Station' transceiver.

D 3425

2 Year Warranty

YAESU

$2995

SCOOP PURCHASE!

SAVE $441

Offer expires 30/12/01

DICK SMITH ELECTRONICS

That's where you go!

SOLID PERFORMANCE!

VX-5R pictured showing large frequency digits

VX-5R 6m/2m/70cm Deluxe Handheld

Tiny, yet incredibly rugged, the VX-5R provides 6m, 2m and 70cm amateur band operation with 5W output as standard (4.5W on 70cm), made possible by a unique PA design, super high-capacity 7.2V 1100mA/H Lithium-ion battery, and a diecast metal case. Plus, ultra-wide VHF and UHF as well as medium-wave* and shortwave reception facilities are provided.

Another really useful feature is the large backlit dot-matrix LCD screen that can be configured to suit your operating needs. You can choose large frequency digits, dual line displays (VFO 'A' and 'B' frequencies, VFO 'A' frequency and battery voltage and even VFO 'A' frequency as well as other data such as recent Tx/Rx times or transceiver internal temperature), or even 8-digit alpha-numeric memory labels. All this in a diecast aluminium enclosure just 58W x 87H x 28D mm (w/o knobs or antenna)!

Other features include:

- Tx: 50-54, 144-148, 430-450MHz
- Rx: 0.5-1.8MHz, 1.8-16MHz, 48-729MHz, 800-999MHz (cellular blocked)
- Full feature keypad, CTCSS encode/decode, Digital Code Squelch
- Comprehensive menu system
- Over 200 regular memories, plus 10 pairs of 'Band limit' memories
- Fast battery charging from the supplied AC adaptor
- 5 battery saving systems, plus Tx/Rx usage monitor.
- Spectra-Scope * for monitoring adjacent channel activity
- Comes with FNB-58LI 1100mA/H Lithium-ion battery, flexible antenna and AC adaptor/charger

D 3670

*10kHz steps only.

2 Year Warranty

YAESU

$599

All Yaesu products listed are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia. Check our web site www.dse.com.au for further ordering information

Offer expires 30/12/2001.

PHONE FAX AND MAIL ORDERS

direct link

PHONE: Within Australia: 1300 366 644
(Local call charge)

FAX: (02) 9642 9155 within Australia and
(+612) 9642 9155 from outside Australia

Visit our web site at
http://www.dse.com.au

MAIL: DICK SMITH ELCTRONICS, Direct Link, Reply Paid 500,
PO Box 500, Regents Park DC NSW 2143 (No stamp required)

Excludes packaging and postage. All major credit cards accepted. 14 Day Money Back Guaranteed if NOT completely satisfied. (Software, books, contracted phones, ADMS packages excluded)

DICK SMITH ELECTRONICS

That's where you go!

Yaesu transceivers and accessories stocked in selected Australian stores only. Other Australian stores can place orders on a deposit-paid basis. Offers expire 30/12/2001. All prices shown are in Australian dollars and are inclusive of GST.

3572D DPS spot col

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Linden S Orr	VK1LSO

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: *http://www.ozemail.com.au/~vk2wi*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Pat Leeper	VK2JPA
Treasurer	Chris Minahan	VK2EJ

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Barry Wilton	VK3XV

VK4 Division Queensland
PO Box 199, Wavell Heights, Old. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Bill Riis	VK4YCU
Secretary	Bruce Jones	VK4EHT
Treasurer	Bill McDermott	VK4AZM
Office Mgr	John Stevens	VK4AFS

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 0403 368 066
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	David Minchin	VK5KK
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.vk6wia.org*
e-mail: *vk6wia@iinet.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http:/www.wis.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $70.00. Without *Amateur Radio* $48.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $83.00 Pensioner or student $71.00. Without *Amateur Radio* $52.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $82.00 Pensioner or student $68.00. Without *Amateur Radio* $54.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $67.00 Pensioner or student $61.00. Without *Amateur Radio* $36.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $52.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

The guest speaker at the October General Meeting was Peter Westerhof (VK1NPW). One aspect of Amateur Radio that Peter is heavily involved in, is Automatic Position Reporting System (APRS). He demonstrated by means of a computer driven projector and an actual operating assortment of a hand-held, a black box, and a few cables how the system works and what benefits you get from having such a set-up. The system is based on a network of nodes comprising digipeaters and/or home station transceivers. These nodes contain maps of their surrounding area in memory, and are used to calculate distances between nodes, and a particular target. The result of the calculations is shown on the screen as a map, or in tabular form. Provided the target is equipped with a variety of sensors, the screen will show items such as its position on the map, speed, height, direction, and time to destination. It was very impressive because he showed that not only amateurs are using this system, but also scientists and others who have a need for remote sensors in the field. Peter has established a node at his home in Canberra, and Derek Holyoake (VK2DRK) in Queanbeyan, also has a node at his home.

By the time you read this, an ACT DX Group has been formed. The group was formed by confreres Mike Jenkins (VK1MJ), Graham Trainor (VK1GT), Tex Ihasz (VK1TX), and Olaf Moon (VK1JDX). The purpose of the group is to encourage more amateurs within the ACT to become active on HF-DX; both through Divisional activities and through the DX group supporting and helping each other improve their DXing operations and skills. The group would be a special interest group within the ACT Division. All enquiries to any of the above.

The next General Meeting will be held on January 28, 2002 in the Scout Hall, Longerenong Street, Farrer. Cheers

VK3 Notes

By Peter Mill VK3APO
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

Holiday arrangements and 2002

The last day the WIA Victoria Office will be open for the year is Tuesday 18 December, closing at 1.00 pm (to allow the office volunteer to have a Christmas break-up lunch). The Office will reopen on Tuesday 5 February 2002.

During the closure applications for membership and similar incoming mail will be processed. Apart from the Christmas, Boxing Day and New Year holidays, and the week in between them, urgent email will also be handled.

Delays can be expected however in relation to changes to the WIA Victoria website and its related membership services. During the office closure the accounts of the organisation will undergo their annual audit in line with corporate requirements.

The WIA Victoria Annual General Meeting will be held on Wednesday, 29 May 2002. A formal notice and reports will be sent to members advising them of the AGM and the closing date of notices of motion.

President announces retirement

The President, Jim Linton VK3PC, has announced that he will retire from that position at the Annual General Meeting on 29 May 2002.

Jim, a Life Member of the Institute, has served the membership and the hobby extremely well during a period of enormous change over the past 20 years.

His decision to announce retirement at this time gives the council six months notice so a successor can be considered well in advance of the AGM, and allow the new President a full year in office before the next three year council term.

At the time of the AGM, the council should be at, or near, its full strength of eight, giving it a full year in which to implement changes that it decides for WIA Victoria. In the role of Immediate Past President, Jim VK3PC will be available to provide advice to the 2002-2003 council.

Membership subscriptions

New subscription rates will apply from 1 January 2002. These are higher than 2001 due mainly to a $5 increase in the federal component.

Grade	New subscription
F-Full	$83
A-Associate	$83
G-Pensioner	$67
X-No AR	$51

VK4 Notes - Qnews

From Alistair Elrick VK4MV

15th North Queensland Amateur Radio Convention Co-ordinators Report

The convention was officially opened at the Friday Night Greetings and Nibblies evening by Evelyn Bahr VK4EQ. Evelyn's opening address included a description of what hams had to go through to get a licence (with graphic detail about her XYM (SK) Charlie VK4BQ's application for a licence during World War 2 plus the previous essay format of the radio exams). Registration Co-ordinator Ian VK4ZT showed his experience with past conventions by heaps of forward planning, which made Convention Registration totally painless and very swift. You rocked on up to the TARCinc van and were pointed to an adjoining table where sample bags were conveniently stacked. You looked for your callsign and grabbed your goodies bag which had your meal tickets and auction card. The bags also contained lots of interesting stuff from the WIAQ, Dick Smiths, Sheraton Casino plus a special convention edition of the magazine of renown, Backscatter.

Ladies Handicraft Activity Co-ordinator Sheila VK4PAL took over the University Hall Junior Common Room to participate in a folk art handicrafts session. ARDF Demo Co-ordinator VK4MC Don, arranged for some world-class ARDF beacons to be laid in secret locations around the University and then unleashed a very keen group of RadioSport veterans and newbies!!

Lecture 1: Professor Mal Heron Radiowave Propagation through Partially Ionised Plasma - Bushfires, Cyclones, Squalls and Willywillies. This lecture and has been videotaped for a future showing on the Townsville ATV Repeater. Home Brew Contest - Technical Judges were Gerry Millward and Kevin Smith, of the Australian Communications Authority.

Lecture 2 saw Leonie Tarnawski and Gerry Millward, ACA with an introduction to the Australian EMR Framework. The After-Banquet Talk Gerry Millward VK4HT held the diners spellbound as he detailed a few of the behind-the-scenes happenings the ACA had to deal with during the Sydney Olympics. Did you know that .... - a number of cameras brought in by overseas photographers contained RF remote controls for shutter control and caused interference to the telemetric control of the Cauldron? - a crane remote control on Sydney's North Shore area interfered with the Swiss Timing until its frequency was re-assigned?

The Ken Robertson VK4KT Memorial Award, which rewards and promotes technical excellence in amateur radio throughout North and Far North Queensland, was awarded to Don Terrace VK4MC. WIA Public Forum, WIAQ Vice President and Northern Region Council Member Gavin VK4ZZ introduced WIA Director Don Wilschefski VK4BY and WIAQ Secretary Bruce Jones VK4EHT to those attending. Don concentrated on Federal matters while Bruce gave insight on the working of the State body.

(Sourced from the complete works of Gavin Reibelt VK4ZZ NQ Convention Co-ordinator 2001)

QNEWS... The halfway point.

As an insight to how Qnews spreads to all quarters this from Co-ordinator Graham VK4BB, as a report to WIAQ Council.

From the 26 Broadcasts this WIAQ Council Year 2001, there were 20069 all-modes checkins, 6969 RF Audio checkins. There were also 5624 connects to the web site at http: // www. wia. org. au/vk4. 331 emailed copies of QNEWS each week. Interestingly the figures include these: CB retransmission checkins, 410 in VK2, 62 in VK4, 38 in VK7. So there are many taking the time to actually let us know they are listening, plus those we hear do listen but don't check back.

Gold Coast Amateur Radio Society

The GCARS recently conducted a Cram Course to prepare candidates to sit for their licence; 23 took the course over 3 Sundays and followed up with exams over the next 2 weekends with the result of provisional marking by examiners some 2 thirds have gained a pass. This has of course to be made official by WIA Exam service.

Of the regular yearly class of 14, this course has concluded and all are at present involved in sitting exams over the next 2-3 weeks. GOLD COAST CLUB thanks Ron Bertrand and Kath and Roy Cotterill for the many hours of tutoring and involvement in preparing lessons and examining for the end results. Many new members have been gained both from the regular classes and from the Cram Course, which turned out to be a huge success.

Hi Speed on Sunshine Coast

Len VK4ALF has been experimenting with 2.4 GHz radio LAN cards for high-speed data transfer and connectivity to the BBS and packet network. These cards are available commercially and with a small manipulation to the software can be set to transmit solely in our 2.4 GHz amateur band. With an 8 dB collinear at about 7 metres above ground and a 11.7 dB panel mount antenna exhibiting a radiation pattern of about 120 deg on the dash in the car, connections were made up over 4.5 km. The most exciting thing was the fact of file transfers of half a meg in 10 seconds!

That's it for 2001, Merry Christmas and Happy New Year!

73's from Alistair ar

Bill Magnusson VK3JT

New Zealand walking party tracked using PCsat

One of the prime design functions of PCsat was demonstrated locally during the latter part of October 2001. It concerned a party of walkers in New Zealand. Alan ZL2VAL takes up the story.

"The "walkers" were a group of retired folk, walking the length of New Zealand. They set out from the top of the North Island, Cape Reinga, on August 11 and were targeted to reach the bottom of the South Island, Bluff, some 1200 miles later on November 1st. The projected number of days on the road was 72 actual walking days, about 30km each, with 8 rest days along the way. The purpose of the trek, was to prove that "You aren't over the hill when you're over 65". There were 11 people in the group, oldest 74, youngest about 50. One member of the party, Tony, G3RKL traveled to New Zealand from Sheffield in England to take part and took out a special license and callsign of ZL6RTB, for "Reinga-To-Bluff". Tony used a Kenwood TH-D7 handheld radio, coupled to a GPS receiver. He transmitted APRS beacons every 10 minutes, through the New Zealand 70cm National System of linked repeaters. Several ZL operators monitored the progress of the walkers with UI-View and some digipeated the beacons onto local packet and APRS frequencies. I digipeated their positions through PCsat and the ISS, as APRS objects. Unfortunately the chain of repeaters ran out at Dunedin and the troops were then too far away from the last one for any more direct beacons. Cheers, Alan. (ZL2VAL)...."

You aren't over the hill when you're over 65!

Using my copy of UIview32, I followed the progress of the "walkers" via PCsat. From an observer's point of view the exercise ran very smoothly with a new position being indicated each day during the late afternoon passes of PCsat which were in a good position for both New Zealand and Australia.

The exercise vividly demonstrated the effectiveness of the APRS system when used in conjunction with a suitable amateur radio satellite, in this case PCsat and a suitable portable packet radio station. In this case the Kenwood TH-D7 radio was used. It has integrated packet radio capability. One of the really nice things about this system is that the very short transmissions made mean that the battery life of a portable transceiver is quite long. The beacon transmissions only draw power for milliseconds each time. The system can be set to transmit every 5 to 10 minutes or so all the time a party or individual is in transit and under these conditions a set of batteries can be expected to last the duration of the exercise.

Many such demonstrations have been conducted already around the world using PCsat. They range from hikers to joggers to marathon runners and motor car rallies. The applications seem endless. Our own Murray River Canoe Marathon would seem to be an ideal exercise for this medium. How the technology has changed in a decade or so. The whole 'walkers' episode reminded me vividly of the Russian / Canadian "Trans-Polar Ski Expedition" back in 1988. A group of my 6th form students tracked the ski party from Cape Archtichesky in northern Russia across the North Pole to Elsmere Island in northern Canada. The technology was quite different in those days but the principle was similar. Their daily progress was monitored by having them activate a small rucksack beacon transmitter. The signal was picked up by very early satellite positioning equipment, the forerunner of today's GPSs and EPIRBs and relayed to Surrey University where the details were uploaded to the digitalker (voice synthesiser) on board the Uosat-Oscar-11 satellite. By listening to the digitalker on a simple hand held 2-metre receiver, the skiers were able to plot their own progress on their charts. So were we! We followed their progress by placing stickpins on a map of the North Polar Region. Crude as it was, it was still possible to see detail such as where they had to deviate from their planned course because of difficult ice conditions on a couple of occasions.

How much easier that exercise would be today. The experience of the New Zealand walkers and PCsat has amply demonstrated that this technology is within the grasp of the amateur satellite fraternity. Congratulations must go to Bob Bruninga WA4APR and his group of Midshipmen at the US Naval Academy for the outstanding success of the PCsat project.... (and to the Senior Citizen walkers of course).

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141,
Adelaide, SA. 5001.

Graham's email address is:
vk5agr@amsat.org

AO-40 News

Time flies when you're having fun. It's six months now since AO-40's transponders were opened for general use on an experimental basis. During that time it's been interesting to watch the discussions on the AMSAT bulletin board. The downlink is operating on 2.4 GHz and at first this was viewed as being for "gurus only". AO-40 is not the first amateur radio satellite to carry 2.4 GHz gear. For many of us it was simply a matter of digging out the equipment we used for AO-13 and Arsene mode-S.

The learning curve must have been very steep for a lot of newcomers but it has been gratifying to see the way information has flowed so freely. There is no lack of expertise on the BB. Although many of the 'newbie' questions must have sorely taxed the patience of the 'Elmers', every question was subsequently fielded in a patient and competent way. Most of the common problems stemmed from new users not realising how weak the downlink signals are, how careful you have to be in setting up the first RF circuits in the receive chain and just how important the antennas and feedlines are in the whole story. None of these things are new of course and apply to all amateur radio operation, but people either forget basic principles or simply don't attach sufficient importance to them. Then they wonder why things just don't work. Most of the problems arose because people forgot or paid scant attention to the simplest of RF rules. What you can get away with on HF ... you certainly can't get away with at 2.4GHz.

The basic antenna has to have sufficient gain and the only realistic way to go is a parabolic dish. Lots of folks tried out long yagis and helix arrays and found them lacking. A few even tried to use all-sky antennas like the quadrifilar helix. Of course they didn't work. The vast majority are now using dish antennas. Many new users paid too little attention to the means of 'illuminating' the dish, i.e. the design of the feed antenna. With incorrectly designed feeds, dishes will be either under or over illuminated with a consequent loss of efficiency and degradation of the system noise figure.

Many fell for the trap of running long feedlines to the shack. Even with a good dish antenna this isn't going to work. There'll be no signal left to receive in the shack. A good number thought they were doing the right thing and mounted the downconverter on the dish. This is an improvement but it's still far from optimum. Unless an efficient crystal oven is used the frequency will wobble all over the place due to temperature changes. Little by little people began to realise that there is only one way to do the job ... that is ... do it right in the first place like the 'Elmers' have been saying all along.

So, what is "the right way"? Fortunately amateur radio operators have been delving into the microwave region for years. Oscars have been using 2.4 GHz downlinks for years and usable systems have evolved. There are certain conditions you need to meet. An "Oscar-40 class" station which can be expected to give good results would follow along these lines:

Start with a well constructed fine mesh or solid dish of about 60 – 90 cm and fit it with a helix feed, preferably similar to the G3RUH design. Offset dishes can be used but a prime-focus dish is better. Mount a good low-noise pre-amp right at the helix feed point. NO co-axial cable, just a co-ax adapter to make the connection. The pre-amp should have at least 20dB gain and a noise figure below 1 dB. Paint it with reflective white paint. Use the best co-axial cable you can afford to connect the pre-amp to the downconverter in the shack. Use 9913 or better. You'll be surprised how many of those 20 dB disappear along the way even with good co-ax ... this is 2.4 GHz we are talking about ... not 3.5 MHz. Use brand new connectors and brand new co-ax wherever 2.4 GHz is present. Don't even THINK about using secondhand connectors or cable. The downconverter can contribute a lot of noise to the overall receive system. Most of this will be mixer noise and some is unavoidable but make sure it's not excessive by choosing the best design you can afford.

Many operators will evolve systems that would out-perform the one described above. However, any downward departure from the above and the results will fall off markedly. Think of the above layout as a satisfactory minimum. Don't fall into the trap of thinking, "Oh I'll have a go anyway, I might hear something". You won't. If you aren't prepared to give it your best shot, don't waste your money and above all if you can't hear the satellite, don't blame the satellite or AMSAT or the 'gurus'. They gave it their best shot when they built it. Please give it your best shot when you use it. There is ample help available on the AMSAT web site and via the AMSAT-BB bulletin board. Even with less than optimum squint angles, AO-40 has been producing spectacular results. The good DX is there to be worked every day. Be part of it!

AO-10 Continues to Provide Good DX Contacts

If you haven't listened for a while, now would be a good time to check out AO-10. Reports are coming in daily on the AMSAT-BB of excellent DX contacts being made on the "old flagship". AO-10 has been out of control for some years now due to the failure of the on-board computer. From time to time conditions of solar illumination and satellite attitude are favorable for good communications. Now is such a time.

You will have to dust off the mode-B gear. That is – 70cm up and 2-metres down. Listen around 145.808 MHz for the beacon. It is just an unmodulated carrier since the computer failure. It should be about 5 or 6 "S" units above your noise floor. If it is you can listen for signals up around 145.900 – 145.950 MHz.

To test your uplink, transmit around 435.100 MHz and search for your signal around 145.900 MHz. Remember it is an inverting transponder so transmit on LSB to have a downlink signal on USB. A tracking program like InstantTrack will show you what other areas share your footprint. Have a go, you may be surprised at how well the old bird is still working. Good DX!

Next month, the six-monthly report on operational satellites, their frequencies and modes.

ar

Antenna masts
that won't annoy your neighbours

Don Jackson
VK3DBB
55 Ryan Road
PAKENHAM Vic 3810

Much has been written in the past to technically justify installation of an antenna as high as possible, with the highest gain available and maximum performance, especially with the monster HF antennae used by DXers. But how do we address the concerns about the appearance of such antennae to those unfamiliar with amateur radio?

There are many restrictions on the use of amateur radio, ranging from strict prohibition in the case of some retirement villages, to town planning controls which regulate or restrict the size and height of masts, apart from those physical constraints imposed by the limited dimensions of some residential lots. Yet we have all seen antenna installations which even to another amateur operator, present a poor image and often serve only to raise the temperature of angry neighbours.

Many people do not understand the relationship between efficient antennae and successful enjoyable communication and, let's face it, many couldn't care less! Our neighbours often can't put into so many words what they don't like about amateur radio transmissions, but they can certainly tell us when they are angry and unhappy with what we have erected.

There is nothing fundamentally wrong with trying to create a home environment of which both our neighbours and we can be justifiably proud. Most people want to have some degree of control over the future of the homes they have worked so hard to acquire, and this is all the more reason why we should try to educate our neighbours and community planners. But unfortunately, education may not always be enough.

So the issue is raised about keeping our antenna plans within reasonable bounds. There are several reasons why neighbourhood groups may think our beloved antennae do not belong in residential communities. In fact, in one case with which I am familiar, my local Council was presented with a report on a town planning application that said in effect, that amateur radio is not an appropriate use within a residential area!

Among the reasons (excuses?) that are used by objectors are these:

- They fear that property values will nosedive, and homes will become difficult to sell as the subdivision "disintegrates". This is usually the major objection. (In the event of an appeal though, it can be very strongly argued that this is not a relevant town planning ground of objection).
- To many, antennae (particularly large Yagis) are ugly
- Antennae emit RF energy, which some believe is a potential health hazard.
- They may be afraid of antennae crashing into their homes in the middle of a big storm
- Interference to TVs, radio, telephone, home alarm systems, pacemakers etc.
- In the opinion of most non-amateurs, large antenna farms do not enhance the visual tranquillity many expect from their home settings

Get the picture? Why would anyone ever want to live next door to an active amateur? However, there may well be room for compromise, and here are a few suggestions to constructively address or at least mitigate some of our neighbours' concerns.

- Be realistic in terms of height. Don't plan a 30 metre tower in a treeless residential neighbourhood full of small lots.
- Accept greater challenges by not insisting on having the optimum set of antennae. If QRPers can enjoy radio communications with flea power, we can certainly get by with a more modest array.
- Use good judgement when calculating the number of antennae you feel you can use. Use multi-band devices whenever possible.
- Make sure your antennae appear sound and solid.
- Consider wire antennae. They are much less visible than aluminium tubing.
- Keep antennae away from the sides of narrow blocks where possible.
- Plan installations around building and lot features, especially around the upper parts of houses, trees or the back yard.
- Convince your neighbours that, although you like using radios, you also are interested in preserving the neighbourhood tranquillity and willingly make compromises. Always have a Plan "B".
- Don't surprise people with antenna or mast installations. And NEVER use the word "Tower". It immediately convinces the uninitiated into thinking you are going to put up a structure like a high voltage electricity transmission tower. Instead, consider ways to help neighbours visualise what you are planning to install before beginning work.
- Consider a trial antenna installation. Temporarily put up an antenna for a long weekend and do a contest. Share the results with your neighbours.

The average amateur doesn't like to give offence to his/her neighbour. Most

are responsible, community spirited and hardworking citizens. When thinking of an antenna, consider a modest type such as a dipole or other wire antenna. If you feel you need a larger array, see if you can be happy with a 12 to 14 metre antenna.

In this regard, under present Victorian Town Planning law, a town planning permit is generally not required for any amateur radio mast and antenna: -

- That is not more than 14 metres high
- Where the mast dimensions are not greater than 500mm at any point (excluding antenna) exceeding 3 metres above the ground.
- Where the overall dimension of the antenna is not more than 6 metres. This length of course is less than most Yagis

This is not intended to be legal advice, and the law in other states may vary considerably from Victorian Law.

When developers and town planners consider antenna restrictions, they may have in mind the far end of the spectrum, that is the amateur who wants the most gain, the highest and the biggest antenna with the most elements and widest wingspan. Those in power feel, probably correctly, that homeowners expect them to control and regulate antenna installations, and to keep property values up and maintain beautiful neighbourhoods.

Become involved and keep involved with your neighbours early, rather than whinge after the fact. Consider how you can minimise objections about how antennae look by rethinking you next project. Beware of a "stirrer" who circulates a petition against your proposal.

Finally, if your mast and antenna is such as to require a town-planning permit, keep fully in touch with the person at Council who is dealing with your application. Inspect any objections; sort out those that are reasonable from the unreasonable, make a submission to Council on the objections before the application is submitted for decision. Try to view the report before it is presented to Council to ensure it is a balanced report, and if not, make sure you talk to your local Councillor before the decision is made.

This article has been adapted with permission from one written by James N Woods, W7PUP, and which appeared in the "Op-Ed" section of the June 2001 issue of QST.

ar

The very PC WIA

PC=Politically Correct, Personal Computer, and...Productivity Commission.

Peter Ellis VK1KEP *explains how the WIA has addressed the future of the Radiocommunications Act and the ACA.*

It was a brilliantly clear Spring day in Canberra on Monday 29th October when the Productivity Commission's two sitting commissioners, Dr David Robertson and Dr Neil Byron, heard submissions from the WIA's President, Ernest Hocking VK1LK and Federal Councillor Gilbert Hughes VK1GH. (Other Amateurs attending were Tony VK1TB and Peter VK1KEP.) But, no one in the small Barton Room in Brassie House, one of Canberra's old rooming houses turned olde worlde hotel, took much notice of the weather.

The WIA was on after the submission from the Australian Maritime Safety Authority (AMSA), and before lunch. Time was, therefore, precious.

The two commissioners had obviously read the WIA's submission. Dr Robertson joked that the two people should perhaps identify themselves with their callsigns when they addressed the tape recorder for the first time. There was nervous laughter, and Ernie and Gilbert duly gave their details including callsigns. Ernie Hocking addressed the commissioners for about 8 minutes, summarising the WIA's submission and stressing various matters.

Commissioner Robertson then asked specifically about regulation of the Amateur Radio service. Gilbert Hughes, formerly a Radio Inspector, stressed the need for regulation in former times, and how modern electronics had negated the need.

After some discussion, Commissioner Byron tried a metaphor: The regulation of hang glider pilots was now in the hands of the Gliding Federation rather than Aviation Safety Authority, and he wondered aloud whether this was like the proposal from the WIA to self-regulate the Amateur Radio service.

What followed was a wide-ranging discussion between the commissioners and the WIA representatives, covering: the proposed Foundation License, how the time pressures on young people tend to preclude their involvement, the disincentive of the fee structure of the ACA versus the cost of equipment, the acceptance in various countries of the social worth of Amateur Radio versus a fee, and the need for recourse to government regulatory oversight no matter what level of self-regulation there might be.

The session finished after about 25 minutes, and the Amateur Radio people had a few minutes to privately discuss matters with the commissioners as they went to lunch. It transpired that Dr Byron is a keen glider pilot and so, with some further explanation of Amateur Radio operation, his metaphor provided him a clear model for understanding the aspirations of Amateur Radio operators.

Find the WIA's and other submissions on the Productivity Commission's web site http://www.pc.gov.au and look under 'Radiocommunication'.

Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

IHS Needs Operators for Honduras

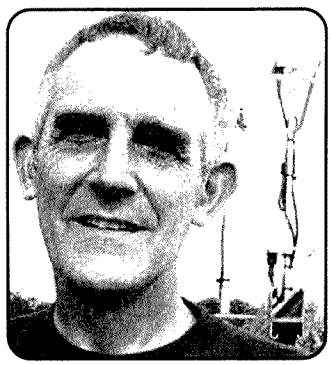
International Health Services says that it needs ham radio operators to accompany medical and dental teams to villages in Honduras.

According to an Internet posting by John Kirckof, KB0UUP, most of these villages HIS visits have no electricity or phones. Kirckof says that IHS is often the only medical care these local people will ever see.

Kirckof, who is the Communications Director for HIS says the group will provide High Frequency gear for any operator who does not have his or her own portable rig. Both men and women are welcome to apply. Sign-up is now. For more basic information, visit www.ihsofmn.org or contact John by e-mail to jmkkek@runestone.net.

(KB0UUP, ARNewsline(tm) via QNEWS)

Internet Linking



Dr Tony Whitaker

You may recall last year reading in AR the story of Tony Whitaker, G3RKL/VK2STB who walked from Sydney to Brisbane. Well, he's at it again and spent August through October walking the length of New Zealand. Tony, licenced as ZL6RTB, kept in contact with his fellow Amateurs back in the U.K. via the N.Z. national repeater system and Internet linking. Using I-phone and IRLP linking, he was able to keep in touch with his friends through his local home repeater GB3US. Tony also used APRS/GPS to provide location reports. This was shown on the web site www.findu.com. We can't hide from it – Internet linking is part of the evolution of Amateur Radio. After the trek Tony took a few days off to travel up the east cost of VK again, only this time with 4 wheels beneath him. As he passed by my QTH near Port Macquarie, chauffeured by Graham, VK2FA, I was able to stop him on the highway and take a digi-pic. Perhaps we can get Tony to write his new travel venture for us.

Remote Control in the USA

Having just read the article on ZL/G3RKL and his use of the Internet to talk to the U.K. daily, I opened November QST and read the story of Brad Wyatt, K6WR, who uses the Internet to access other Amateur stations that have been specifically set up for remote operation.

Remote control is not something new. It's been around for years and I've worked a few stations that were linked remotely to their transceivers by telephone lines or UHF links. However, they were owner-users. Internet linking is different because you link into somebody else's equipment.

Imagine you want to contact someone in North America on 80 SSB. It's tough directly from VK, however via the Internet you can link into designated stations and remotely control them. So the operator is sitting on some remote DX Atol with his laptop and satellite cell-phone, linked into the Internet, operating a KW out of North America. Now there's a DXCC problem!!

Is it legal? According to the article, the answer is yes! You have to register to use these stations and it appears to abide by the FCC rules.

(QST Nov)

Remote Control in the U.K.

The U.K. is about to start investigating remote controlled HF stations and a Special Research Permit has been given to Dave Gould, G3UEG, to investigate remote control over the telephone network.

The system is based on a Kachina 505DSP transceiver and Kachina's own specially designed remote control system. The audio is digitised and then multiplexed with the control signals. The resulting single data stream is encoded and then passed over the telephone network using standard modems. At the remote end the data is decoded and the audio is split from the control signals and passed to the transceiver. The system will operate at a line speed of 28k or better and includes strong security, failsafe and shutdown measures.

The ability to operate remotely will give many benefits, including the use of more effective antennas where planning restrictions or garden size limit what can be done at home. It could also be used to put antennas away from sources of man-made noise or to get away from EMC problems. This will be the first step on what could become an interesting development. Anyone interested in receiving further information may contact Dave Gould, G3UEG, by e-mail at david.gould@btinternet.com

(RSGB B'cast 3 Nov)

Clockwork Radio

Most of think of Marconi as the father of Amateur Radio, others may refer you to M.J. Dennis who used the call DNX in 1898. At the Institute of Electrical Engineers in the U.K. last month, Ralph Barrett, G2 FQS, gave a lecture and demonstration of the equipment that David Hughes built and demonstrated in 1879. Hughes equipment had a clockwork interrupter that provided pulses of energy from a Daniell cell to make resonance in an inductor coil. Hughes went on to make his fortune in the USA with his printing telegraph recorder.

Which reminds me. Twenty plus years ago we had the clockwork receiver which had been designed and used widely in Africa and isolated places where replacements batteries were not available.

Has anyone invented a clockwork transmitter or transceiver?

Floating Antennas

A U.S. based company is planning a unique digital wireless communications platform about 4.6 km above the earth. It is a 46 m long aerostat (airship) moored to the ground and floating in a restricted space. It is said that this would give a cell-phone coverage of about 40,000 sq. km. Thank goodness the first installation will be over the State of Goias in Brazil. A pilots nightmare – but a great 2 m repeater!

(Oct RadCom)

Contests

Ian Godsil VK3VP
contests@wia.org.au

Contest Calendar December 2001–February 2002

Dec	15-16	ARRL 10 Metres Contest	(CW/SSB)		
Dec	15-16	10 Metres SWL Contest			
Dec	15	OK RTTY Contest			
Dec	15-16	Croatian CW Contest			
Dec	15-16	International Naval Activity	(CW/SSB)		
Dec	26	Ross Hull Memorial VHF Contest begins	(CW/SSB/FM)	(to Jan 13, 2002)	(Dec 01)
Dec	29	RAC Canada Winter Contest	(CW/SSB)		
Dec	29	16th Internet CW Sprint Contest			
Dec	29-30	Original QRP Contest	(CW)		
Dec	29-30	Stew Perry 160 Metres Distance Challenge	(CW)		
Jan	5-6	ARRL RTTY Roundup			
Jan	12-13	Summer VHF Field Day			(Dec 01)
Jan	11-13	Japan Intl DX Contest 160m-40m	(CW)		(Dec 01)
Jan	20	HA DX Contest	(CW)		
Jan	25-27	CQ 160 Metres Contest	(CW)		
Jan	26-27	REF Contest			
Feb	2-3	Ten-Ten Intl. QSO Party	(SSB)		
Feb	9-10	WW RTTY WPX Contest	(RTTY)		
Feb	9	Asia-Pacific Sprint	(CW)		
Feb	9-10	PACC Contest	(CW/SSB)		
Feb	16-17	ARRL Intl. DX Contest	(CW)		
Feb	22-24	CQ 160 Metres Contest	(SSB)		
Feb	23-24	REF DX Contest	(SSB)		
Feb	23-24	RSGB 7MHz DX Contest	(CW)		
Feb	24	High Speed Club CW Contests			

Greetings to all readers.

CQ Contest Survey

In the August edition of "CQ Amateur Radio" magazine the results of a Contest Survey conducted earlier in the year were published. These make most interesting reading and I commend this article to you all (pages 88-90). I was quite surprised at some of the findings, as apparently was John Dorr K1AR who writes the column.

Some salient points from this survey are-average age 47.53 years; average contesting experience (in years) 18.78; most considered their stations ordinary, with emphasis on antenna switching and best use of SO2R (single operator two radios); favourite mode CW; average amount spent on contesting in last two years US$5,386. Certainly most respondents were from USA/Canada, but responses were received from 30 countries, including one from VK. Do please look at this article for yourself.

Again I take this opportunity to enlist your support for the annual Ross Hull VHF Contest (see dates in Calendar). I think it quite likely that there will be some interesting openings, even allowing for sunspots having peaked for this cycle. And there is the rule about selecting your best group of days, so it is not a case of having to be there all the time. Let's hear from you this year!

I wish you all a very holy Christmas, happy holiday season and good contesting in 2002.

73, Ian Godsil

Results CQWW DX SSB Contest 2000

(VKs only Call\band\score)

Single Operator:

VK5GN	All	3,494,205
VK1JDX	"	208,582
VK4DMP	"	137,367
VK2BCQ	"	89,474
AX4EJ	"	1,203,124
VK3OJ	"	49,692
VK2ARJ	28	479,987
VK4UC	"	431,900
VK8DK	"	100,362
VK2HV	"	87,087
VK2EM	"	45,990
AX8HZ	21	373,932
VK4EMM	14	667,056
AX3TZ	7	36,096

Assisted:

VK6WR	All	83,385

Multi-operator Single Transmitter

VK4WIL	All	2,278,500

Results CQ WW DX CW Contest 2001

(VK/ZL only Call\band\score)

Single Operator

VK5GN	All	1,270,698
VK4XY	3.5	30,857
VK2DPD	All	190,920
VK4DX	28	638,950
VK4UC	28	256,161
VK4TT	28	130,232
VK6HG	28	17,520
VK4EMM	21	815,850
VK4XW	21	11,505
VK3TZ	1.8	12
ZL1AIH	28	72,323
ZL3JT	21	102,752

Multi-operator Single Transmitter

VK8AR	All	28,017
(Ops. VK8TM/TX)		
ZL6QH	All	5,541,516
(Ops. JH3KNW,ZL1AZE, ZL2BSJ)		
ZL3CW	All	3,660,618
(Ops. F2CW, JA4EKO)		

Results ANARTS WW RTTY Contest 2001

from Jim VK2BQS

162 logs received, being 151 Single Operator category, nine multi-op and two SWL logs. Many thanks to all who took this trouble.

(World posn\call\score\awards)

Single Operator

1	VK2KM	19,782,336	1st World/ OC/VK2
16	VK6GOM	7,306,740	1st VK6
30	VK4WPX	3,647,800	1st VK4
50	VK2SG	2,133,756	2nd VK2
109	VK2BQS	508,728	3rd VK2

Multi-operator

4	VK2RT	9,921,984	4th World, 4th OC/VK2
8	VK4DZ	1,063,140	2nd OC, 1st VK4

NZART Memorial Contest 2001 Results

from Win Gilbert ZL2GI, Contest Manager

There were fewer entries in each section compared to last year except the Auckland Shortwave Cup- CW only, where the numbers were the same. Last year 32 logs were received compared to 26 this year. Features were that about 8 logs out of 26 were received by electronic mail, the summaries and logs were of a very high standard, there were no ZL3s and 2 ZL4s taking part on phone and only a few more on CW. VKs were well down this year (3 compared to 7).

The winners in the various sections are:
The Memorial Trophy: John Shaw ZL1BYZ
Phil Armstrong Memorial Plaque: Denys Brosnan ZL2AWH
Auckland Shortwave Cup: Barry Kirkwood ZL1DD
Mannell Trophy: Geoff Reed ZL1AKY
Laing Smith Trophy: no award
Ron Gray Memorial Shield: no award
Brother John Rodgers Plaque: Bill Cousins ZL2AYZ

Name	Callsign	ZL1	ZL2	ZL3	ZL4	VK	DX	Total phone	ZL1	ZL2	ZL3	ZL4	VK	DX	Total CW	Total Pts	Power
Memorial Trophy—Phone and CW																	
John Shaw	ZL1BYZ	42	40	10	5	13	0	640	55	29	0	6	6	0	689	1329	-
Leo Hodge	ZL2AJB	39	46	8	3	9	0	536	59	25	0	6	4	0	659	1195	-
P J Moore	ZL2AUB	44	45	3	3	17	0	573	45	27	0	3	1	0	527	1100	-
Bernard	ZL1WTi	34	36	7	2	11	0	522	36	7	0	3	0	0	361	883	-
Westerbaan																	
John Stuart	ZL2ADN	21	30	5	1	0	0	341	28	13	0	3	0	0	357	698	-
Phil Armstrong Memorial Plaque—Phone only																	
Denys Brosnan	ZL2AWH	48	45	9	6	31	0	833	-	-	-	-	-	-	-	833	-
Alex Learmond	ZL1BVK	41	54	10	6	32	0	767	-	-	-	-	-	-	-	767	-
Hector	ZL1BRY	41	49	10	6	21	0	729	-	-	-	-	-	-	-	729	-
Anderson																	
Stan Russell	ZL2BRS	46	48	10	0	27	0	724	-	-	-	-	-	-	-	724	-
Warren Strong	ZL3TX28	35	5	4	4	0	449	-	-	-	-	-	-	-	449	-	
Susan Brain	VK7LUV	21	17	3	1	7	0	40	0	-	-	-	-	-	-	-	400
-																	
Tom Hardwick	ZL4HD24	22	5	0	3	0	365	-	-	-	-	-	-	-	365	-	
Alan Brain	VK7JAB	18	15	4	1	2	0	342	-	-	-	-	-	-	-	342	-
Geoff Clark	ZL3GA	20	25	5	0	0	0	320	-	-	-	-	-	-	-	320	-
Auckland Shortwave Cup—CW only																	
Barry Kirkwood	ZL1DD	-	-	-	-	-	-	-	62	33	0	6	14	7	939	939	-
Paul Slako	ZL1PC	-	-	-	-	-	-	-	59	34	0	6	12	4	859	859	-
Ken McCormack	ZL1AIH	-	-	-	-	-	-	-	58	34	0	6	11	5	854	854	-
John Balsillie	ZL1ALZ	-	-	-	-	-	-	-	64	37	0	6	8	1	810	810	-
Peter	ZL4GU	-	-	-	-	-	-	-	63	34	0	0	9	0	731	731	-
Brentwood																	
Ron Willcocks	ZL1AJP	-	-	-	-	-	-	-	57	35	0	6	5	1	729	729	-
Rodney Ede	ZL1BBJ	-	-	-	-	-	-	-	51	25	0	6	3	0	607	607	-
Ian Godsil	VK3VP-	-	-	-	-	-	-	37	11	0	6	1	0	440	440	-	
Roy Milam	ZL1WI-	-	-	-	-	-	-	30	14	0	3	0	0	372	372	-	
Mannell Trophy—Low Power																	
Geoff Reed	ZL1AKY	39	36	6	1	0	0	375	52	25	0	6	0	0	570	945	10W
Bill Cousins	ZL2AYZ	26	28	7	1	0	0	363	41	16	0	6	2	0	499	862	8W
G Luscombe	ZL2AVL	0	0	0	0	0	0	0	60	26	0	6	3	0	657	657	5W
Brother John Rodgers Plaque—Homebrew SSB																	
Bill Cousins	ZL2AYZ	26	28	7	1	0	0	363	41	16	0	6	2	0	499	862	8W

Ross Hull Memorial VHF-UHF Contest 2001-2002

From John Martin VK3JWA, Contest Manager

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

Duration

0000 UTC Wednesday, December 26, 2000 to 2400 UTC Sunday January 13, 2002. In Eastern Summer Time, that is 11 a.m. on December 26 to 11 a.m. on January 14.

Sections

A. Best 7 UTC days nominated by the entrant.

B. Best two UTC days nominated by the entrant.

Entrants may submit logs for either section. The nominated UTC days need not be consecutive. The overall winner will be the top scorer in Section A. If the overall winner has also entered Section B, his/her log will be excluded from Section B.

General Rules

One callsign and one operator per station. One contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted. No contest operation below 50.150 MHz. Band plan calling frequencies should not be used for contest calls, exchanges, or liaison. A contest calling frequency of .150 on each band is suggested. All rulings of the Contest Manager will be accepted as final.

Penalties

Minor errors in distance estimates or calculations may be corrected and the score adjusted. Contacts made on calling frequencies will be credited if the entrant provides a satisfactory explanation of why it was not practical to use another frequency. Otherwise such contacts will be disallowed. Persistent unnecessary use of calling frequencies or false log entries will lead to disqualification.

Contest Exchange

RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. For difficult propagation modes such as meteor scatter, exchange of a total of two digits is sufficient for a valid contact.

Scoring

For 2 metres and above, one point per 100 km or part thereof (i.e. up to 99km: 1 point, 100-199 km: 2 points, etc).

For 6 metres only, contacts below 1000 km as above. Contacts from 1000 km to 2400 km, 2 points regardless of distance. Contacts over 2400 km, 20 points regardless of distance.

The band multipliers are:

6 m	2 m	70 cm	23 cm	Higher
x1	x3	x5	x8	x10

Logs

Logs must cover the full contest period and contain the following for each contact:

- Date and UTC time.
- Station location (if operating portable).
- Specific FREQUENCY (not just band) and callsign of station worked.
- Approximate location or grid locator of station worked.
- Reports and serial numbers sent and received.
- Estimated distance worked and points claimed.

Separate scoring columns for each band would be helpful.

Cover sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered, and a list of the UTC days to be scored.
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Deadline

Paper logs may be posted to the Federal Contests Co-ordinator,

57 Nepean Highway, Aspendale, 3195. Electronic logs in ASCII format should be e-mailed to: vk3vp@vkham.com by Friday, 8 February, 2002. Early logs will be much appreciated.

International Museums Weekend 2002

Earlier this year, in June, I ran what proved to be a very popular and enjoyable amateur radio event in Great Britain, called the 'National Museums Weekend 2001' (NMW 2001).

Next year the event will become an international one, and be renamed the 'International Museums Weekend 2002' (IMW 2002). The IMW 2002 will take place on the weekend of the 15th and 16th of June 2002. Individual operators as well as amateur radio clubs from around the world are invited to join in the event, by setting up a special event station at your local museum.

Registration is a requirement for taking part in the event. Registration is free via the website.... http://www.imw.f2s.com/ More information about the event can also be found there.

Nearer the event, the original NMW 2001 web site http://www.qsl.net/m1byt/ will eventually become a mirror site for the IMW 2002.

Regards,

Harry M1BYT@GB7FCR.#16.GBR.EU
harry_m1byt@ntlworld.com
Tel. +44 (0)113 2866 897

Sample Scoring Table

Band	6 m	2 m	70 cm	etc
Score	xxxx	xxxx	xxxx	xxxx
Band Mult.	x1	x3	x5	xx
Total	xxxxx +	xxxxx +	xxxxx +	xxxxx

= xxxxx (GRAND TOTAL)

Note on Calculating Distances

Absolute accuracy is not required. All you need to know is whether the other station is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using a computer program, which is available from the contest manager. It can be obtained by sending an e-mail to the address given above.

Summer VHF-UHF Field Day 2002

From John Martin VK3KWA

The next Summer VHF-UHF Field Day will take place on the weekend of January 12 and 13, 2002. The rules are the same as for the last Spring Field Day.

Please remember that I would appreciate comments on several questions I raised when publicising the rules for last November's Field Day. There are:

- Should the 24 hour single operator section be shortened?
- Should there be a six hour multi-operator section?
- Is the scoring advantage of "grid hoppers" too high?

I would be grateful to receive comments on these or any other points with your log.

Dates

January 12 and 13, 2002.

Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.

Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

A: Portable station, single operator, 24 hours.

B: Portable station, single operator, any 6 consecutive hours.

C: Portable station, multiple operator, 24 hours.

D: Home station, 24 hours.

Single operator stations may enter both Section A and Section B. If the winner of Section A has also entered Section B, his log will be excluded from Section B.

If two operators set up a joint station, they may enter Section C under a single callsign, or sections A/B under separate callsigns. If they enter Sections A or B, they may not claim contacts with each other. Stations with more than two operators must enter Section C.

General Rules

One callsign per station. Operators of stations in Section C may not make contest exchanges using callsigns other than the club or group callsign. Operation may be from any location, or from more than one location. You may work stations within your own locator square.

A station is portable only if all of its equipment, including antennas, is transported to a location that is not the normal location of any amateur station.

Repeater, satellite and crossband contacts are not permitted. No contest operation is allowed below 50.150 MHz. Recognized DX calling frequencies must not be used for any contest activity. Suggested procedure is to call on .150 on each band, and QSY up.

Contest Exchange

RS(T) report, a serial number, and your four-digit Maidenhead locator.

Repeat Contacts

Stations may be worked again on each band after three hours. If the station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Scoring

For each band, score 10 points for each locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x1	x3	x5	x8	x10

Then total the scores for all bands.

Scoring Table

Please use the following format for your table. In this sample the operator has operated from one locator and worked four locators on each band:

Band	Locators + Activated (10 points each)	Locators + Worked (10 points each)	QSOs (1 point each)	x Multiplier	= Band Total
6 m	10	+40	+40	x 1	= 90
2 m	10	+40	+30	x 3	= 240
70 cm	10	+40	+20	x 5	= 350
			Overall Total		= 680

Logs

For each contact: UTC time, frequency, station worked, serial numbers and locator numbers exchanged, points claimed.

The front sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Entries

Paper logs may be posted to the Federal Contests Co-ordinator, 57 Nepean Highway, Aspendale. Electronic logs in ASCII format should be e-mailed to: vk3vp@vkham.com by Friday, 8 February 2002. Early logs would be appreciated.

Japan International DX Contest 2002

LF CW: 2200z 11 Jan-2200z 13 Jan 2002

HF CW: 2300z 12 Apr-2300z 14 Apr 2002

PHONE: 2300z 8 Nov-2300z 10 Nov 2002

Object is to work as many JA stations + JD1 islands as possible.

Bands: LF CW 160/80/40; HF CW 20/15/10; Phone 80-10 (no WARC).

Categories: Single operator single/multi-band high power (more than 100 W o/p); single operator single/multi-band low power (less than 100 W o/p); multi-operator; maritime mobile.

General: Operate for maximum of 30 hours only and show rest periods in log; single op must perform all tasks himself; multi-op must remain on band for at least 10 minutes and during this time multi-op may transmit on another band only if new station is multiplier; ops may use spotting networks.

Exchange: RST plus CQ Zone number. JAs will send RST plus Prefecture number (01-50).

Score on 160m four points; 80m two points; 40/20/15m one point; 10m two points.

Multiplier is total JA prefectures + JD1 islands worked (possible 50 per band).

Final Score: multiply total points by total multipliers.

Logs (one per callsign) must show times in UTC; exchanges; multiplier first time worked; duplicate QSOs shown as no points; rest periods clearly marked; use separate sheet for each band.

Send Logs and summary sheet to: JIDX Contest, c/o Five-Nine Magazine, PO Box 59, Kamata, Tokyo 144, Japan, by 28 Feb, 31 May or 31 Dec. Logs may be submitted on 3.5 inch disk in ASCII with summary sheet, or by e-mail. For instructions send e-mail to <jidx-info@ne.nal.go.jp> with command #get jidxlog.eng or #get jidxlog.jpn

ar

FTAC Notes

John Martin, VK3KWA

160 Metre Band Plan

A few years ago there was some debate about the 160 metre band plan, with reports of clashes between local and DX contacts. The band plan was changed to include the recommendation that DX operation should have priority between 1820 and 1840 kHz. Since then the situation seems to have improved, with a fair amount of local activity moving out of the DX window.

But now it may be time to look again at this band. In the Australian band plan we have 1800-1810 kHz for exclusive CW use, and 1810-1815 kHz for digital modes. This does not agree very well with existing practice here or overseas. For one thing, I understand that virtually all overseas CW activity is above 1820 kHz. And if there is any activity yet with digital modes, it doesn't seem to be occurring between 1810 and 1815 kHz.

In the meantime the ARRL has adopted a new band plan which includes the following:

1800-1810 Digital modes
1810 CW QRP calling frequency
1843 Lower limit for SSB operation
1910 SSB QRP calling frequency

We should look closely at the ARRL plan and see if it is possible to make adjustments that would agree more closely with American practice.

There are several aspects of the ARRL plan that would not work here. Obviously 1910 kHz is irrelevant to us, and restricting SSB to 1843 kHz and above might not go down well. And thanks to a ready supply of cheap surplus crystals for those old AM transmitters, 1843 kHz is becoming established as an AM net frequency.

As for digital modes, I assume that much of the activity using these modes would be with American stations, so it would make sense to follow the ARRL's example and move our digital modes segment to 1800-1810 kHz.

A proposal has been put forward by VK6VZ and VK6HD to bring our band plan more closely into line with the American one. Their plan is as follows:

1800-1810 Digital modes
1810-1840 CW only
1840-1875 SSB and AM

This plan follows the ARRL's example in dropping the idea of a DX window as such. Steve VK6VZ made the following comment on this: "The ARRL has thrown out the idea of a DX window and, after some thought, Mike and I believe Australia should do the same. Mode separation is much more important-DX CW ops don't have any problems from with local CW operations, or vice versa, but they do have problems with wide and strong SSB/AM signals."

Peter Parker VK3YE has made a similar suggestion, although he suggests allowing SSB (but not AM) between 1830 and 1840 kHz. He also proposes that 1843 kHz be recognised in the band plan as an AM net frequency.

I would be grateful for any comments from 160 metre operators.

ar

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email vk3wac@aol.com

Into 2002 with tender love and attention

Another year almost gone and I'm sure I won't be the only person asking where the time has gone. Early this year we reached the peak of Cycle 23 and for me propagation during the winter months was pretty disappointing. I erected a couple of new antennas (a shortened vertical and counterpoises for 40m and a 17/12 metre vertical) anticipating better conditions but was not impressed by their performance. The antennas tuned up nicely and brought in reliable signals but signal levels were well down on what I was expecting. Comparing reception against my G5RV revealed that the antennas were working reasonably well, leaving only conditions to blame. Hopefully, as we get into the summer months, conditions will improve on the higher bands although 40 and below will suffer from the usual QRN from storms etc.

2001 will certainly go down as a year to be remembered, not simply because it is the first year of the new millennium (all arguments are academic now) but primarily for the devastating terrorist attacks on the USA. Amateur radio is a hobby that is ideally suited for fostering closer links with those from other cultures and backgrounds and we should all make an effort to use it for just such a purpose. This month will see Christmas celebrated (in one form or another) in most western countries where wishes for peace and prosperity are extended to family, friends and members of the general public we make contact with. We should extend the same wishes to those amateurs who reside in countries that do not celebrate Christmas as we do (if at all). We can at least explain the humane part of the celebrations even if we do not agree with the religious interpretations ourselves. What better gift can we bestow upon each other than peace and understanding?

Many New Years resolutions are bound to be made and quickly forgotten; however, I will make one that I am sure will fulfil. I have purchased a second-hand TL922 linear amplifier that is in need of some urgent tender love and attention. The previous owner must have left it out in the weather for a period of time as there is considerable water damage inside. Panels are rusty, the meter switch is defunct, the HV capacitors require changing, the tubes need replacing and the unit is dirty and mechanically loose inside. I intend to completely strip and rebuild the amplifier to as near new condition as possible over the next 12 months. At this point I'll take the opportunity to wish you all a very Merry Christmas and a happy and safe New Year in 2002.

The DX

4W, EAST TIMOR. Carlos, CU3FT, is in East-Timor and is expected to operate as 4W/CU3FT. He will be on the air as soon as is practical and intends to be on all bands especially WARC and 6 metres. QSL via CT1EEB. [TNX CU3FT, 425 DX News and OPDX]

5H1, TANZANIA. Charlotte, KQ1F/5H1F and Paul, K1XM/5H1X, are travelling through Tanzania and hope to get in some /P operating. They will be in Tanzania until the 10th of Dec. QSL route for both calls is via KQ1F. [TNX KQ1F, K1XM and The Daily DX]

5W, SAMOA. Bill, W7TVF, intends to operate from here between the 20th of Nov until the 10th of Dec. He will be on 160 – 6 metres mainly CW with special attention paid to Europe and Africa on the lower bands. More info can be found at http://www.air-internet.com/~w7tvf. No mention of a QSL route but most likely via the buro to W7TVF. [TNX W7TVF and The Daily DX]

9U, BURUNDI. Gus, SM5DIC, is heading back to Burundi for about three months beginning the 16th of November. He will be using an IC-706 and a 3-element beam for 6 metres. While there he also intends to try some EME work by running a 400-watt amplifier to a 17-element yagi. HF operations are also planned but he will only be using simple wire antennas. The local authorities assure him they will re-issue his previous call (9U5D). QSL via SM5BFJ, Leif Hammarstrom, Lerklockan 4, SE-73091 Riddarhyttan, Sweden. [TNX SM5DIC and OPDX]

HI3, DOMINICAN REPUBLIC. Julio, AD4Z/HI3K will be back home between the 21st of Nov and the 9th of Dec 2001. He will operate from his father's station (HI3J) as HI3K and will operate on all HF bands with special attention to 160m and WARC, mostly on CW. If you would like to work HI then you can contact Julio at USA002@hotmail.com for QSO. QSL via AD4Z. [TNX AD4Z and 425 DX News]

JX7, JAN MAYEN. Per, LA7DFA, is heading back to Jan Mayen and will be on air as JX7DFA at least until April 2002 and possibly longer. No mention of a QSL route, but try his home call via the buro. [TNX LA7DFA and The Daily DX]

KC4, ANTARCTICA. Chris, N3SIG is currently active on 20, 17 and 15 metres SSB as KC4/N3SIG from McMurdo Station on Ross Island (AN-011), Antarctica. He will be there until March 2002. QSL via AI3D. Chris says QSOs can be arranged by sending an E-mail to n3sig@arrl.net [TNX OPDX Bulletin and 425 DX News]

S79, SEYCHELLES. Clemens, DL2GAN, will be in the Seychelles from the 15th of Nov until the 5th of Dec using the call S79GAN. He will be active on all bands 10-40 meters on CW and SSB. Equipment will be a veteran FT-7B running 50 watts to verticals and multi-band dipoles. QSL via DL2GAN [TNX DL2GAN and The Daily DX]

V44, St KITTS. Larry, KJ4UY, is heading back to Nevis and St. Kitts to operate as V47UY from the 22nd of Nov until the 4th of Dec. Karl, V44NK is providing Larry with accommodation where he will run 100 watts on all bands. QSL via KJ4UY. [TNX KJ4UY and The Daily DX]

ZD9, GOUGH ISLAND. Chris, ex-ZS8IR, is currently active as ZD9IR and will be active for the next year from here.

He is expected to be active on all bands 160-10 meters using CW/SSB/RTTY modes. He is only using wire antennas at the moment but has plans for a 20/15/10 metre beam and arrays for the lower bands. Chris has been heard often during late Oct and Nov on 30/17/15/10 metres. QSL via ZS6EZ. [TNX ZS8IR and OPDX]

IOTA Activity

3XY6A, **ROOMA ISLAND** (AF-151), GUINEA. Francois, VE2XO, will return to Guinea near the end of December or the beginning of January and intends to operate from Conakry as 3XY6A. On this trip he expects to operate from **Rooma Island** (AF-051) with a special callsign. QSL via VE2XO. [TNX VE2XO and The Daily DX]

3W, **VIETNAM**. The IOTA DXpedition to **Cham Island in the South China Sea** (AS-???) is now planned for the 17th until the 22nd of April 2002. Shu, JA6IEF, Yuki, JI6KVR and Hau, 3W6LI plan to have two stations operating on SSB and CW. QSL is via EA5KB. [TNX JI6KVR and 425 DX News]

I, ITALY. Tony, IK8VRH will operate as IB0/IK8VRH from the islands of **Ventotene (EU-045) and Ponza (EU-045)** in his free time between the 1st of Nov and the 15th of Dec. QSL via IK8VRH. [TNX IK8VRH and 425 DX News]

JA, JAPAN. Masafumi, JA6GXK will be active from the lighthouse on **Mejima, Danjo Islands** (AS-056) from the 27th of Nov until the 6th of Dec and the 27th of Dec until the 7th of Jan. QSL via JA6GXK. [TNX JI6KVR and 425 DX News]

YB, INDONESIA. Adi, YC3MM plans to be active from **Siberut Island (OC-215)** during the third week of December. This IOTA group (Mentawai Islands) is rare, the last time back in May 1996 by 8A5ITU. No QSL info but try YC3MM via the buro. [TNX IZ8CCW and 425 DX News]

Silent Key

The WIA regrets to announce the recent passing of:-

F J (Frederick) Stirk VK2ABC

Special Events

The special event station **IY1SP** will be active until the 31st of Dec to commemorate Guglielmo Marconi's radio transmitting experiments conducted in 1901 and 1931. A commemorative IY1SP QSL card is available by QSL'ing direct (c/o Sezione A.R.I. La Spezia, P. O. Box 45, 19100 La Spezia - SP, Italy) or via the buro to I1FNX. [TNX IW1PDP, 425 DX News and The Daily DX]

OQ, BELGIUM. Keep an ear open for Belgian amateurs using the special prefix of OQ instead of their normal ON or OT prefixes from the 26th of Oct until the 31st of Dec. The Belgian telecommunications authorities have authorised use of this special prefix in celebration of the birth of "Princess Elisabeth". [TNX OPDX]

DXpeditions

5U, NIGER. The same group of operators who operated as 5U2K, 5U3T and 5U5A in March (I2UIY, I2YSB and IK2DIA) will be returning to Niger in Jan and Feb 2002 for a 2 week DXpedition. Another three of four operators from Italy and the USA are expected to join up with the team while there. Plans are to have at least three stations active on 160-10 metres, with special attention to 80/160m, on CW/SSB/RTTY/PSK31 modes and a station on 6 metres CW/SSB. Further information is expected next month. [TNX I2UIY and 425 DX News]

Round up

IR7, ITALY. Alfredo, IK7JWX says that the special callsign **IR7GM** will be aired during all the weekends of December 2001. No reason was expressed for the call but a good guess would be something to do with G. Marconi. A commemorative QSL card is available via IK7JWX, bureau or direct. [TNX IK7JWX and OPDX]

In Octobers DX Notes I included a note on the planned activation of the call **XP1AB (GREENLAND)** stating that it had not been on the air since the 1960's. Well, Maylon Harvey, WA2UUK, sent a short note to the OPDX bulletin shedding more light on the callsign. Maylons note states "I operated **XP1AB** while on Temporary Duty (TDY) with the Air Force at Sondrestrom AFB, Greenland, from July 20-29th, 1977. So as you can see the callsign has been used since the 1960's". The note goes on to say "Maylon also knows of one other operation by WA7ZLC who made 229 QSOs in August 1977 and gave WA3HUP as his QSL Manager. He also thinks there were some other small operations. XP1AB was the Air Force MARS callsign for Sondrestrom at that time. Maylon states he made 1,080 contacts and still has the logs and a few blank cards. In the years since then, he has received QSL requests and has sent cards to about 40% of those contacts. Anyone still wanting one, can send a SASE to WA2UUK (QRZ, CBA okay), and he will get a card out right away." [TNX WA2UUK and OPDX]

R1, ANTARCTICA. Alex, RA1PC is working for the AARI (Arctic and Antarctic Research Institute) and will be active as **R1ANC from the Russian Antarctic Base "Vostok" (IOTA AN-016, WABA UA-010)** from early in Nov 2001until late Jan 2002 when he will be replaced by Alan, UA1PAC, who will be there until Jan 2003 operating as R1ANC. QSL via DL5EBE. [TNX DL5EBE and 425 DX News]

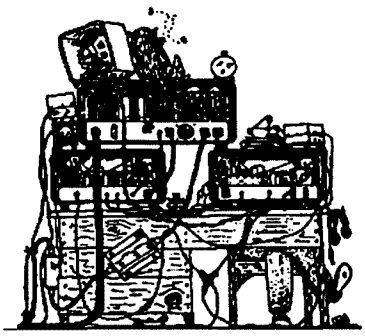
Z3, MACEDONIA. Vlado, Z35M, is running his own personal "QSO MARATHON" during the calendar year 2001 (January 1st-December 31st) from his home QTH. He says that as of the 2nd of Oct he has made 26,420 QSOs on HF and hopes to reach 30,000 QSOs by early Nov. His QSO total since Aug 1987 stands at 136,920 (under his other callsigns: YU5KV, 4N5KV, Z32KV, Z350KV and Z35M). Vlado (a very busy lad!) can often be found on 20 metres CW (around 14026 kHz) between 2245 and 0400Z. He also frequents 10 metres CW/SSB between 1000 and 1500Z. If you hear him give him a call and get in his logbook. [TNX Z35M and OPDX]

ZL, NEW ZEALAND. Andy, GM0NWI will be active as ZL/GM0NWI mainly on 20 and 40 metres CW QRP between the 30th of Oct and the 24th of Jan. QSL via GM0NWI. [TNX GM0VRP and 425 DX News]

Sources

Our thanks and seasons greetings go to the following stations and organisations for providing the news and information for this month; CU3FT, KQ1F, K1XM, W7TVF, SM5DIC, AD4Z, LA7DFA, DL2GAN, KJ4UY, ZS8IR, JI6KVR, IK8VRH, IZ8CCW, IW1PDP, I2UIY, IK7JWX, WA2UUK, DL5EBE, Z35M, GM0VRP, The Daily DX, OPDX Bulletin and 425 DX News.

ar



Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, Noranda WA 6062
Email: vk6pg@tpg.com.au

Part 9: Expanding Ports

The basic personal computer (PC) is supplied with only two (RS232) communications ports as standard. Modern computers offer two extra Universal Serial Ports (USB) to connect with peripherals like cameras, networks, printers and scanners etc. However, there is little in the way AR software written for USB connections, so we are stuck with using just the RS232 ports for AR applications. Not so good for the AR operator seeking to expand! For the solution – read on.

AR Requirements

Each Radio Amateur has their own opinion of what's best for their own Ham Shack Computer. That is what makes today's AR activities so interesting and diverse. Many stay on the HF bands and explore options like the new digital modes, whilst others may track satellites, Global Positioning (GPS) or computer track long haul beacons on VHF/UHF/SHF and more. Whatever your own interests may be, you will, at some point need to expand the number of communications ports in your computer.

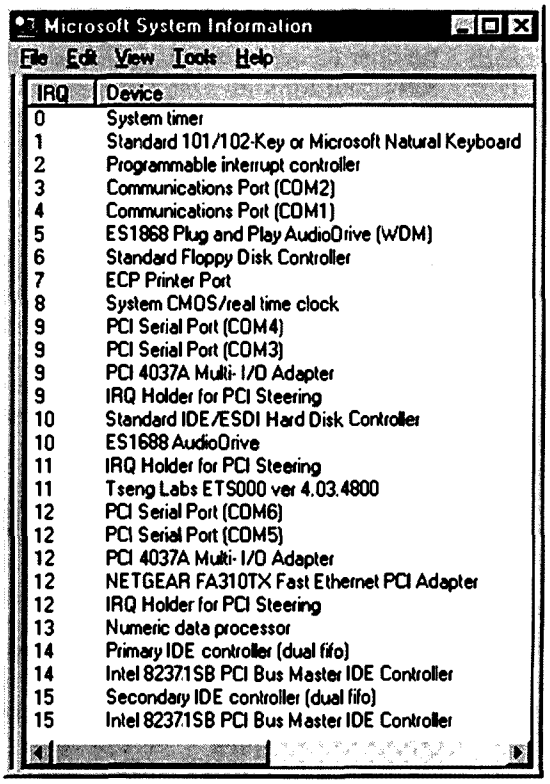
In an active modern AR station, RS232 communications ports might be required to independently control a:

1. Serial mouse.
2. Packet radio TNC.
3. HF transceiver.
4. HF antenna rotator.
5. VHF/UHF transceiver.
6. VHF/UHF antenna rotator.
7. Internet modem.
8. PSK31 PTT interface for HF.
9. Hand-held VHF/UHF transceiver
10. No-break standby power supply.
11. Spare port for experimentation.

In the above example, perhaps 10 ports might seem a tall order even for the keenest operator. However, it's a very real and big problem for proactive AR operators these days and certainly not an unrealistic target.

Up until recently, even trying to install four ports was a big problem because the motherboard lacked access to spare system interupts (IRQ's). Windows 95 and later operating systems allow users to access the system configuration, and allocate resources to additional computer comports and other devices. However, most computers may only have two spare IRQ's, that does not always work well on some comport expansion cards with limited jumper settings. If these cards are installed, changing the default "basic configuration settings" can cause interrupt faults to occur where your ports, software, and/or other external devices may "hang".

There are just 15 available IRQ's in the modern PC, and most are gobbled up in running the computer in the first place!



IRQ	Device
0	System timer
1	Standard 101/102-Key or Microsoft Natural Keyboard
2	Programmable interrupt controller
3	Communications Port (COM2)
4	Communications Port (COM1)
5	ES1868 Plug and Play AudioDrive (WDM)
6	Standard Floppy Disk Controller
7	ECP Printer Port
8	System CMOS/real time clock
9	PCI Serial Port (COM4)
9	PCI Serial Port (COM3)
9	PCI 4037A Multi-I/O Adapter
9	IRQ Holder for PCI Steering
10	Standard IDE/ESDI Hard Disk Controller
10	ES1688 AudioDrive
11	IRQ Holder for PCI Steering
11	Tseng Labs ETS000 ver 4.03.4800
12	PCI Serial Port (COM6)
12	PCI Serial Port (COM5)
12	PCI 4037A Multi-I/O Adapter
12	NETGEAR FA310TX Fast Ethernet PCI Adapter
12	IRQ Holder for PCI Steering
13	Numeric data processor
14	Primary IDE controller (dual fifo)
14	Intel 82371SB PCI Bus Master IDE Controller
15	Secondary IDE controller (dual fifo)
15	Intel 82371SB PCI Bus Master IDE Controller

So there just has to be a better way, and that's by sharing (called polling) IRQ's without interaction between any of the ports that may cause your devices to "talk-to-each-other" and the PC to fail.

The Microsoft System Information file (sysinfo.exe) found in your Windows directory) can display the IRQ resources in your computer, and the illustration shown on this page highlights both the problem – and the solution.

Motherboard Resources

Lift the lid in your PC and determine what type of motherboard, processor, and RAM chips you have in your machine. VX/BX chips and later motherboards have what's called PCI bus slots (WHITE SOCKETS, 32 bit) as well as older ISA bus slots (BLACK SOCKETS, 16 bit). These black and white connectors are used to plug-in devices like – sound, display, hard and floppy drive control, network cards, and optional extra communications port cards. ISA slots are the older style sockets typical of 16-bit computers, and the newer PCI slots use 32-bit information exchange with your microprocessor. Dedicated microprocessor technology has been developed to share IRQ's as seen in the illustration without interaction between ports. Note: IRQ's 9 and 12 in the example.

Dolphin Cards

Dolphin Peripherals of Monterey in California (1) have developed a family of microprocessor controlled, expansion port cards – at an affordable price, and stocked by Dick Smith Electronics stores in Australia (2). Initially designed for high-speed communications networks (almost a Mb transfer rate), these cards offer cost effective options for AR operators. These cards are MS Windows 95/98/2000/ ME/XP/NT4 plug-and-play ready, and also for Linux based computer systems. In fact, using these cards, you can expand up to 256 separate comports provided you can find enough PCI slots to put them all in, Hi.

The range of DSE cards includes:
Two serial, ISA - XH6655
Two serial, PCI – XH6656
Two serial, One parallel, PCI - XH6658

The writer has used multiple PCI cards (XH6656) with huge success. Each card is supplied with a CD-ROM containing special drivers for Windows and Linux machines. For readers seeking a secondary IDE solution (say to install a second, high capacity hard drive), a two IDE PCI card is also available (DSE XH6659).

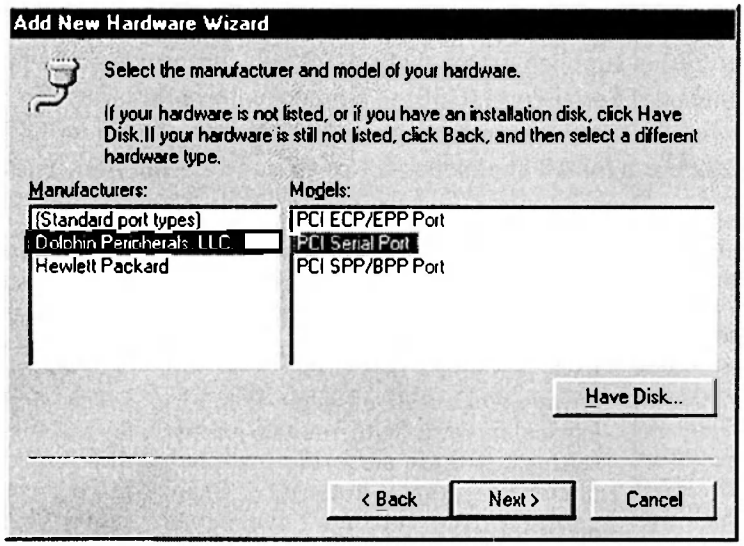
Installation

Switch off your computer and remove the case. Check the availability of spare slots. It's very likely that you may have to move your existing cards around to make space to plug in your new expansion card(s), and this should be done first. Make sure that the power cord is connected but the computer is switched off. Use an anti-static wrist strap firmly earthed to the computer chassis. Unpack one new card and plug into a spare slot. Fit the earthing plate screw, and switch on the computer.

Windows will identify that "New Hardware" has been installed. Insert the CD-ROM, then select New Communications Port(s) rather than let Windows seek out what hardware has been installed. Once the comport option has been selected, select "Have Disk" and install your new card. Interestingly, you will find that sysinfo.exe (see example on the previous page) reports that your new hardware has been installed – and that comport sharing now exists for your new card.

It takes about 60 seconds to install new PCI cards using the Dolphin CD-ROM – now that's really fast!

If you intend to fit a second card – repeat the same procedure. DO NOT install both cards at the same time. On the second card, use the CD-ROM as before and Windows will add the second card and driver, but will allocate a new shared IRQ. Again, note the sysifo.exe example on the previous page. It takes another 60 seconds to install a second new comcard.



Assuming that two new PCI comport cards have been installed; you will be presented with an array of DB9 sockets on the rear panel of your PC. Com 1 and Com 2, PLUS the new Coms 3-4 and 5-6. All the new ports will have DB9 connectors. Which one is which? The first card should give you Coms 3-4, and the second new card – Coms 5-6. Carefully identify each port using say your packet TNC or transceiver control software, then lable them accordingly.

It's wise to use the Control Panel – System – Port Properties to set the advanced configurations to the desired application for your new ports. For example, speed, handshaking and other Advanced Properties.

The writer, for his own PC, has drawn up a chart listing all the settings and options for each of six ports so that the software used for each application "talks" correctly to the designated port.

Summary

This article has briefly described a cost-effective solution to installing multiple communications ports using Dolphin Peripherals products from Dick Smith Electronics. The topic is perhaps more appropriate to experienced users. There are other solutions used in the professional IT world but they are more expensive, and beyond the pockets of most AR operators. Today, plug-and-play technology has made the task of computer upgrading an easy task – let's go for it!

Ham Tip No. 9

DB9 connecting leads can be home brewed by buying the plugs and sockets, and screened multicore cable at less than half the price of commercially made products. At the very least the cable length will be more appropriate for your Ham Shack Computer needs!

Ham Shack Computers, Part 10 - "Cleaning Windows" looks at tidying up your software, basic maintenance, "tweaking Windows" and doubling the speed of your Ham Shack Computer.

(1) Dolphin Peripherals:
http://www.dolphin.com
(2) Dick Smith Electronics:
http://www.dse.com.au
(3) Ham Shack Computers Web:
http://www2.tpg.com.au/users/vk6pg
73s de Alan, VK6PG

ar

Happy New Year to all our readers. We hope in 2002 your Amateur Activities are enjoyable and satisfying.

May all your projects work!!!!!

Why call CQ?

LB Cebik W4RNL
1434 High Mesa Drive, Knoxville, TN 37938-4443
E-mail: cebik@cebik.com, Web Page: http://www.cebik.com
(submitted by Peter Parker VK3YE with author's permission)

This morning (June 19, 1998), a thoughtful and oddly interesting question arrived via e-mail: what isthe deepest reason for someone to call "CQ" when that person has no idea of who may answer or whether anyone will answer at all? The following notes were my reply. I do not know if there is any single deepest reason for calling "CQ." I can only guess at such deep motivations, but here are a few thoughts.

For the brand new ham, there is a sense of wonder at the possibility of having a radio signal actually being heard and responded to. That alone is enough motivation to try, just to see what happens. In a way, it parallels the SETI project efforts to listen to outer space, just in case there is something to be heard and the efforts to place special identifying materials on some deep probe space craft, just in case someone out there may someday find the probe.

I also suspect that as the new ham becomes experienced, two things happen. First, wonder turns into curiosity, especially as replies become routine, but from where they come and from whom they come remain unknowns until the reply actually happens. Second, the first response has an excitement that can become addictive in the sense of one wanting to repeat the first experience over and over again.

....as the new ham becomes experienced, two things happen. First, wonder turns into curiosity, ...as replies become routine, but from where they come ...remain unknowns until the reply actually happens. Second, the first response has an excitement that can become addictive...wanting to repeat the first experience over and over again.

Although subsequent experiences are never quite like the first, since they do not have that initial anxiety of the totally unknown attached, new adventures into calling "CQ" have new dimensions, especially the human dimension. Every reply creates a new strand in a web of links among widely separated but still kindred spirits. Amateur radio, despite its internal disputes and diversity of activities, is still a community of human beings that cuts across all divisions of race, nationality, religion, and other things that divide us around the world. A "CQ" knows no such boundaries: our mutual interest in radio communications does not even break barriers: the barriers are simply not there. (I am sure this is truer in your region of the world, where boundaries are close in, than in the US, where a ham might spend his entire career talking only to folks within his own country.)

Interest in radio communications may offer a further contibuting factor to the motivation for calling "CQ." Such interest tends to mark a person out as an individual, someone a little different from most of his or her friends, neighbors, and co-workers. Hence, there is a natural desire for camaraderie, a sense that one is not alone, but linked to a community. That is why hams tend to form clubs and anticipate "eye-ball QSOs." That same urge for linkage results in calling "CQ' as an invitation to and a hope for a new strand in the linkage that tells us we are not alone and that hence gives meaningfulness to all our efforts to master the art, science, and craft of radio communications.

Linkage to a community brings out in us at least two different and opposing urges, and they occur in different proportions in different individuals. One urge is to compete with others in our broad community. so we compete in contests for points or for countries worked, or for anything else. The other urge is to help, aid, assist any other member of the community who needs what we may have to offer: advice, knowledge, materials, other links we may have to services not available—the list is endless. The only condition I have ever known a true ham to place on rendering assistance was this: NOT that the recipient repay, but rather that the recipient be prepared to assist some other who may someday need what can be rendered.

Both of these twin urges make calling "CQ" more meaningful, for we may never know in advance whether we might receive a reply that either helps our score or gives us an opportunity to help someone else.

I personally believe that the most mature reason for calling "CQ" is the chance to be of assistance, even if that is only to give another the pleasure of a QSO, but more if the one who replies needs more than a chat. That is why I maintain my web site—it is one way in which I can help those in our community of hams who may need what is there.

There are, I am sure, those who would like to invert my remarks by leaning too heavily on the idea of being alone and seeing the "CQ" as a way to merely relieve loneliness. But I think one can only make this move at the expense of ignoring the initial sense of wonder and the more mature and thoughtful dimensions of being a ham and calling "CQ." It is at root not a demand for an answer, but an invitation to communicate, and that communication is a sharing. Sometimes we share only perfunctory data; sometimes we share news, information and ideas; sometimes we share joys and successes; and sometimes we share needs and solutions. In short, we share all that makes us a community, although not too much at any one time. Granted, some few may make "CQ" into a demand for reply, or even into a desparate plea for a reply, but for most, it is an invitation and a question: How can I assist?

I do not know if this is responsive to your question, but it is how I think about "CQ." In fact, over my 45 years as a ham, I have not too often called "CQ" myself (except to see of a quiet band had any listeners). Instead, I have tended to listen for "CQs" and replied to them. Listening is also a way of being ready to serve.

ar

VHF-UHF

AN EXPANDING WORLD

David K Minchin VK5KK
Postal 10 Harvey Cres, Salisbury Heights, SA, 5109
E-mail: tecknolt@arcom.com.au Web page: http://members.ozemail.com.au/~tecknolt
Phone: 0403 368 066 AH ONLY Fax : +61 8 8292 4501 NEW FAX NUMBER
All times are in UTC.

Leonids!

Every year the Leonids meteor shower provides one of the better opportunities to work meteor scatter on 50 & 144 MHz. With the promise of the best Meteor Shower for 50 years close on 40 VK and a number of ZL 50 & 144 MHz stations got up early on Monday the 19th of November to be rewarded over a period of several hours. VK1, 2, 3, 4, 5 & 7 as well as ZL/YJ8 participated I have selected just a few reports from different regions to give some view of the dynamics of the openings.

Alan VK4BKM reports ... Just spoke to Stuart YJ8UU on HF. He worked Trevor VK4AFL this morning (19/11/01) on 144.1, also heard a VK2 but couldn't get the callsign. He heard voices in the noise with his beam towards ZL. ...Alan VK4BKM

Doug VK3UM reports ... we, in VK, rarely see anything like the effect of a meteor shower as is seen in the Northern Hemisphere. At best, we are lucky to realise 25% of what is experienced in the Northern Hemisphere. Many if not all-most meteor showers have little effect down under!

Today (19/11/01) it was different! Predicted to peak between 1700 - 1800 UTC (0400 - 0500 local) the experts seemingly got it right. Visually speaking, we were blessed with a clear crisp sky, and from this QTH with its 360° views, the display was brilliant. Not the 1000's per hour that you read about but at its peak, we were seeing approximately 2 extremely bright trails in a 5 second period. Some of the trails were clearly visible for several minutes.

Radio wise some bursts went for up to 6 minutes. VK participation was very good given our population. From this QTH I worked 31 stations in VK1, VK2, VK3, VK4, VK5 and VK7 (all SSB on 144) and included the following VK2DVZ, VK1VP, VK4TZL, VK4AFL, VK2TQP, VK2EI, VK4LC, VK4OE, VK2FLR, VK4BLK, VK2KU, VK4FNQ, VK2EM, VK4KZR, VK5NY, VK5KK, VK5RO, VK5ZDK, VK7MO, VK2TP, VK4AQL, VK2MP, VK4AML, VK4QV, VK2BIG, VK2ZCV, VK2ZWM, VK2DXP, VK2BRG, VK2DXE, VK2GFY.

I have heard of an unconfirmed report that VK2 - ZL worked but they were not heard in VK3. No VK6's were heard in the Eastern States nor was a VK8 active. Aurora was evident for a _ hour or so just before our local dawn ... Doug VK3UM.

Neil VK2EI reports ... fairly productive morning here, even with the "late" start at 0355K! Stations worked on 144 MHz: VK2: EM, KU, MP, AMI, BRG, BJM, DVZ, DXE, GFY, ZAB, 3DTV/P2 VK3: HY, UM, YB, AEF, AKK, AXH, BDL, CAT, DEP, DMP, DUT, GRL, JEG, KAI, KEG, KEM, MIQ, XDQ, XPD, WRE, VK4: AFL, AJS, AML, BLK, TZL, VK5: GN, KK, NY, ZBK, VK7: JG, MO, & ZL1IU. The most consistent stations here were VK5NY, VK5KK & VK7MO. The VK4's were not as strong but consistent. Running 60 W to 9els about 2m above roof level. Majority of contacts with the beam 230° true. Last stray contact here at 2327Z. Great while it lasted!! ... Neil VK2EI QF68km.

Nick ZL1IU reports ... Here is my list of stations worked on 144.100 MHz VK2ZAB @1641z, VK2KU @1648z, VK2DVZ @ 1648z, VK2EI @1711z & VK4AFL @1713z. Unfortunately had to go to work at 1735z so may have missed a few. Never mind...All good fun!! ...Nick ZL1IU

Tony VK3CAT, who worked both 50 MHz & 144 Mhz (14 stations) reports ... did any one notice the band noise? On 2 metres it sounded like heavy raindrops on the roof, no it wasn't raining! The 46.178MHz video carrier had pings that sounded like bullets passing by. (Have .wav file of this). 2 metre contacts had between 144.100 & 144.140MHz, was able to QSY on longer bursts. I thought things went pretty well - nothing like an HF EU pile up working P5 or a 6-metre F2 opening. .. Tony VK3CAT

Glenn VK4TZL reports contacts with the following on 144 MHz...VK2KU, VK1VP, VK3UM, VK3KEG, VK3EK, VK3AXH, VK3FIQ, VK3YY, VK2ZAB, VK7MO, VK2FLR, VK3XPD, VK3TMP, VK1ZQR, VK2MP, VK3GRL, VK3AF, VK7JG, VK2TP, VK5NY, VK2DVZ, VK3KAI, VK3CAT, VK5ZBK, VK3DUP, VK2EI, VK5KK, VK3TDV, VK3AEF, VK3DMP, VK5KK Again, VK3BDL, VK2TQP, VK2DXE, VK3FND, VK3KWA, VK3CSJ, VK2DVZ, VK2ZCV, VK2BXT..Glenn VK4TZL

Rex, VK7MO, reports Contacts with the following on 144 MHz ...VK2KU, VK2DVZ, VK2EI, VK1VP, VK3AXH, VK3XPD, VK4AFL, VK4TZL (On WSJT), VK2TP, VK3UM, VK5NY, and VK5KK, VK5ZBK, VK1ZQR, VK3KEG. I copied VK2EI and VK2DVZ on numerous occasions and VK2KU to a lesser extent - suggesting that 1200 to 1500 kms is indeed the optimum distance. It will be interesting to try fast hell and WSJT over this distance in non-shower conditions ...Rex, VK7MO

Meanwhile back in Adelaide, VK5KK worked 22 stations (VK1, 2, 3, 4, 5 & 7) on 144 MHz from 1730 – 2000Z. VK5NY, VK5RO & VK5ZBK well and truly amongst it working many of the same stations plus more. The only reasons things seem to go quiet towards 2000Z was because most had to go to work or had worked everyone left!

144 MHz and Above ... Tropo

Colin VK5DK reports ... well it has finally happened; I managed to work Wally VK6WG tonight 13/11/2001 on 144 & 432. I heard the VK6REP beacon which was peaking to S7, Rang Bill VK6AS, but he hasn't any antennas in the air at present, so I rang Wally and managed a good S9 contact on 144, tried

432 and had a contact but signals from Wally were only peaking to S3, got a S1 signal report back with Wally's scotch "S" meter. 144MHz contact at 1023 UTC & 432 MHz contact at 1045 UTC. First VK6 for 2 seasons from this QTH. I believe Steve VK5ZBK may also have worked Wally this season as well, within the last couple of weeks. Russell VK3ZQB also worked Wally later the same night.

Thanks very much for the Email with the details for the Qualcomm PLL. Very much appreciated.

Charlie VK3FMD has just had a contact with Wally at 1230 UTC on 144 and are now trying 432 ... 73s Colin VK5DK

Bill VK6AS is currently off the air but hopes to be back on by around Christmas. Lets hope so too!

David VK3AUU reported hearing, on a halo, the following beacons, VK5RSE, VK5VF and VK7RAE on 2 metres on the morning of the 14/11/2001. By next month we should be right amongst the Tropo season!

WSJT

The following text on WSJT was written by Rex VK7MO as an answer to questions posed by Dale VK5AFO. It is a good start for anyone interested in WSJT, so it has been reproduced here! * Power level: 100 watts is desirable although signals have been seen at 10 watts *Antenna gain is probably not a significant factor as the gain of high gain antennas is compensated by the fact that less of the sky is covered. Something around a single 5 to 10 element yagi seems best. Signals have been seen from VK4 by VK3AUU using a hallo. *Operating Procedures: We are using 30 seconds TX/RX period. Otherwise use the procedures in the WSJT manual. *Frequency: We use 144.130. It does not matter if other stations use this also as the signals rarely over-lap and the more on the one frequency the better chance of seeing something. On six meters we use 50.145. If you have six meters this is much easier to get up and running at first - a three-element beam and 100 watts will work well.

- Skeds: During weekdays VK3AXH and VK7MO conduct tests from 0645 EDST to 0715 EDST. VK3AXH TX's for the first 30 seconds and VK7MO for the second. On weekends the tests are 0600 to 0700 EDST. Weekend tests are aimed at VK4 with the Southern stations transmitting for the first 30 seconds of each minute and the Northern stations for the second. Some tests are conducted with fast hell so watch 7085 to find out what is being used.
- Liaison: 40 metres 7085 is used for liaison. We set up tests and check results after each try. Should anyone like to conduct tests, WSJT, please contact Rex VK7MO in the first instance to arrange Skeds.

Six Metres Equinox #2 Y2001

At least one opening has occurred to South East VK5 and VK3 during the period of 29 – 31st of October 2001. The following reports from VK4 give some impression of this equinox recovering from a slow start.

Ray VK4BLK reports ...Just returned from holidays in Cairns in time to catch some good DX. 28/10/01 0806-1008 33 contacts from ES, LY, OK, OM, OH, OH0, RA, S59, SP, UR, YU &YL 30/10/01 0012-0128 13 W5's & 1 XE, 0940-1029 14 contacts from S59, ON, F & DL. 31/10/01 0608-1058 17 contacts from UR, 9A, SP, G & GW., 2/11/01 0041 ZK1NCP 55 55 2/11/01 0205-0324 3W6s ,1W5& 1XE, 2/11/01 0739-0937 9 contacts from DL, LY, G, GW & PA 3/11/01 0008 D44TD 55 55 (Cape Verde Islands) Loc.HK86 long path QSO.

On Sunday 18/11/2001 we had a great opening to North America. 18/11 0122-0235 worked 51 W's, 9 VE's and 5 KL7's nearly all on SSB with strong signals!!! ...Best 73 RAY VK4BLK.

Ron VK4BRG reports ... though not equaling John, VK4FNQ's opening a couple of days ago, it was pleasing to have an excellent opening last night. 31 Oct. .. also of long duration 0700 to 0934 UTC. .. managed to work 38 stations for 6 new countries. Lots of strong signals .. up to S9, though average S 6 to 7. I (Italy) x 2, YO x 2, Ux (Ukraine) x 5, F x 1, G x 19, OK x 2, LZ x 1, YU x 2, 9A x 2, ON x 2 ... Ron, VK4BRG.

John VK4FNQ has provided a complete DAILY report on 50 MHz DX heard and worked from his QTH via email, for several years now. It is without doubt, one of the most authoritive 50 MHz band logs around! The following is John's log for 31 Oct 2001 0555 UT5JCW KN64, 0557 UT5JAJ KN64, 0600 US5QGL, 0608 LZ2EV, 0612 LZ1JH, 0613 UR7GG, 0623 UY5HF KN66, 0626 YU1EU KN04DW, 0628 UT7GA KN66, 0631 IT9RZR KN18, 0631 UU1JD, 0633 LZ5UV KN12 0633 UR5GK KN66KC, 0635 UR7QR, 0636 UX0FF KN45, 0638 UU1JD KN65, 0639 IW7DVZ JN71, 0643 LZ1RB KN22, 0644 LZ1QE, 0646 SV7BOT KN21PD, 0649 LZ1JH, 0700 IW9DCN, 0715 LZ/OMITF, 0717 LZ3RX KN12, 0743 YO4CIS KN43, 0810 IW9BDV, 0812 SV7BOT, 0813 IG9/I2ADN JM65, 0821 LZ2HM KN12QP, 0839 LZ2YL, 0841 LZ2EU, 0916 9A8W, 1033 G4ASR IO81 ... Good luck and DX fm John VK4FNQ QG39EX

2001 Microwave "Update" Convention

This year's 16th Annual Microwave Update was held at the Four Points Sheraton Hotel in Sunnyvale, California. Sunnyvale lived up to its name, as it was glorious sunshine and high temperatures throughout the Update weekend. Well over 100 amateur Microwavers from all parts of the world, Australia, Japan, UK, Germany, Canada and the USA, attended these immensely enjoyable and rewarding few days. "MUD", as we now call the event, has become an annual pilgrimage for many Microwavers. An extra attraction was the incredible collection of surplus equipment for sale at the Update.

Next year's event will be held in New England, USA. For more information on the 2001 update visit G3PHO's website at http://www.g3pho.free-online.co.uk/microwaves/index.htm

Earth Moon Earth

Doug VK3UM reports ... here is a copy of my 432 EME log for the contest! I ended up with 70 QSO's and 30 multipliers, which is not too bad for the 15 hours of total operation. Should put me into the top 10 or even higher ... but that is not the point really. Signals with the dish make it so much easier and it was rare that I had to ask for a repeat call or 'scratch into the noise'. Worked many small stations (2 yagi 500 watt) as it turned out with out knowing it at the time.

All random of course .. no Skeds! Our limited window becomes the telling factor and keeping up a 4 minute per QSO average rate into Europe is the limiting factor. USA activity was not

great either. After this weekend, I have now passed the 250-station mark! ... 73's Doug VK3UM

Microwave Primer Part Nineteen: Basic ATV above 1200 MHz.

Before I go on, it has been tossed around for a while that perhaps ATV has a big enough following to have its own small segment in AR? Well if anyone is interested here is your chance. Last months column has got quite a few positive comments from a group who haven't been supported in national AR press for sometime. From what I can see ATV is quite well supported around the country in numbers that are similar to the more traditional "VHF/UHF" pursuits so it begs for a column!! This month I will briefly go over the first steps to take to get going on FM TV.

The 1240- 1300 MHz is the easiest band to start on. Two channels are available, 1250 MHz & 1280 MHz. The receiver part is easy; just get hold of an Analogue Satellite receiver. These units typically tune from 950 – 2000 MHz and have selectable sound carrier frequencies as well as IF bandwidth and a number of other functions that can be used. Some of these receivers are virtually being given away for $20 - $50! These receivers were never designed to be used for direct connection to an antenna. Most provide 13 – 18 Volts up the coax to power the C or K band Down converter. The equivalent noise figure of the units varies from 3 – 15 db .. most newer ones aren't too bad actually.

Now you can directly connect an antenna to the satellite receiver but if your antenna has a DC grounded feed, the voltage intended to feed the down converter will be shorted to ground. Most satellite units current limit at around 250mA so they don't self-destruct, but it isn't too hard to add an inline DC blocking cap. The more complete solution is to add a single stage Gasfet in front of the receiver .. you guessed it simply power it up the coax!

For most amateur FM TV working, a bandwidth of 18 MHz is used. This is somewhat narrower than the DBS satellite standard for 27 MHz bandwidth. An 18MHz signal on a 27 Mhz wide receiver has only a slightly inferior signal to noise ratio once you compensate for the lower than standard video output. On most newer receivers, you can select between 15 & 27 MHz bandwidth. 15 MHz gives you a few extra db of S/N over 27 MHz on a typical FM ATV signal.

For higher bands, converters have been developed to convert down to the 950-2000 tuning range. So far 2.4, 5.7 & 10.3 GHz have been used in VK with 3.3 GHz being the next band to be designed for.

Transmitting on 1240 – 1300 MHz isn't that much more complex. With careful building you can make a simple transmitter that is essentially a free running VCO driving a number of amplifier stages. The stability required of + or - 100 kHz accuracy is not too challenging. Video is fed via a 75uS pre-emphasis circuit to a simple modulator (a varicap diode). The sound carrier is fed at the same point at your favourite sound carrier frequency (see further). The secret to a good linear modulated signal is simplicity in the video chain. The VCO is calibrated to its most linear swing range by running triangle wave or just charting volts vs. frequency across the VCO's range! PLL's have been developed to lock the VCO; this is a more complete answer as it provides ease of QSY as well as accurate frequency read-out. For transmitters running under 1-watt, a free running oscillator is probably OK. For 10-watt transmitters PLL control is perhaps a more responsible approach! Simple designs exist using just a few active components to get 50mW see the Minikits website address below for more details.

Higher bands typically use the same exciter running around 1100MHz through a multiplier. For 2.4 GHz that's times two, 3 GHz times three, etc. Once you start multiplying you have little choice but to PLL the VCO otherwise become a potential interference risk. A number of multipliers using PCB and or Pipecap filters and ERA MMIC's have been designed. These provide about around 10mW, enough to drive the conventional Gasfet PA's used for narrowband work.

I mentioned "your favourite sound carrier frequency". Once upon a time 5.5MHz was used as a standard for FM as it made "sense". But you aren't using an AM receiver stuck on 5.5 MHz anymore! Instead a multistandard satellite receiver that can be used on any one or two simultaneous sound carrier frequencies from 5.5 – 8 MHz!!

5.5 MHz was always a bother to use, as the residual 5.5 MHz component in the video signal is hard to get rid of in a +5MHz video bandwidth system. If you feed this video back into another transmitter (i.e. a translator) this residual 5.5 MHz signal can beat with the new 5.5 MHz carrier putting beat lines on the picture. Now you can use 6.5 MHz or higher or pick two different carriers for translators as a solution. Or you play around with two channel audio, stereo or data/audio links

It might seem a little obscure diverging to FM ATV in this series but maybe it isn't. Sure it isn't weak signal work but it is a wide-open area for those who do want to homebrew "wideband" UHF & above equipment. All the amplifiers and antenna's are the same. So what do you do with all your narrowband gear during the winter DX drought? Well at least a few of us keep using the gear on ATV. It's a good proving ground with a growing number of amateurs gaining microwave experience that can only benefit future pursuits.

Next month we are going to talk about where to source components and "trickets" for microwave use.

For more info of ATV kits visit http://homepages.picknowl.com.au/vk5eme/minikits/kits1.html

In closing

We have lifted out of the winter "doldrums" with resurgence! In discussions, with a few operators of late, there seems to be growth occurring in a number of areas. One such comment was the surprise to see a number of Adelaide stations on 144 MHz SSB during the recent Leonids shower ... point taken!

The importance of the "mentor" in helping others get on air or promoting VHF, UHF and above (that's EVERYTHING above 50 MHz guys) is rarely acknowledged. The vision and patience of these individuals are the good parts of the hobby that should be supported, far more worthy than those who detract. In 2002 I will be re-introducing the "Meet the Man" series. This will be a monthly sidebar featuring Amateurs who have made a mark on 50 MHz and above. I am accepting nominations and material from the time you read this!

I'll leave you with this thought, ... "Wit has truth in it: wise cracking is simply calisthenics with words!"

73s David VK5KK

Education Notes

Brenda M Edmonds, VK3KT
PO Box 445,
Blackburn VIC 3130.

Exam changes

Many of you will have heard something of the proposed review of the WIA Exam Service. The ACA has recently commissioned an audit of the examination procedures, with particular attention to the machinery in place to deal with possible fraud attempts. Procedures currently in use for fraud detection have been developed over the years, but it seems timely to reconsider all aspects of the examination process and make a few changes administratively as well.

Up until now the WIA Exam Service has operated as a self-contained unit as part of the Federal Office. To reduce the load on this Office, it is now intended to involve the Divisions directly in the recruiting and registering of examination invigilators.

All current examiners will be contacted shortly to see if they wish to continue as invigilators, and will be informed of the changes to the registration processes. Again to reduce the administrative workload, invigilators are asked to form local groups, with the Group Leader being the person who maintains contact with the Division and the Federal Office. Any persons not currently registered who wish to become invigilators are advised to contact their local WIA Division for further information. Supply of examination materials, marking of papers and processing of examination results will continue to be the responsibility of the Federal Office.

As the re-registrations and new appointments will take significant time, WIA Exam Service will close from 21st December until 1st March 2002. It is anticipated that all examination papers returned by 10th December will be processed and the results posted before the Office closes. Although the Office will be staffed during February, we have asked that orders for examinations during February be delayed so that full attention can be given to finalising the new arrangements.

We have still not received any information from the ACA as to the decisions resulting from their discussion paper on further devolvement. It was hoped that any changes resulting from ACA decisions could be incorporated into the modifications of the examination arrangements, but it now seems more important to go ahead with the changes at a time of the year when examination demand is very low than to wait to incorporate other changes and have to close the service during mid-year.

We still hope to be able to start work very soon on extending the bank from which papers are produced and on revision of the existing syllabuses. Members will be kept informed through these columns as to any developments. I have previously mentioned that we would like to bring the syllabuses more into line with current technology. I welcome any comments on this matter.

My best wishes to members and clubs for a happy and peaceful Christmas and a productive, successful 2002.

Silent Key

George Stanley Schulze (1920-2001) VK2GX

George did his final radio training at the Marconi School of Wireless and in 1940 joined AWA and was appointed as a Radio Officer in the Australian Merchant Navy. He served on five ships, two of which were sunk and all subject of enemy attack. His involvement included transporting troops to Darwin and Singapore; landing commando forces at Kavieng, transporting the Free French Battalion from Noumea to Sydney for training, and landing infantry in Timor.

His favourite ship was the Zealandia, which was being escorted by HMAS Sydney just before it (the Sydney) was sunk off the West Australian coast.. His service aboard the Zealandia led to his participation in the recent Federal Government enquiry into the sinking of HMAS Sydney. Sadly, he was aboard the Zealandia, which was sunk in the raid on Darwin.

After three years at sea, George became an instructor at AWA's Marconi School of Wireless. He stayed with AWA for the rest of his working life. At the end of the war he transferred to the Aviation Department (Radio) at Mascot Airport, subsequently becoming Maintenance Manager and with the responsibility of all AWA service depots worldwide.

After his time in Aviation, the Commonwealth Government requested he move to Malaysia for two years as part of the Colombo Plan, where he became advisor and instructor of International Communications with the Malaysian Telecom Department.

Upon his return to Australia, George took on the role of Export Manager for fourteen years, which took him to many places including Africa, the Middle East, Asia and South and Central America.

In 1977 George was appointed assistant to the Managing Director of AWA where he spent the final six years of his working life. He had continued his interest in radio and was active on the amateur bands up to the last weeks of his life. Two years ago George received a WIA award for fifty years service to Amateur Radio.

His generosity and willingness to assist, together with his knowledge, wisdom and achievements has been an inspiration to all with whom he came in contact. Among those at his Service were representatives from AWA and the Merchant Navy.

Our thoughts are with his wife, Peggy and family.

Ted Miles VK2FLB, and James Iliffe (nephew).

ar

HF Predictions

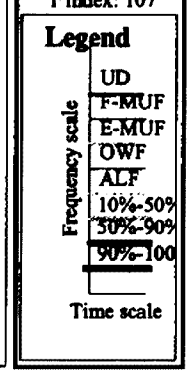
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

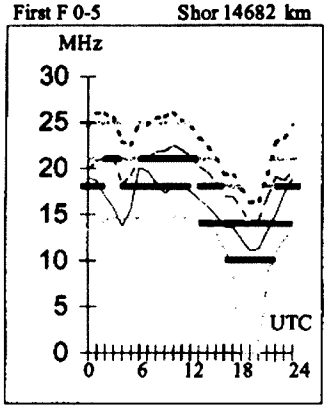
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

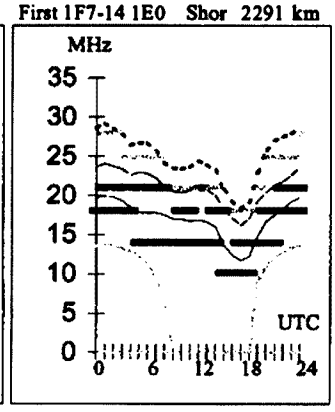
December 2001
T index: 107



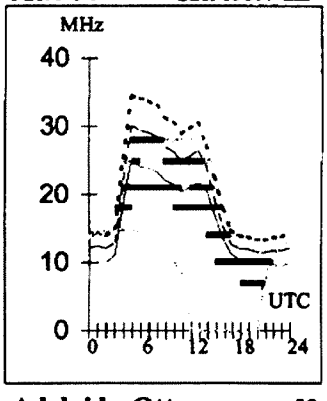
Adelaide-Accra ##
First F 0-5 Shor 14682 km



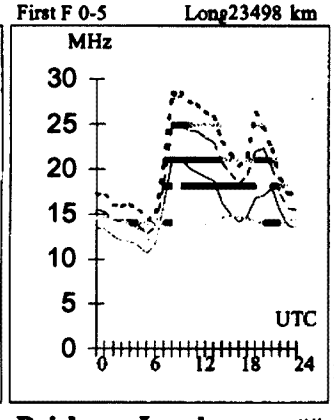
Brisbane-Auckland ##
First 1F7-14 1E0 Shor 2291 km



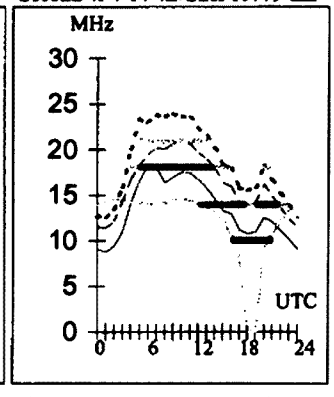
Adelaide-Moscow ##
First F 0-5 Shor 13807 km



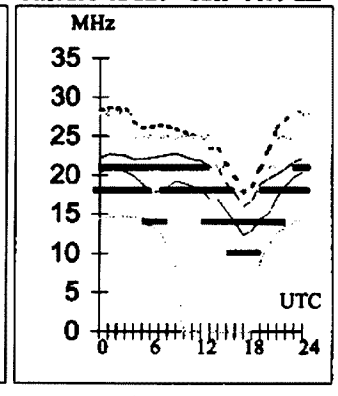
Brisbane-London ##
First F 0-5 Long23498 km



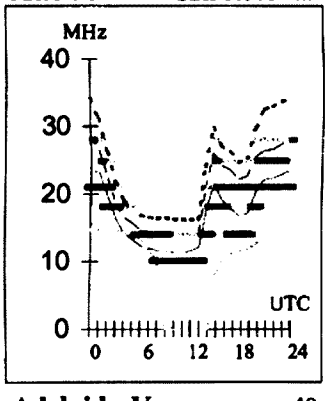
Canberra-Capetown ##
Second 4F4-14 4E(Shor 10779 km



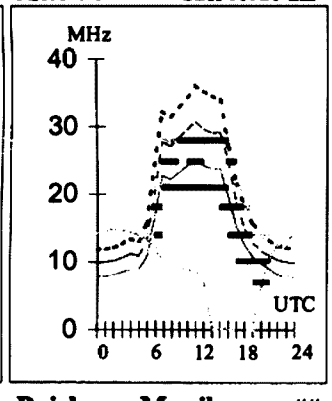
Darwin-Invercargil ##
First 2F5-12 2E0 Shor 5159 km



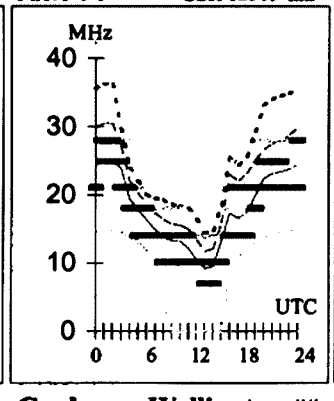
Adelaide-Ottawa 58
First F 0-5 Shor 16901 km



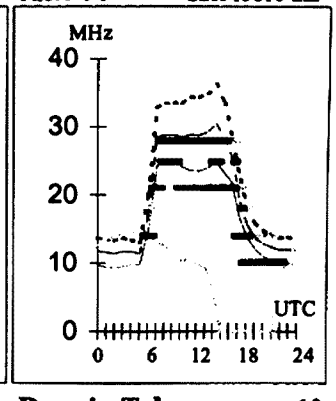
Brisbane-London ##
First F 0-5 Shor 16526 km



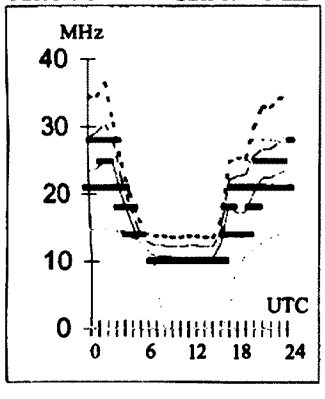
Canberra-Los Angele 62
First F 0-5 Sbor 12309 km



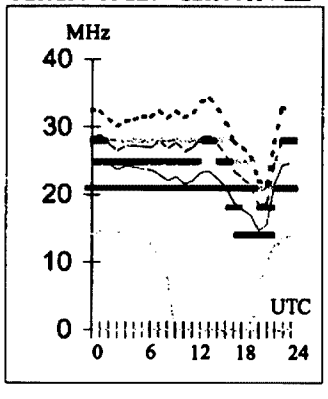
Darwin-Paris ##
First F 0-5 Shor 13816 km



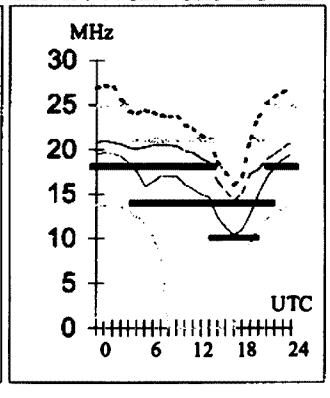
Adelaide-Vancouver 49
First F 0-5 Shor 13421 km



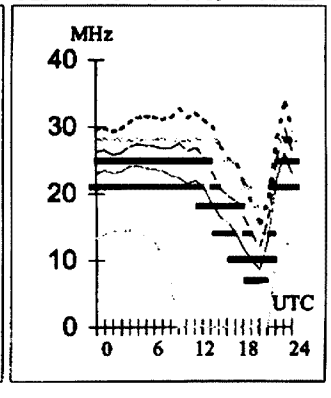
Brisbane-Manila ##
First 2F3-11 2E0 Shor58114 km



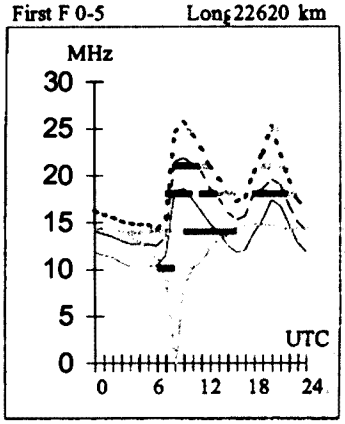
Canberra-Wellington ##
First 1F7-14 1E0 Shor 2324 km



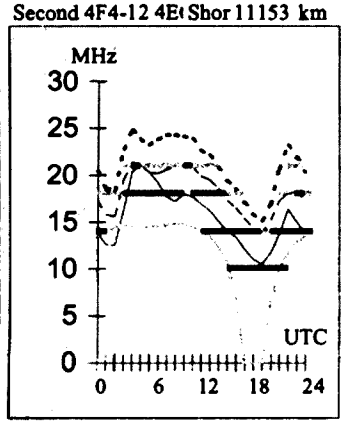
Darwin-Tokyo 10
First 2F4-11 2E0 Shor 5436 km



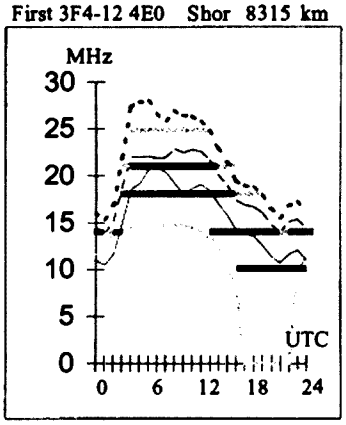
Hobart-London ##
First F 0-5 Long 22620 km



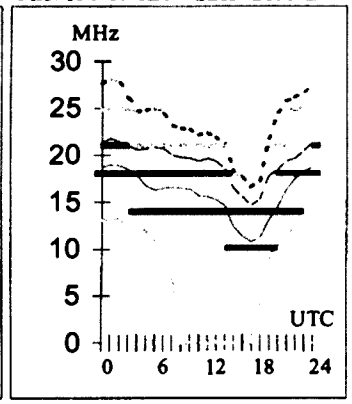
Melbourne-Lusaka ##
Second 4F4-12 4E(Shor 11153 km



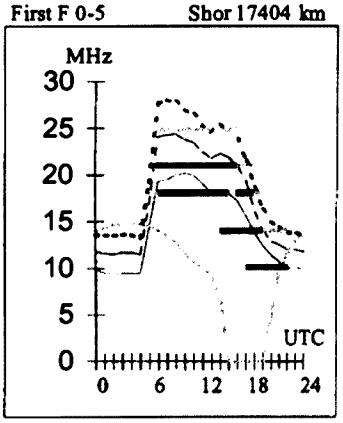
Perth-Johannesburg ##
First 3F4-12 4E0 Shor 8315 km



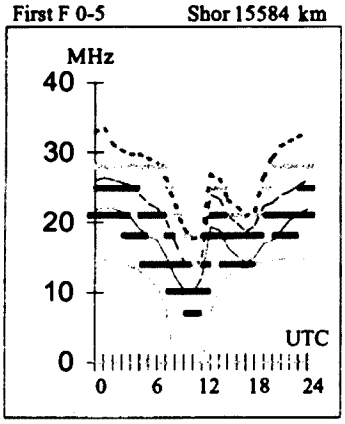
Sydney-Auckland ##
First 1F8-15 1E0 Shor 2159 km



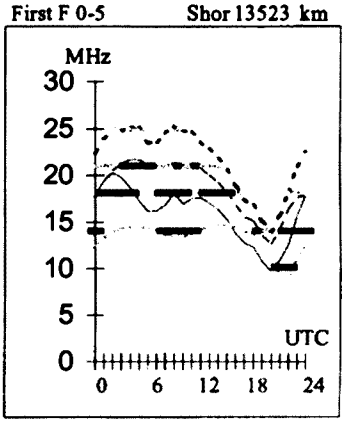
Hobart-London ##
First F 0-5 Shor 17404 km



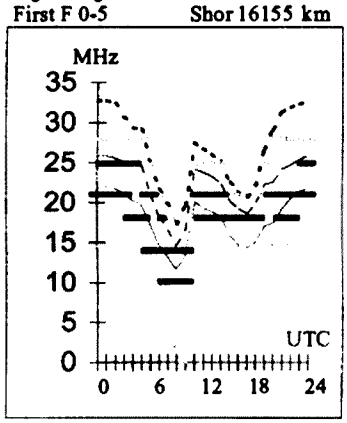
Melbourne-Miami 94
First F 0-5 Shor 15584 km



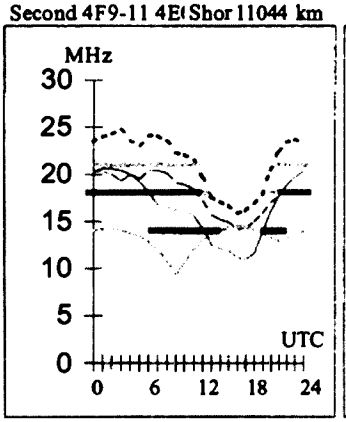
Perth-Rio de Janeiro ##
First F 0-5 Shor 13523 km



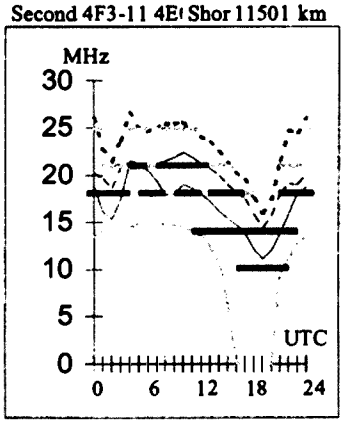
Sydney-Barbados ##
First F 0-5 Shor 16155 km



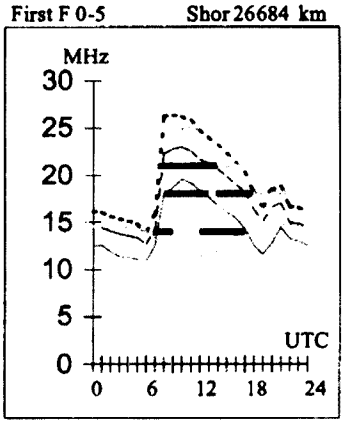
Hobart-Montevideo ##
Second 4F9-11 4E(Shor 11044 km



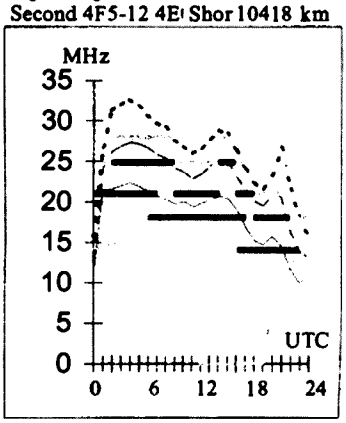
Melbourne-Nairobi ##
Second 4F3-11 4E(Shor 11501 km



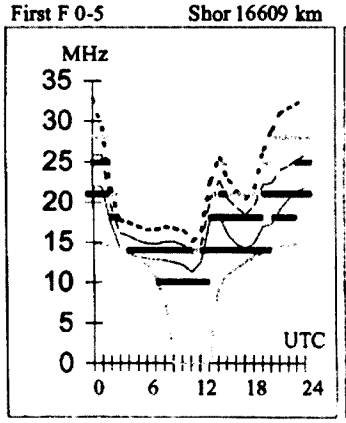
Perth-Rome ##
First F 0-5 Shor 26684 km



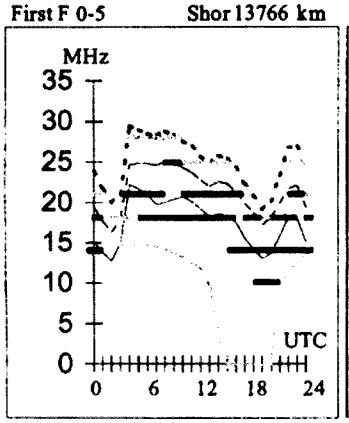
Sydney-New Delhi ##
Second 4F5-12 4E(Shor 10418 km



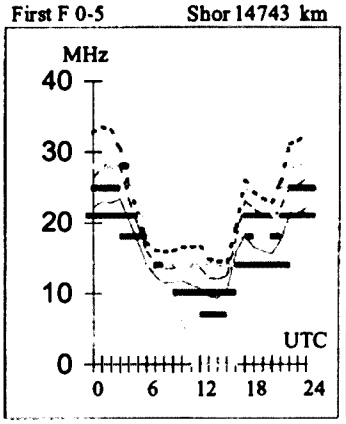
Hobart-New York 80
First F 0-5 Shor 16609 km



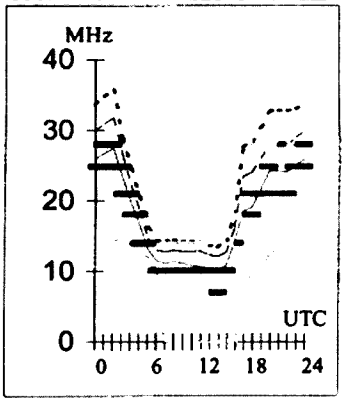
Melbourne-Tel Aviv ##
First F 0-5 Shor 13766 km



Perth-San Francisco 66
First F 0-5 Shor 14743 km



Sydney-Seattle 47
First F 0-5 Shor 12470 km



HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE NSW

• **ICOM 706 Mk2**, books, box, ex condx, SN 01120, $1650. **KDK FM-2016A**, 2m tcvr SN5582 book ex cond $150. Geoff VK2BGP Phone 02 4982 9748

• **GELOSO: tuning dial scale**, lens and escutcheon only, showing 10 through 80m frequencies, bandspread. As new. Brian, VK2GCE, Phone 02 9545 2650 or (preferred) brianclarke@telstra.easymail.com.au

• **COMMAND SCR-274N**: Rxs, Txs, modulators, racks, mounts, remotes, some complete setups as used in WWII operations. Brian, VK2GCE, Phone 02 9545 2650 or (preferred) brianclarke@telstra.easymail.com.au

• **CROs TEK 585A and 847**, with single, dual and quad channel plug-ins. Manuals also available. All items in excellent working order. Brian VK2GCE, Phone 02 9545 2650 or (preferred) brianclarke@telstra.easymail.com.au

• **Sweep Generator 2-250 MHz Leader LSW-290 SWEMAR** $350; **FET VOM Trio VT-108** $30; **Oscilloscope Trio CS-1560** two channel Serial Number 240017 $120. Alex VK2LB, QTHR. Phone 02 9808 1031, alexford@ozemail.com.au.

• **KENWOOD TS 700 SP** 2m AM, CW, SSB, FM Tcvr VFO operated. Bulky old fashion mode. 1W 10W output + 12 xtal sockets for fixed freq. VGC $420 ono. **Light weight antenna rotator** + control box, as new $80. Peter VK2BPO QTHR Phone 02 9713 1831 brunone@bigfoot.com

WANTED NSW

• **Yaesu FRG 9600 instruction manual** or photo copy. Costs repaid. Art VK2AS QTHR Phone 02 94167 7841

• **High frequency transceiver**, valve or solid state, working or not, for pensioner wanting to become active on air again! Anything considered, even old AM transmit/receive equipment. Must be inexpensive, or one that, with work, I might be able to get going. Not working, desk or old **dynamic microphone** sought also. Please contact: Norm VK2ZG QTHR, Phone: 02 4965 7923 or email normvk2za@optusnet.com.au

• **3x80 metre helical whips** for use at Urunga Convention. B. Slarke VK2ZCQ, P O Box 8, Bellingen NSW 2454, Phone 02 6655 1115

FOR SALE VIC

• **KENWOOD TS50 HF** SN 50800819 as new $1100. **Antenna Tuner HC500 Tokyo Hy-Power** $65. **Coax switch 'Trak'** 1kW 6-pos, $50. **Electrolytic caps** 200µF 450V @ $2. All types transformers, loudspeakers outside/inside. **Valves 12BY7s 6164Bs** etc. **Loudspeakers** 12" woofers alarm external speakers. Harry VK3AXJ QTHR Phone 03 9802 5704

• **YAESU FT101E** SN 351917 with service manual and **Osker SWR-200 meter** $400. **Emotator 502cxx rotator** and **TH3JR** 3 element beam $500. One owner. All in excellent condition. Barry VK3JB QTR. Phone 03 9878 8275

• **COMMS Rx YAESU FRG-100** perf condition 50 kHz- 30 MHZ all mode (D2790) with keypad for freq entry and remote control $750. Len VK3BMY Phone 03 5862 3116 all hours

• **YAESU FT23R** 5 watt 2m transceiver in as-new condition including **FNB-7 600mA NICAD**, charger plug-pack, soft protective cover, user manual and original antenna. Owned since new. $290 ORO Victor VK3CKD Phone 0427 561 570.

• **YAESU FT707** HF 100 watt transceiver complete with **FV707DM** digital VFO, **FTV707** transverter with 6m & 2m plug-ins and manuals. Comprehensive portable HF & VHF station and if you can find the 432MHz plug-in will give you an SSB rig from 80m to 70cm. The FT707 transmits/receives SSB USB/LSB, AM & CW on the amateur bands 10, 12, 15, 17, 20, 30, 40 and 80 metres, 100 watts output max. Owned since new and in great working order. $850 ORO VK3CKD Phone0427 561 570.

• **APOLLO 40 Channel UHF CB** in good condition $175 ONO must sell. Contact Ian Phone 03 5751 1631 or lorian@netc.netc.au

WANTED VIC

• **1296 MHz Amp** as displayed at Ballarat field day in October. Would the person offering these for sale mind contacting Ian VK3AQU on Phone 03 5751 1631 AH or email: lorian@netc.net.au

FOR SALE QLD

• **YAESU FT101EE Tcvr** near new finals $300. **13.8V 4amp power supply** $30. **FL2100B HF amplifier** $450. **Heathkit SWR bridge** $40. **DSE 1/1 balun** $20. **Yaesu FIF232C CAT** computer control for Yaesu radios $80. Freight extra. Bernie VK4OZ QTHR Phone 07 5532 4078. 6 Truda Street, Southport 4215. Email: vk4oz@winshop.com.au

• **KENWOOD TS-120V HF** Tx/Rx working with manual and mike $350. Peter Hadgraft, 17 Paxton St, Holland Park, Q4121 Phone 3397 3751 email peterhadgraft@yahoo.com

• **Deceased estate: YAESU FT 1000MP**, external speaker **SP-8**, desk microphone **MD-100**, headphones **YH77sta**, mint condition, original packaging, $3300. **Tiltover tower, Kenpro KR-400RC** rotator, **Cushcraft A3S** beam $500. **Power supply 13.8V 30A** $250. **Kenwood TM221A** 2m transceiver $100. Contact: Carsten VK4OA QTHR. Phone: 07 3264 6443. Mobile: 0419 966 111

WANTED QLD

• **Collins and Hallicrafters** brand radio communications equipment by avid collectors/restorers. Not for resale, but to display and use on **AM Vintage** Radio Nets. Accessories and spare parts also needed. John Abbott VK4SKY QTHR pukapan@yahoo.com or Phone 0417 410 503. PO Box 1166, Coolangatta, Queensland, 4225.

FOR SALE SA

• **RCI 2950** 10m rig $375. **FT8100** dual bander as new with separation kit $900 ono. **Uniden UH100** exc cond $300. **Kenwood TSB20S** $250 ono. **Emtron EDM.1** dip meter exc cond $80. **MFJ-971** portable ant tuner $175 ono. Mark VK5KMK Phone 08 8836 7279

• **Amateur** Radio, Radio and Communications, Amateur Radio Action **Magazines**. Paul VK5MAP Phone 08 8651 2398. For details, or SASE to PO Box 76 Peterborough 5422 for list.

• Valves all are new and still in original packets: 2x**6J86C** GW $50 each. 3x**6146B** Sylvania $40 each. Ring Leigh VK5UO Mt Gambier Phone 08 8725 9450

• **Deceased estate: KENWOOD TS180S** with operator's manual $500. **Fukner Commander rotator** with control box, power supply and spare rotator $100 (needs attention). Paul VK5MAP QTHR Phone 08 8651 2398

WANTED SA

• **Deltahet** (solid state) part complete, not working or chassis only, wanted for home brew project. Rob VK5RG Phone 08 8379 1889

• Early **EILCO/CODAN HF transceivers** such as **type 6104**. Also manuals for same. Malcolm Haskard VK5BA QTHR. Phone 08 8280 7192. Email malcolm.haskard@unisa.edu.au

FOR SALE WA

• **KENWOOD TS870 DSP** 160-10 m transceiver w/gen cov rx, ant tuner, memories, scan etc. mint condx, used very little. price $2990, VK6IP Phone/fax 08 9655 2250, email vk6ip@windspeed.net.au

WANTED WA

• **Variable air capacitors,** 6:1 reduction drive gears, integral drives, crystals for home constructor. PO Box 164, Greenbushes 6254 WA

FOR SALE TAS

Conditions of sale

1. All items are as is where is.

2. All prices are firm. No offers accepted

3. All items are to be paid for in cash upon pick up at 5a Helen St, Ulverstone.

2 only **ATN 11 Element 477MHz** UHF CB beam antennas with baluns, phasing harness and ATN power divider all N connectors and mounted on spreader bar $100.00 the lot.

1 only **Telereadar CWR-670E** with manual all in good order,.$50.00.

2 only **Philips FM-900** Base unit radios with digital clock and power supply, programmed for 2m $150.00. each

1 only **PacComm TNC-320** with manual $100.00

1 only **MFJ Turbo packet radio controller,** model **MFJ 1270B,** brand new never used $100.00

1 only **ICOM IC-28A** 2m Transceiver with optional **HM-14 DTMF Microphone** and tone unit also mounting bracket, manual and box, as new condition S400.00 There is also a service manual available for this radio at an additional cost of $30.00

1 only **YAESU FT2311R 1.2GHz mobile transceiver** fitted with optional tone unit and comes with mounting bracket, manual and box mint condition $400.00

1 only Australian Military Forces **A510 Wireless Station** in very good condition and as far as I can tell is complete apart from the Morse Key, whereabouts unknown $300.00

2 only **microwave link units** ex hec, a trailer or ute required to pick these up $50.00 ea

1 only **ICOM IC-2800H service manual** on CD ROM, $30

Laptops

1 only **Toshiba T1900 Monochrome 486SX laptop computer** With 4Mb of RAM, 123Mb hard drive, very good condition $150.00

1 only **Toshiba T1910 monochrome 486sx laptop computer** with 4Mb of RAM, 123Mb hard drive, very good condition, $150.00

2 only **Toshiba T1950CS colour 486DX laptop computer** with 4Mb of RAM, 123Mb hard drive, very good condition $200.00.ea

1 only **Toshiba T1960CS colour 486DX laptop computer** with 4Mb of RAM, 123Mb hard drive, very good condition but no battery or power supply, "as is where is", $80.00.

1 only **IBM Thinkpad 750CS colour 486DX laptop** with 20Mb of RAM, 327Mb hard drive, running Win 95 plus MS Office, Easytrax, Tait Programmer and Logomanager for Nokia phones, a nice laptop but has no battery $300.00.

These laptops would be suitable for student use or controlling free Austar.

Service Manuals for Sale

1 only **Kenwood TH-78A/E.** 1 only Kenwood **TS-600.** 1 only Kenwood **TS-830S.** 1 only Kenwood **TS-930S.** 1 only Kenwood **TS-430S.** 1 only Kenwood **RZ-1.** 1 only Kenwood **TM-201/D.**1 only Kenwood **TW-4100A/E.** 1 only Kenwood **TS-140S/680S.** 1 only **Kenwood TS-450S/690S.** 1 only Kenwood **TS-850S.** 1 only Kenwood **TS-950SDX.** 1 only **Alinco DR-605T/E/TEI/TE2.** 1 only Alinco **DJ-GIT/E.** 1 only Alinco **DJ-500T/E.** 1 only **Yaesu FT-470.** 1 only Yaesu **FT-3000M.** 1 only Yaesu **FT-900.** 1 only Yaesu **FT-ONE.**

Instruction manuals

1 only **Kenwood TH-25A/TH-45A.** 1 only Kenwood **TH-751A/TH851A.** 1 only **Kenwood TS-700A.** 1 only Kenwood **TS-820S.** 1 only Kenwood **TS-180S.** 1 only **NECCQ-IIOEHF-SSB.** 1 only **Yaesu FT-200.** 1 only Yaesu **FT-980.** 1 only Yaesu **FT-757GX.** 1 only Yaesu **FT-ONE.** 1 only Yaesu **FC-301** antenna tuner. All manuals are $30.00 each regardless of type and size.

David VK7ZDJ Phone 03 6425 2030, 0413 219 680, vk7zdj@southcom.com.au

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

FOR SALE ELECTRONIC VALVES

If you are looking for valves you can contact, Gamini Liyadipitiya at email: gamini@ee.unsw.edu.au Small negotiated fee — first come first served.

AMIDON FERROMAGNETIC CORES:

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please. 14 Boanyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports.

Agencies at: Active Electronics Tas, Truscotts Electronic World, Melbourne: Tower Communications, Perth: Haven Electronics, Nowra.

HF, VHF, UHF Antennas & accessories. Alum towers, guides etc. Diamond VSWR/PWR meters. HD copper ant wire & insulators. TX tubes & pwr transistors. Quality coax cables & connectors. Free advice & catalogue. **ATN Antennas Ph** 03 5492 2224 Fax **03 5492 2666, email atnant@ruralnet.net.au**

"Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the

Radio Amateurs Old Timers Club Australia

or if you have been licensed for **less than 25 but more than ten years**, you are invited to become an **Associate Member** of the RAOTC.

In either case a $2.50 joining fee plus $8.00 for one year or $15.00 for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to

RAOTC,
3/237 Bluff Road
Sandringham VIC 3191

or call Arthur VK3VQ on **03** 9598 **4262** or Allan VK3AMD on 03 **9570 4610**, for an application form.

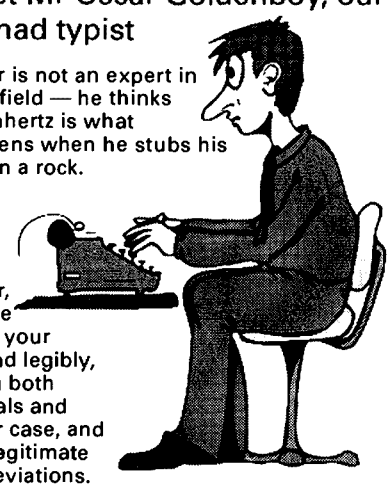
Email your hamad

Then we just cut and paste.
You proof it, you retain control.

http://www.hamsearch.com
a not-for-profit site that is a search engine for hams

PLEASE BE KIND TO OSCAR

Meet Mr Oscar Goldenboy, our Hamad typist



Oscar is not an expert in your field — he thinks Megahertz is what happens when he stubs his toe on a rock.

To help Oscar, please write your hamad legibly, using both capitals and lower case, and use legitimate abbreviations.

This will reduce the chance of errors being published, which incoveniences everyone.

ADVERTISERS INDEX

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Over to you

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.
2. Some of the letters may be shortened to allow more letters to be published.

Entry Hurdles

So, we have a proposal from the WIA VK6 division for an "almost exam free licence" (AR, July 2001), the idea being to boost the numbers of amateur radio operators, presumably by further watering down technical standards. Hey, I can beat that! Why not do a sponsorship deal with Kellogg's, and give ham tickets away in every box of corn flakes? Or maybe Coca-Cola might come to the party-collect enough bottle tops and send them in for your ham ticket!

The VK6 proposal is advanced on the pretext of offering entry to our hobby to those "who are interested in radio but cannot spare the time to go regularly to evening classes to pass the current licence grades". No time for study, but they then suddenly find the time to operate, and progress through to higher grades?

Come on, anyone with a genuine interest in amateur radio wants to learn about the technology that drives it. Campers? Caravanners? Fine by me-so long as they have a genuine interest in amateur radio, and not merely attempting to get utility 2-way radio communication on the cheap. And if they have time for camping and caravanning, they must surely have time to study for a proper licence.

As for fed-up CBers: fed up with what? How would giving them a segment of our 70cm band help to "expand their horizons"? They already have a UHF band. If they have a real interest in radio technology they would easily pass the theory exam. All too often, the theory exam is presented as an obstacle, rather than a necessary endorsement of one's technical ability. Remember when Amateur Radio was defined as an experimental grade of licence? Now so many just want to "communicate", without much desire to understand how it all works, and consider the technical aspects to be irellevant.

The VK6 proposal suggests offering a slice of 70cm (with type-approved FM gear-now there's a challenge!), on the basis that it is under-utilised. But would populating this band with exiled Cbers and campers help its retention? Don't kid yourselves. If we want to hang on to our bands, we had better come up with more convincing reasons than that! Perhaps if we utilised our bands for serious experimentation and technical self-development, we might have a better argument.

We already have an adequate pathway into the hobby through the no-code novice licence. Would further watering down the standards really be in the interests of our hobby? If this idea gets up, how long before they lobby for more privileges?

We've seen it all before with the novice licence. Its original intention was as a limited-tenure introductory grade, with access to a small segment of a few HF bands and low power. But over the years, there's been a lot of "privilege creep".

When will people learn that pandering to mediocrity won't work? Imagine a football club hoping to recruit new players by changing the rules of the game to make it easier! Let's move the goal posts further apart to make goals easier to kick! Maybe remove them altogether so every kick's a winner! Yeah, right. That'll queue them up to join.

I advocate that we head in the opposite direction. Recruit for quality rather than quantity. Present the hobby as the technological challenge it can be, but one that requires a degree of determination and understanding to fully appreciate. A hobby with a proud history of technical and experimental excellence, that needs more young people to take up the challenges, develop their skills and pursue new ideas.

Or have we lost all the people with the insight and ability to articulate this notion? Perhaps it's just politically incorrect these days to express these sentiments.

I'll nail my colours to the mast now. If the WIA backs this proposal, I'm out-they'll have lost a member of over 20 years. I doubt I'll be alone.

Chas Gnaccarini
VK3BRZ 17 July 2001

MXHNY to all

The AR November article under the heading "C W and the Horses " by David Pilley is well wide of the mark and PMG Telegraphists never at any time transmitted a race event from inside a racecourse to a broadcast station where the broadcast was turned live.

The Chief Telegraph Office in Sydney (I cannot speak for the other cities) was a wonderful piece of organisation and it employed some of the smartest and the most intelligent people imaginable. As well as telegraphy skill there were other crafts too There were jewellers, photographers, and bootmakers, and there were money lenders and of course SP bookmakers. It was a very unique place to work and my 46-years with the PMG and Aust Post was certainly enriched because of my telegraphy days.

The Chief Telegraph Office Sydney - known affectionately as "the room " also had its poet - a well-known character named Frank Spruhan (RIP) who wrote the poem " Coming Round the Bend." (Abbreviated or "cut up" CRTB). Telegraph rules and -by-laws were strictly adhered to by administrators and required a certain number of telegrams be transmitted and received hourly. The number was based on the full and proper transmission of a telegrams content. Many but not all - telegraphists got around this rule, by using fairly uniform abbreviations, for example, the word *'that'* became " TT". *'you'* became "U", *'when'* became 'WEN", *'could'* became "CLD", *'congratulations'* became "CNGTNS". and a telegram that contained the greetings *'Merry Christmas and Happy New Year'* became "MXHNY".

Some Sydney telegraphists had mini-contests with the morse operators at the other end of the morse line. It was fun, I know, because I was in "the cutting-it-up-club."

And this was how and why Frank Spruhan - Spru to his Teleg mates, became motivated and wrote the poem " Coming Round the Bend ". The famous old poem is still a treasured piece of nostalgic trivia in the minds of many ex-telegraphists today.

The poetry as written in November's AR is almost spot on, and would give interested readers a brief idea of what " cutting it up " was all about.

Allan Madigan VK2OA

YAESU SUPER DE'AL!

Yaesu FT-1000MP Mark V Deluxe HF Base Station

Yaesu is proud to enter a new chapter in the history books with the new premier-class MARK-V FT-1000MP. Offering new features such as 200W PEP RF output, a Class-A RF power amplifier, interlocked Digital Bandwidth Tracking, a variable RF front-end preselector filter and improved control layouts, the MARK-V represents the highest overall performance ever offered in a Yaesu HF transceiver.

Whether your interest is in ragchewing or contest operation, the MARK-V's outstanding hybrid analogue/DSP receiver IF chain incorporating a new 10 pole Collins SSB filter and the use of Enhanced Digital Signal Processing (EDSP) with improved front panel access provides dramatic improvements in readability under tough conditions. For ease of use, the new MARK-V uses an external FP-29 power supply which can be mounted next to the transceiver, or under your operating desk. Yaesu's IF-based EDSP system provides noise-reduction protocols, audio enhancement with equalisation programs for Tx and Rx use and an automatic notch filter which identifies and eliminates multiple interfering carriers.

The MARK-V FT-1000MP also features selectable receiver front-ends, High-stability Reference Oscillator, an internal high-power auto antenna tuner, two main antenna sockets, selectable tuning steps as small as 0.625Hz, dual-mode noise blankers, 500Hz and 6kHz IF filters, an RS-232C computer interface, plus easy digital mode interfacing. With so many new and improved features, why not ask for a copy of the 8 page colour brochure today to learn more about this amazing new transceiver.

D 3450

2 Year Warranty

$5990

SAVE $500!

YAESU

On display at selected PowerHouse stores only. Please call for details. All Yaesu products are priced in Australian dollars, and are not stocked in Dick Smith Electronics stores outside Australia.

Offer expires 30/12/2001.

DICK SMITH ELECTRONICS

That's where you go!

3572D IBC 4 col

THE ULTIMATE RIGS!

IC-756PROII NEW!

Sharp & soft IF filter shape · Improved 3rd IMD & wide dynamic range · One-touch record/play · Digital voice memory · Extended 1/4 Tuning step & BPF functions for SSB-D mode · 32-bit floating-point DSP and 24-bit AD/DA converter · SSB/CW synchronous tuning · 4.9-inch color TFT LCD

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad. Optional AF DSP capabilities, including noise reduction & auto notch function. It's versatile, compact & loaded with features.

IC-910H The new dimension in the VHF/UHF world!

Tri band multimode transceiver · 2M -100W, 70CM - 75W, (optional 23CM, 10W) · 9600bps packet operation. · Satellite communication · Reverse/normal tracking doppler shift compensation · CIV capability for PC control

IC-706MKIIG HF · VHF · UHF

The amazing evolution of the legendary 706.

Now includes 70cm @ 20W and 50W on 2m. · Standard feature dsp · Built in sub tone encoder & decoder · Tone scan · Mosfet PA · You get base station performance and features in a mobile rig sized package.

IC-T81A

A remarkably compact quad band.

VHF/UHF Multiband FM · 2M, 6M, 70CM, 23CM · 124 alphanumeric memory channels · Ni-MH battery Tone squelch · Sub tone encoder & decoder that can be independently set · Plus dtmf encoder · Tone scan.

ICOM
Clearly Ahead

See your nearest Icom dealer or visit our website at **www.icom.net.au**

2 YR WARRANTY