amateur radio

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- ★ JOHN MOYLE FIELD DAY RULES
- ★ TASMANIAN AMATEUR RADIO CONVENTION
- ★ MR. DAVID JULL, M.P., REPORTS ON CHANNELS 0 AND 5A

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amateur radio

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GENERAL

DEPARTMENTS

Cover Photo

Auction time at the Tasmanian Amateur Radio Convention held in Hobart over the week-end November 4-5, 1978. Associate member Alan Ruthven (holding microphone) tries to push the bids higher as Andrew VK7ZAJ (left) and Brian VK7ZBL display the goods (an old AWA modulation monitor).

Photo courtesy Tom Moffat VK7TM.

QSP "THIS IS 1979"

On behalf of the Federal President, Officers and the Administration of the WIA I wish you all a Happy New Year and best wishes for 1979. It is traditional at this time of the year, to make New Year resolutions and look forward into the future.

This year, to some extent, we know what the future holds as we look forward — with some concern — to the World Administrative Radio Conference — WARC 79 — in October. The outcome of the WARC is still anybody's guess. The IARU Region III Conference held in October in Bangkok made this quite clear because at that time the position of many of the smaller countries with respect to the WARC was still unknown, if not unformed!

The preliminary position of the Australian Administration is reasonably well known, however, and whilst it is not entirely "sugar coated" as far the the Amateur Service is concerned, it is at least constructive and not anti-amateur radio.

The Institute, as reported in the past, has been instrumental in preparing the Australian Amateurs' case — a job which will not be finished until the actual WARC Conference is over. Right up until then, representatives of the various amateur bodies, including the WIA, will be providing advice to their administrations on matters pertaining to the Amateur Service which arise during the varied sessions at Geneva.

During this period, the financial strain on the Institute will be enormous — Geneva is NOT the cheapest place to stay for 10 weeks, especially during peak demand period such as an ITU Conference. Happily, the tremendous growth in membership of recent years — 118 increase in 1976 to 1372 increase in 1978 up to October — has enabled the Executive to financially plan ahead, although the continuing devaluation of the Australian dollar against the Swiss Franc must give rise to concern.

Membership growth has also enabled us to keep fees at an attractive level which in turn has generated more members. Further, during the year the Federal President in a personal letter to all non-members solicited contributions for the WARC commitment.

You, as a member, can further help during our time of testing later in the year by encouraging membership of this Institute. In fact why not make a New Year resolution to join a new member during the year.

A Happy New Year to you all (let's hope the same greeting can be offered at this time next year).

P. WOLFENDEN VK3ZPA
Executive Vice Chairman ■

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VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

WIANEWS

AMATEUR HANDBOOK

"Out of the blue" came a telephone call on a Monday morning asking if the Institute could collect the draft of the Handbook at the end of the week.

Not only was the Department's draft completed but the presence of a WIA representative was desirable to receive comments on the contents as written.

The Federal President and the WIA Secretary duly met the Departmental officer and received a copy. Various provisions in the draft were explained at some length during the handing over.

It soon became obvious that the new draft had taken into account all the numerous little concessions won by the Institute since the previous edition had been printed eleven years previously, but it now contained a number of new provisions which would require considerable investigation by the Institute.

The Federal President himself was absent from Australia, attending the CCIR meeting as a member of the Australian delegation. The Department had received many comments from the Executive when a revision was set in motion back in 1974. Some further work had been done, as well as discussions held on various specific questions with the Department. As one example, see the correspondence published on pages 20 and 21 of AR for September 1977.

At the Joint Committee Meeting late in August the WIA was told that the Department would have to produce a revision of the Handbook based on existing Regulations as both the proposed new Act and the outcome of WARC 79 were too far ahead. However, due to staff problems, the Handbook revision was unlikely to be done for some time.

As an outcome of this Joint Meeting the Executive persuaded VK1GB to undertake a further revision as already explained in WIANEWS, page 4, November AR. The Department's draft was completed very much sooner than anticipated and furthermore the Institute was asked to assemble comments in time for the Joint Committee Meeting scheduled for 22nd November (Letter RG53/2/1).

The Department were asked to grant an extension of three months so that the contents and implications of the draft could be given proper consideration for the reasons already explained.

Amateurs should be aware that the purpose of the Handbook is to set out in simple terms the regulations made under the Wireless Telegraphy Act. In most cases the provisions of the Handbook amount to an explanation of the effect of one or other of the regulations.

REGULATIONS UNDER THE WIRELESS TELEGRAPHY ACT PREVAIL OVER PROVISIONS IN THE HANDBOOK

Under the Regulations, the Minister has the power to impose conditions on a licence. Penalties exist for contraventions of the Regulations and of any licence conditions.

Quite naturally, many amateurs will be interested in how the new draft of the Handbook departs from the contents of the old. It is not feasible to reproduce the new draft in full, but amateurs may rest assured that the Executive, with legal and technical advice from many expert quarters, has the matter well in hand in accordance with Federal Council policies.

Naturally, the new draft includes various provisions relating to Novice examinations, licences, conditions and similar matters already public knowledge through Departmental correspondence published in AR.

A number of new definitions have been introduced in Chapter 1. Some are well established — as "Amateur Satellite Service". Others are obvious in the contexts used — as examples "Slow Scan Television", "Repeater Station", "The Minister", "Session", and so on. One or two new definitions appear such as "Duplex Operation" in addition to several adapted from ITU Regulations, including "Harmful interference", "necessary bandwidth", "occupied bandwidth" and "spurious emission". The omission of a definition of a "portable station" has relevance elsewhere.

Chapter 2 deals with qualifications for licences and now includes the reciprocal licensing provisions agreed by the Department in 1972 (see AR Aug. 1972, page 17) with some re-wording.

Chapter 3 covers examinations, which includes new material relating to morse, and also refers the reader to appendices which have been considerably expanded.

Licences are dealt with in Chapter 4 and include new provisions relating to Club licences, pre-licensing conditions for repeaters and natural changes resulting from the change-over from "PMG's Dept." to "P. & T. Dept".

Mechanical provisions appear in Chapter 5. It is in this chapter that the new definitions on bandwidths and spurii have relevance. Repeater conditions are set out in full and some discussions, still open-ended, were held as to whether or not these (and indeed certain other material) would be included in examinations. An amateur will be required not only to use suitable monitoring equipment frequently but also must possess suitable calibration facilities to ensure in-band emissions. RTTY, facsimile, ATV and SSTV conditions appear in this chapter. Interference provisions are the same as in paras 68 and 69 of the existing Handbook. A new provision relating to poor quality signals appears as well as a number of variations relating to power (changed to 100W mean power output) and power measurement (accurate power measuring instruments for continuous use are required). A preference, for inspection purposes, is expressed for RF output connectors on transmitters.

Chapter 6 includes the General provisions. New additions include provisions relating to broadcasts from club (includes WIA) stations, "third party" does not include arranging skeds on behalf of another amateur station, nets for information exchange on behalf of social, religious and other specified organisations are forbidden, only an Australian amateur may operate from a station during the absence of a licensee, visitors to stations may not announce station call signs or operate equipment, more stringent logging conditions for club station operations and the retention of all log books 12 months after the last entry. Mobile operations can now extend to 4 weeks without prior approval (exception being club stations), provisions for second licences and callsigns, new maritime mobile provisions, emergency network provisions and training exercises are included with some new material, callsign suffixes are updated, re-issues of deceased's callsigns (5 years) and cancellations (2 years) and distress calls appear herein also.

Operating procedures are in Chapter 7 and include various fresh requirements relating particularly to duplex operations. Chapter 8 includes various miscellaneous items such as phonetic alphabet, morse code, Q code, abbreviations and advisory committees.

HANDBOOK CONTENTS LISTED ARE ONLY IN DRAFT FORM

Readers should be careful to remember that these comments refer to an examination of the Department's new draft and are merely brief notations of many of the observed changes as seen in November 1978 when this script was prepared.

Members who might wish to make comments should consult with their Divisional Council.

EXAMINATIONS

At the time of writing an AOCP theory exam syllabus had not been received from the Department.

MEETINGS

EXECUTIVE MEETING, 17th OCTOBER

Reprints of membership certificates and subscription notices were discussed. Position of Honorary Treasurer still unfilled. Brief reports discussed on WARC 79 and IARU matters. The Institute had promised (as already included in the budget) $1000 for IARU Region 3 association reprensentation at WARC 79. Fresh office accommodation might be required in the near future if the existing tenancy is cancelled. Form RB 381 (Q) implications discussed. New publicity leallet "8000" to be reprinted when Divisional subs rates for 1979 are known. Possibility of new Departmental draft of the Handbook.

PROJECT ASERT MEETING, 11th OCTOBER

Organisational matters.

FEDERAL REPEATER SUB-COMMITTEE

One meeting relating to repeater conditions and need for further data on 2m channel numbering systems, linking of repeaters and band plans.

PUBLICATIONS COMMITTEE MEETING, 2nd NOVEMBER

Usual volume of routine matters, revision and reprinting of WIA log book, consideration of a questionnaire, 1979 call book and availability of 1000 copies of December AR (Novice issue) for outside sale (one for one with December 1977 at no extra charge).

WARC 79 DONATIONS

— from non-members are pouring in resulting from the circular. Many donors also wish to join the WIA. It is disappointing to observe that some 200 letters to non-members have been returned to sender (address unknown, left address, etc.). This means that the 1979 call book for these people will be inaccurate unless some other method can be discovered to obtain further information on each one. ■

QSP

EXPERIMENTATION AND WARC 79

"Perhaps the real challenge for the amateur is at SHF and the upper end of UHF, in the development of simple and easily reproduced stable equipment for narrow-band applications such as CW and SSB; the spin-off would not be in communications so much as in designs for inherent stability in areas where synthesiser techniques are for one reason or another impracticable. This will enable interesting and important work to be done by amateurs — again, as at HF, in propagation.

It seems very likely that we have as yet only scratched the surface of knowledge of propagation, even at HF, and the amount to be learnt on the higher frequencies is enormous. And, as before, it is only the presence of a geographically randomly occurring service which makes the study possible, let alone practical. Therein lies our hope for the future, comprising as it does a mixture of "appliance operating" on the one hand, and technical experimentation on the other — and that is what amateur radio is about, exactly!"

Extract from Editorial in Short Wave Magazine, September 1978.

CB

"While I have no wish to be burnt at the stake for heresy, I will venture the opinion that the 27 MHz band has generated far more radio amateurs in the short period since we lost it than it ever did while it was an amateur band." Extract from an article in the SA Journal October 1978. ■

OPTICAL COMMUNICATION FOR THE AMATEUR

Chris Long
6 Torring Road, East Hawthorn 3123

HISTORICAL BACKGROUND

The use of audio-modulated light beams for communication pre-dates the first radiotelephone experiments by nearly 25 years. In 1881, Chicester A. Bell and Charles Sumner-Tainter used vibrating mirror systems to superimpose sound modulation on reflected beams of sunlight. Using receivers employing selenium photoconductive cells, ranges of about 700 feet were spanned by this "photophone" system (see Figs. 1-4).

With similar equipment, Rankine demonstrated a system with a range of several miles in 1916.

The German and Australian armies did some of the first communication experiments with modulated electric light sources around 1935, using techniques derived from the recording of optical sound tracks on talkie film. The high directivity and security of these systems gave them obvious military applications at a time when microwave hardware was not available.

A resurgence in optical communication came with the rapid advances in opto-electronics after 1960. In 1962, television signals were transmitted 18 miles using a modulated infra-red beam generated by a GaAs diode, prior to the general availability of the laser. The all-time distance record for terrestrial optical communication was set in May 1963, when a voice-modulated 6328 Angstrom helium-neon laser beam was transmitted 118 miles, from Panamint Ridge, near Death Valley, California, to a point in the San Gabriel Mouontains near Pasadena. An amplitude modulated amateur radio transmitter was used for energising the laser.

Since that time, research has centred around pulse modulation of lasers (1963), coding techniques, heterodyne detection schemes using local laser oscillators (1965), optical FM (1968), and optical fibre light guide technology.

Optical communication is becoming succuessful as an engineering alternative to microwave technology because of the development of the laser, the existence of an established optical technology, and the lack of success with millimeter wave hardware.

Atmospheric optical communication is likely to remain limited to non-commercial applications. These include amateur radio, citizens band type point-to-point communication, and perhaps local area community broadcasting, as proposed by the British "Radio Love" group, and demonstrated by them around 1971 (see Fig. 5).

Its commercial applications will almost certainly be in conjunction with light guide optical fibre cable systems.

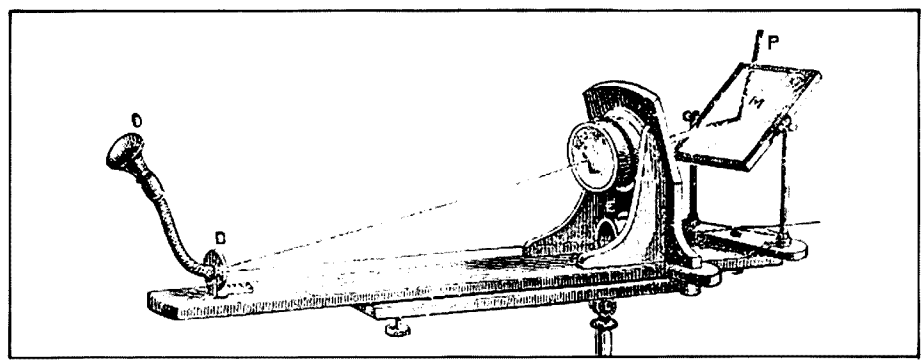

FIG. 1: Photophonic Transmitter

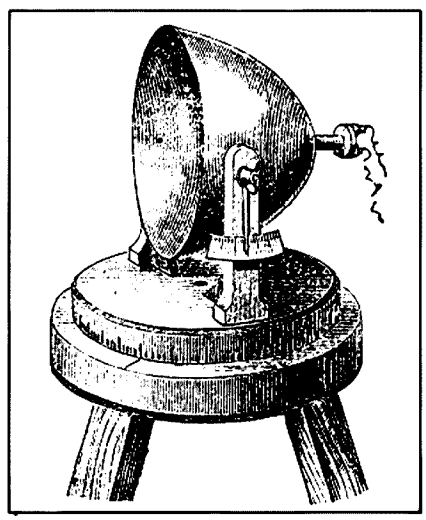

FIG. 2: Paraboloidal Receiver

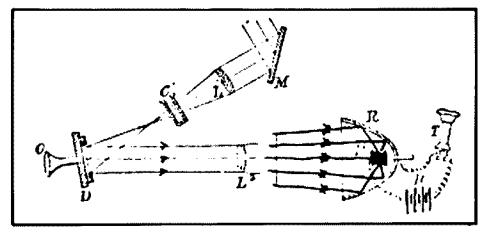

FIG. 3: Photophonic Transmission of Speech

PECULIARITIES OF OPTICAL COMMUNICATIONS

The major difference between radio and optical communication is the emergence, at optical frequencies, of quantum effects. For a given transmitter power, the number of photons generated will decrease as the frequency increases. This is predicted by the Einstein-Planck relation:

$$E = hf$$

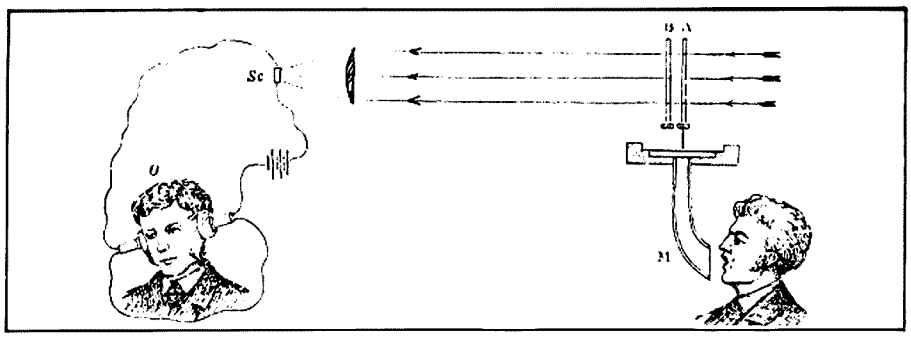

FIG. 4: Sending speech by means of light

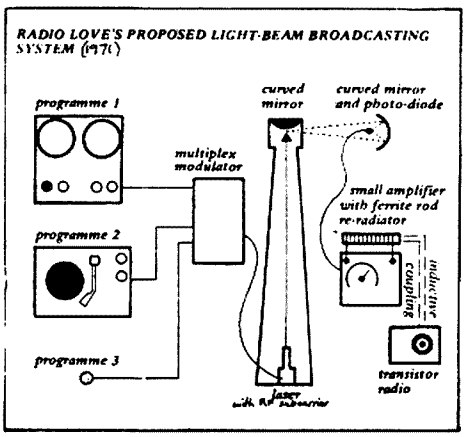

FIGURE 5

Where E is the energy of one photon
f is the frequency of the photon
h is a proportionally constant, called Planck's constant.

So many photons are generated for each watt of input power at radio frequencies that radio waves follow a predictable wave model in their propagation. At optical frequencies, the photon effects can no longer be ignored. We have to stop thinking of our "carrier" as being a wave, and start thinking of it as a stream of particles, whose arrival time at the detector is governed by probability theory.

In a way, we can think of our carrier signal in terms of two different frequency parameters:

1. The frequency of the light
2. The frequency of arrival of the photons.

To recover a useful signal, a communication system must receive at least 2B photons per second, where B is the information bandwidth. This is for the ideal case where the detector will demodulate every photon, i.e. the detector will have 100 per cent quantum efficiency. In practice, the number of photons per second required to extract a useable signal will be much higher, owing to noise sources and limiting background radiation. At optical frequencies, information bandwidth is usually more limited by the received signal power than by the frequency of the carrier. Fortunately, the narrow beamwidths attainable in optical systems allow high signal intensities to be received at long distances.

Because of the corpuscular nature of the received beam the signal itself, with its statistical fluctuations of power, is a source of noise in the system.

ATMOSPHERIC PROPAGATION IN OPTICAL COMMUNICATIONS

This section deals with the following areas:

1. Effect of atmosphere on optical signals
2. Over-the-horizon optical links using cloud scatter
3. Background ambience limitations
4. Effect of transmitter and receiver optics.

1. EFFECT OF ATMOSPHERE ON OPTICAL SIGNALS

Unlike radio propagation, where the atmosphere is generally transparent, the atmosphere can seriously degrade optical signals through scattering, absorption, refraction and dispersion.

Scattering problems, due to particles suspended in the atmosphere, can be divided into three areas:

(i) **Rayleigh scattering,** due to molecular particles much smaller than the wavelength of propagation. This is inversely proportional to the fourth power of the wavelength. Blue light therefore encounters about 10 times the amount of scattering that red light encounters.

(ii) **Mie scattering,** due to particles comparable to or larger than the wavelength of propagation, such as those encountered in fog, smog and haze. Mie scattering is very difficult to calculate mathematically, but is severest when the particle size is approximately equal to the wavelength of propagation.

Hazy conditions are due to small dry particles in the atmosphere, and here the use of relatively long (IR) wavelengths can result in greatly reduced attenuation.

Stable fogs, consisting of water that has condensed on salt nuclei are often encountered in coastal and maritime regions. Stable fog particles are large, and result in severe beam attenuation.

Selective fogs (smog) in which water condenses around smoke particles are found in industrial areas, and the particles are quite small, allowing transmission at IR wavelengths.

(iii) **Scattering of radiation from unwanted sources** into the beam path, producing limiting background light levels. The mechanisms responsible have been outlined above.

For almost all wavelengths less than 1.25 microns, including the visible spectrum, scattering is the major contributor to path loss and background light level limitations.

Absorption is caused by the atmosphere's molecular constituents. Peaks in the atmospheric absorption vs. wavelength curve correspond to the spectral absorption lines of the atmosphere's component gases, and may be as narrow as 1 Angstrom. This illustrates the care which must be exercised in selecting the wavelength of an optical communication system suited to atmospheric propagation. Absorption characteristics may vary by as much as 20:1 for different wavelengths.

Fortunately, the visible spectrum is almost free of molecular absorption bands, as the atmosphere's major constituents, N_2 and O_2 absorb mainly ultraviolet radiation. Absorptions in the visible spectrum include slight ozone (O_3) absorption between 5000 and 7000 Angstroms, and oxygen absorption bands at 6880 and 7600 Angstroms. The most important obsorbing compounds at visual frequencies and low altitudes are H_2O and CO_2. Owing to the high absorptions of O_2, CO_2 and H_2O at IF frequencies, the atmosphere is transmissive only in a series of narrow "windows", lying between the absorptive frequencies of these compounds.

Atmospheric refraction fluctuations may bend the light beam. When the atmospheric density discontinuities are large compared with the diameter of the beam, this may cause it to miss the receiver entirely. This is a point in favour of using a broad, dispersive transmitted beam. More usually, this bending only causes fluctuations in the received intensity of the beam, or *twinkling*.

When the density discontinuities or *turbs* are small compared to the beam diameter, alternate dispersion and focussing of the beam may result, having a similar effect. These atmospheric density fluctuations can cause interference to the transmitted beam at up to a 500 Hz rate; are worst in hot, windy condtions at low altitude; and constitute the main reason for favouring the pulsed-FM technique over simpler analogue intensity modulation for optical communicatio nthrough the atmosphere. By using pulsed FM technique, amplitude variations due to atmospheric degradation may be clipped off at the receiver.

In laser systems, these atmospheric turbulences can cause a partial loss of beam coherence, with phase cancellation effects resulting in a source of noise, rendering heterodyne reception by a local laser oscillator impractical over all but short distances. The use of light guides and optical fibres seems to be the only way of overcoming these difficulties.

Despite the apparent limitations, reliability of optical links is surprisingly good,

particularly up to ranges of 15 km. In one experimental system, a 3.5 km link gave 3 months of constant service on an alternate night usage, the signal to noise ratio never falling below 10 dB, even during heavy rain. Usually, the signal to noise ratio of this AM link, based on high pressure mercury vapour discharge lamps and the 931A photomultiplier exceeded 40 dB.

2. OVER THE HORIZON OPTICAL LINKS USING CLOUD SCATTER

At any time about 50 per cent of the earth's surface is under cloud cover. The angular distribution of light scattered from clouds is a function of water droplet size and the wavelength of propagation.

Assuming that the beam width angles are very much smaller than the angle between the beams and the line joining the two sites, and considering the simple case where the transmitted and received beams are tangent to the earth with the cloud at the beam intersection, then the minimum height of the cloud for small θ will be:

$$\text{Hmin.} = \text{Radius of the earth} \times \frac{\theta^2}{2}$$

(See Figure 6.)

If below Hmin., the cloud will be below the horizon at both transmitter and receiver. If above, there will be a decreased scattered intensity.

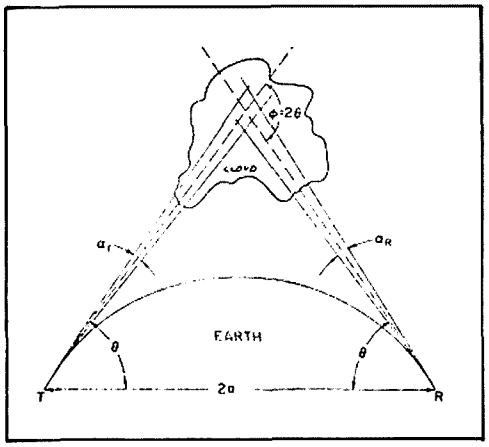

FIG. 6: An example of over-the-horizon communications link

3. BACKGROUND AMBIENCE LIMITATIONS

By far the greatest source of unwanted background ambient light in optical communications is the sun, whose radiation approximates that of a 6000°K. blackbody. This energy is received both by reflection from the background surrounding the transmitting end of the link, and by scattering in the intervening atmosphere. Three methods may be used whereby this background ambience can be avoided:

(i) Reduction in receiver beamwidth (field of view).

(ii) Reduction in optical bandwidth of the receiver by means of narrow spectral filters passing only the wavelength of propagation. Heterodyne reception can also be used to reduce received bandwidth.

(iii) The use of longer wavelengths and polarising filters to avoid the pickup of light due to Rayleigh scattering in the atmosphere.

Methods for reducing receiver beamwidth will be dealt with in the section on receiver optics. A compromise must be struck between the need for narrow beamwidth and the ease of lining up. Receiver mounting stability can be a major constructional problem with the very narrow beamwidths achievable in optical systems.

To further increase signal-to-noise ratio, we must use narrow spectral filters. For non-coherent sources, a wide spectral filter must be used to pass an appreciable amount of the transmitted light. Light emitting diodes, for instance, have a typical spectral width of 300 Angstroms. With a gas discharge light source, such as a high pressure mercury vapour lamp, a filter may be selected to accept one of the more dominant spectral lines. In the case of the mercury lamp, any one of the following wavelengths could be selected, according to the spectral response of the photodetector used:

4047 Angstroms Violet
4358 Angstroms Blue
5461 Angstroms Green
5780 Angstroms Yellow

Xenon arc lamps, having a relatively continuous emission spectrum, may not be selectively filtered in this way, and this is a major consideration against their usefulness for optical communications.

The best type of filter presently available for this is the optical interference filter. The simplest transmissive interference filters consist of a transparent film of calibrated thickness coated on each side with a semi-reflecting metallic film. Maximum transmission occurs at the wavelength for which the optical thickness is an integer multiple of half-wavelengths.

Single or multiplier filters of this type are obtainable, covering any wavelength required between 2000 Angstroms and 200,000 Angstroms. Transmissions of 90 per cent are attainable, with spectral bandwidths as narrow as 10 Angstroms in the visible region. They can be made to order by:

Spectrolab,
12484 Gladstone,
Sylmor,
California (USA).

The use of long (IR) wavelengths to some extent alleviates scattering problems as the wavelength becomes larger than the scattering particles.

The scattered light of the sky is partially polarised, so that polaroid filters may be experimentally positioned at the receiver to remove this component of the scattered light.

4. SYSTEM OPTICS FOR ATMOSPHERIC PROPAGATION

The lenses and mirrors used for transmission and reception in optical communications are analogous to the antennae used in radio communication.

Ideally, the transmitted light beam should fall completely within the aperture of the receiver. This can't be achieved economically except over short ranges, but the effects of the inverse square law can be offset quite effectively by optical means. The accompanying graph (Fig. 7) shows the loss between two optical systems of equal diameter and aperture "a". The loss is seen to be kept low out to a distance "R" between the systems, of the order of a/θ, where θ is the divergence angle of the transmitted beam. For $\theta = 10^{-4}$ radian and a = 1 metre, R approx. = 10 km. Since the beam focussing achieveable depends, owing to diffraction effects, on the wavelength of radiation and the aperture of the transmitting system, as θ approx. = wavelength/a, another way of expressing the distance for low loss is:

$$R = \frac{a^2}{\text{wavelength}}$$

Special requirements of the optics used for communications systems are as follows:

A. RECEIVER

(i) Must have maximum aperture to capture greatest number of photons from transmitter.

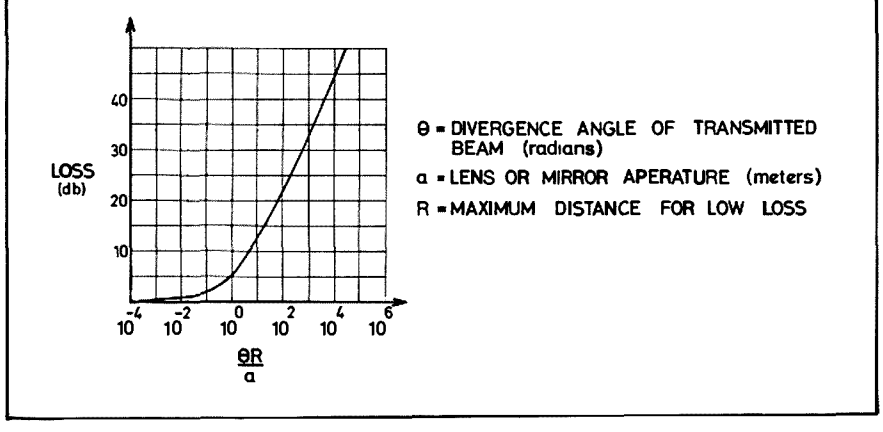

FIG. 7: Transmission loss between two telescopes of equal aperture

(ii) Must have high directivity (i.e. resolution) to discriminate against light from extraneous sources. This is achieved by using a lens or mirror of long focal length and high optical quality; and a focal plane stop as small as possible consistent with the demands of avoiding diffraction effects, to cut out all parts of the image except that of the transmitting end of the system. The focal plane aperture should also allow for the acceptance of any light from the transmitter around the principal image which results from lens aberrations. A large aperture lens is essential for good resolution. Chromatic aberration is not a problem with the optics of most light beam links, as they are only required to operate over a narrow band of optical frequencies.

Some local optical firms sell 5 inch double-convex magnifying glasses which are mass produced in Japan for about $5 each, and while their optical quality isn't spectacular, they're quite useable for optical communication.

For highest efficiency, the lenses should be coated to reduce internal reflections, though this isn't essential.

Focal length and therefore f/D is not an important consideration in the receiver optics. For a given diameter, a lens will collect the same number of photons no matter what its focal length might be, though long focal length lenses have the advantage of being thinner, and therefore the image becomes less subject to absorption within the lens, as well as chromatice and spherical aberration.

B. TRANSMITTER

For the transmitting end of the link, we want the diameter of the collimating optics to subtend the largest angle possible around the light source, to ensure the maximum radiation of energy.. Directivity is not a critical consideration, and the beam may disperse a little to allow for bending by atmospheric refraction fluctuations. The smallest "f/D ratio" possible is desirable, so that parabolic reflectors, rather than lenses, would seem to be the most suitable choice.

Larger diameter optics are desirable for a number of reasons. Consider the transmitting case, with a light source at the principal focus of two mirrors of equal "f/D ratio" but different diameter. "f/D ratio" is equal to the mirror focal length divided by its diameter, for most practical purposes (i.e. f/D ratio).

Since the mirrors have equal "f/D ratio", both will intercept the same angular cone of light from the source, regardless of diameter. Both will receive the same number of photons per second from the source, despite their differing surface areas.

Since their "f/D ratios" are equal, the large diameter mirror will have a longer focal length than the small diameter mirror. Image size is inversely proportional to focal length, so that the large diameter mirror will give the smaller image, since it has the longer focal length.

Both mirrors are concentrating the same number of photons per second, but since the larger mirror concentrates the image into a smaller area, the large mirror will give the most intense image.

BUT the problem is not as simple as it might seem, because other factors come into consideration, particularly at short focal lengths. When this becomes shorter than mirror diameter, the desired contour of the mirror for maximum received intensity changes, and must be mathematically re-designed to fit different contour functions according to which annulus of the mirror is being considered. Other factors to be considered in this horrifyingly complex mathematical situation include the area of mirror made ineffective by being blocked by the light source, value of finite distance to image and convergence angles from the mirror edges, and a host of other problems.

To cap everything off, "f/D ratio" for mirrors is defined slightly differently than it is for lenses, to allow for the case where the source is physically inside the volume of the convex surface, which occurs for extremely large curvature, short focal length mirrors.

The only rule of thumb which can be given because of these complex factors is that one should tend towards using a mirror of large diameter and not too great effective focal length. At a rough estimate, a focal length approximately the same as the mirror radius would appear to be a useable choice (i.e. f/D = .5).

Large diameter optics are also desirable for maximising the cross-sectional area of the imaginary coupling cone between the transmitting mirror and receiving lens, to average out disruptions which can be caused by raindrops falling through the beam, or birds and insects which may fly through it. A thin beam, such as that coming directly from a laser cavity, could be completely disrupted by a very small obstacle.

LIGHT DETECTORS SUITABLE FOR OPTICAL COMMUNICATIONS SYSTEMS

In choosing the light detection device for a communication system, we must first decide on the frequency of operation. The use of infra-red light, with its fog penetrating properties and large number of available photons per watt would seem a desirable expedient. But detectors which are sensitive to infra-red light are sensitive to heat, requiring expensive and bulky cooling systems to realise maximum sensitivity. The difficulties of focussing and aligning a beam of light which the eye can't see also offers inducement to move up to the visible spectrum, between 4000 and 7000 Angstroms.

Despite recent advances in semiconductor light detection technology, the photomultiplier tube remains the most suitable device for the detection of weak visible light signals a troom temperature. It is particularly useful at the violet end of the spectrum, between 3500 and 5000 Angstroms.

While the silicon avalanche photodiode and the cadmium sulfide photoconductive cell both have higher quantum efficiency in the visible spectrum than the photomultiplier, internal noise and dark current at room temperatures outweighs this attractive feature.

These limitations of the available detection devices, together with the difficulties encountered in detector refrigeration (e.g., window frosting, condensation, potential cracking of the glass envelope) all augurs towards the use of optical communication systems in the 4000 to 5000 Angstrom region, at least for the amateur.

Suitable modulated light sources in this region of the spectrum include the mercury arc lamp, and the argon laser (4880 Angstroms).

Even though photomultipliers require a 1000 volt power supply, their associated circuitry is very simple, their internal gain very high (typically 5 x 10^6), and their output large. Response speeds reach about 50 MHz on standard designs, and may extend into the GHz region with special design.

Photomultipliers are sold with a range of different photosensitive surface materials, capable of giving responses of peak quantum efficiency in various areas of the visible spectrum. Typical photocathode surfaces suitable for use in the 4000 to 5000 Angstrom region may have peak quantum efficiencies of 25 per cent (see Fig. 8).

This is the number of photoelectrons emitted from the photocathode per incident photon, expressed as a percentage.

Like most photosensitive devices, some cooling of the device is advantageous, though not obligatory. Variation of photomultiplier dark current with temperature for various photocathode substances is shown in the attached graph (Fig. 9). Significant reductions in internal noise may be made by cooling to the temperature of dry ice. Below —40°C little improvement can be attained.

GAS DISCHARGE LAMPS FOR OPTICAL COMMUNICATIONS

The five most common commercially available gas-discharge lamps used for continuous illumination are based on:

1. Fluorescent systems
2. Neon gas
3. Xenon gas
4. Sodium vapour
5. Mercury vapour.

Except for short-range work, fluorescent and neon lamps may be discounted owing to the difficulty of colfimating the light from these sources of large area and low intensity. The neon lamp's total light output in commercially available versions is very limited; and the fluorescent lamp's high frequency response is limited by the persistence of glow In the phosphor coating.

An understanding of the atomic processes involved in gaseous discharge is essential to ta discussion of the relative merits of sodium and mercury lamps.

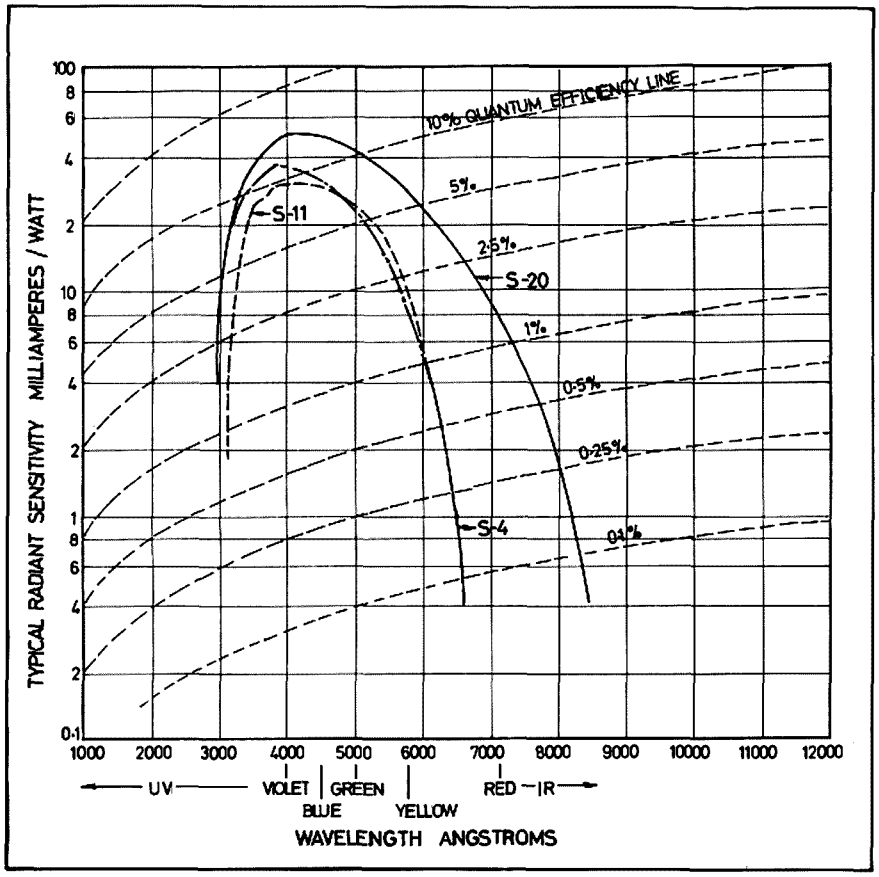

FIGURE 8

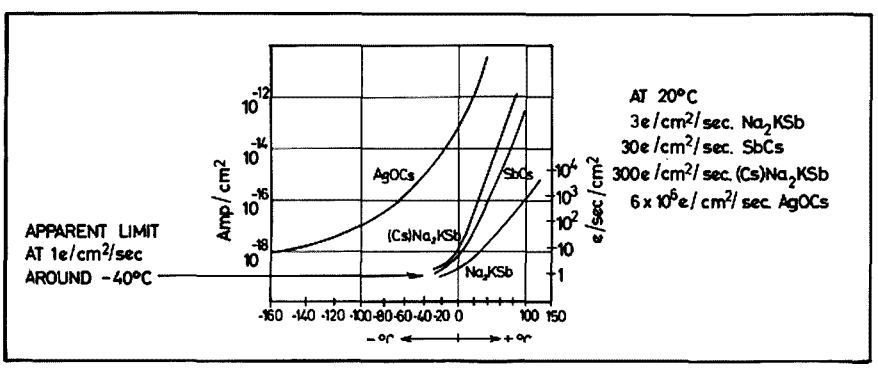

FIGURE 9

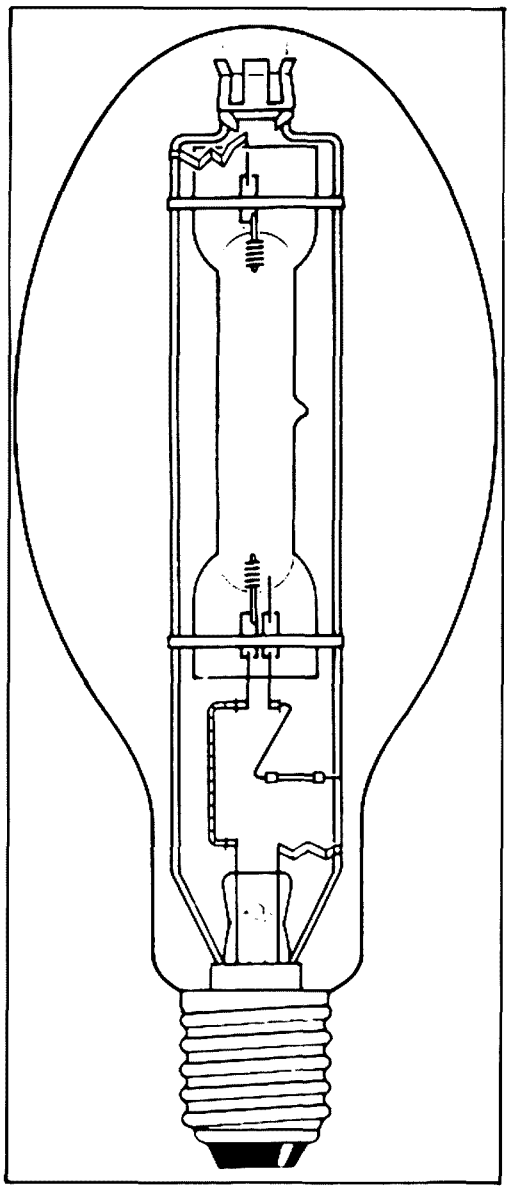

FIG. 10: Super-high pressure mercury lamp showing internal phial containing quartz arc tube.

Light particles or "photons" are absorbed by an atom when the outer electrons of the atom move to an orbit slightly further from the atomic nucleus. The electron may have moved from its unexcited position, known as the ground state; or if previously excited, may move to a larger "permitted" shell. The amount the electron moves is dependent on two factors:

1. The amount of energy absorbed. Photons of high energy will cause a large movement. As photon energy is proportional to frequency, blue light will cause a larger electron displacement than red light.
2. The electron is only capable of moving to certain "permitted" shells within a specified atom. Only the photons of energy equal to the permitted energy level jumps will be absorbed, therefore only light of certain frequencies will be absorbed. This results in the existence of an absorption spectrum which is unique for every substance.

Conversely, if an electron loses energy by falling to a lower energy level closer to the atomic nucleus, this energy loss is emitted in the form of a photon. As with absorption, the light emitted by each substance will occur in a series of frequencies equivalent to the permitted energy level jumps for that substance. Hence we have an emission spectrum.

An electron's transition from a given energy level to ground state produces the "resonance line" emission of the particular substance involved. At this resonance frequency, the gas is capable of selectivity re-absorbing its light output, converting it into transitions between higher energy levels, giving output at lower frequencies. Selective absorption increases with the pressure of the gas in the discharge, so that to promote the emission of the resonance frequencies, the gas must be kept at low pressure. The resonance line is also suppressed at higher discharge current

densities, as the atoms may be excited to higher energy levels before falling back to the ground state by successive excitation of incident electrons. Alternatively, the atom may transfer its energy to an electron without emitting a photon at all.

Therefore, with a sodium vapour discharge, where the resonance lines fall within the visible spectrum at 5890 and 5896 Angstroms, most efficient light outputs are achieved at low gas pressures and low current densities. For this reason, sodium vapour lamps are of low intensity and large source area to give a reasonable light output. So they are not suited to optical communications.

A superior alternative is the super-high pressure mercury lamp. Mercury's resonance lines are at 1850 and 2537 Angstroms in the ultraviolet, so that for visual output, the higher energy level transitions at 4047, 4358, 5461 and 5780 Angstroms are promoted by the use of a discharge at high pressure and high current density resulting in an intense small source area well suited to optical communications (see Fig. 11).

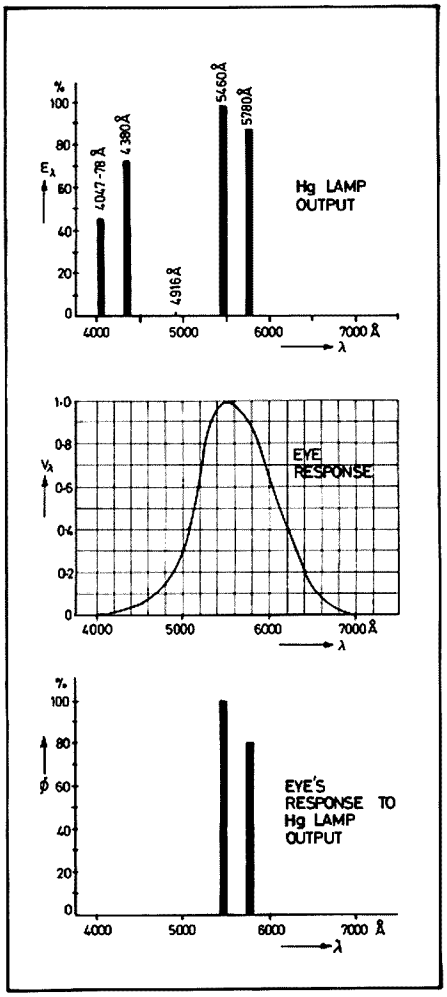

FIGURE 11

In commercially available high pressure mercury lamps the discharge is maintained within a small quartz phial (see Fig. 10). This is usually surrounded by a much larger diffusing bulb sometimes coated with a fluorescent substance to make use of the residual ultraviolet output. For use in optical communication systems the quartz phial must be removed by smashing the outer diffusing bulb, and re-mounting it inside a small clear-walled glass container. This should be done with great care, and on no account should the quartz arc be operated without an outer protective glass vessel. The arc emits a very large amount of harmful ultra-violet radiation, which can penetrate the quartz bulb, but which is absorbed by glass.

The mercury discharge strikes at about 180 volts with a light blue glow filling the entire bulb at first, then narrowing to a thin blue-green arc of high intensity as the quartz bulb warms up and the mercury pressure increases through conversion to vapour by the heat of the arc. It generally takes about 15 minutes for the lamp to reach its final intensity. In that condition, the arc can be modulated up to about 20 or 30 kHz.

A disadvantage of this type of light source is that after it has warmed up, its striking voltage increases to such an extent that it is impossible to restrike if it happens to go out on a modulation peak, unless it is left to cool for a few minutes.

The use of a feedback circuit and a negative peak clipper in the modulator is suggested, to ensure that the arc is never completely extinguished by modulation peaks. Non-linearity of modulation may be corrected by positioning a photodiode near the arc, and connecting it to the modulator in a negative feedback loop.

The mercury lamp used must be derated to run in AM service with DC bias. To run at a continuous 30 watt output, for instance, a 60 watt lamp rating is required, to take care of peak power output under fully modulated conditions.

Another factor to be taken into account in the derating requirements is that most electrode heating is at the cathode end of the tube, owing to ionic bombardment. With AC operation, where the cathode is effectively switching rapidly from one end of the tube to the other, the heating effects are shared between the two electrodes. With DC operation, most of the heating effect takes place at one end of the tube, increasing the dissipation requirements over that for AC operation.

Arc polarity should be reversed from time to time to prevent the excessive ion bombardment of one electrode. To overcome this problem, RF bias could be tried.

The modulator should include some method of controlling the DC bias current through the arc, and metering to measure arc voltage and current, as these parameters drift considerably with changes of ambient temperature and modulation conditions. If arc current is not monitored, it could drift upwards beyond the dissipation ratings of the lamp and the modulator tubes.

THE PHOTOPHONE — 1881 — AN EARLY EXPERIMENT

With such an arrangement of apparatus speech has been conveyed beyond ordinary speaking distances, and Bell explained to the members of the American Association for the Advancement of Science at Boston how Tainter and he had made a successful experiment over a distance of about 700 feet. It was in Washington, and Mr. Tainter worked the transmitting instrument on the top of the Franklin school-house, while Bell was at his laboratory in 1325 L. Street with the sensitive receiver arranged in one of the windows. While his friend was at work at the distant school-house, Bell applied the telephone to his ear, and heard distinctly from the illuminated receiver the words — "Mr. Bell, if you hear what I say, come to the window and wave your hat." In relating this incident subsequently to an English audience, Professor Bell remarked that he need hardly say with what gusto he rushed to the window and made the required signal.

Assuming that the beam angles are very much smaller than the angle between the beam and the line joining the two sites, and considering the simple tangent case where the transmitted and received beams are tangent to the earth and the scattering medium is conveniently at the beam intersection, then the minimum height of the cloud must be:

$$H\,min = Re\left(\frac{1}{\cos\theta} - 1\right)$$

where Re is the radius of curvature of the earth. For small θ this equation is

$$H\,min = Re\frac{\theta^2}{2}$$

If the scattering medium is less than H min it will be below the horizon for both receiver and transmitter. A longer value of H min means a decreased scattered intensity.

Energy level diagrams of sodium and mercury. The thickness of the lines indicates the visibility of the radiation. Invisible (ultra-violet or infra-red) radiation is shown by dotted lines. Vi is the ionisation voltage. In the case of sodium the visible light is produced mainly by the resonance lines (5890 96A); the higher level transitions are chiefly in the infra-red zone. The visible light produced by mercury is in the main due to the higher transitions (chiefly 5461 and 5791 A); the resonance lines (1850 and 2537 A) are ultra-violet.

Distribution of relative spectral energy and luminous flux of an HP 125W super high pressure mercury lamp in the visible zone. In the distribution of the energy, as in that of the luminous flux, the value of the strongest line is arbitrarily taken to be 100.

CONCLUSIONS

For amateur use, optical communication offers a cheap alternative to microwave systems for point-to-point communication.

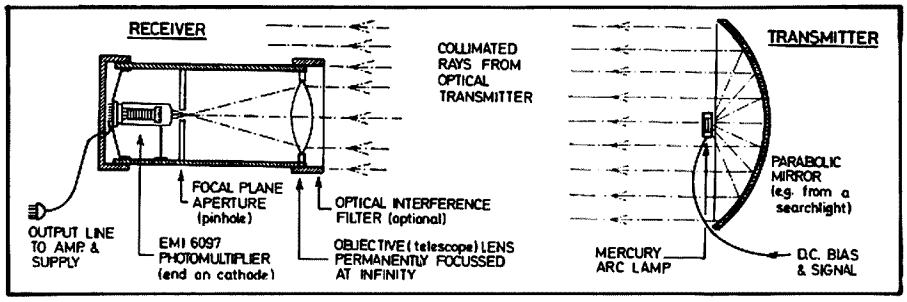

FIG. 12: Optical system for modulated visual light communication

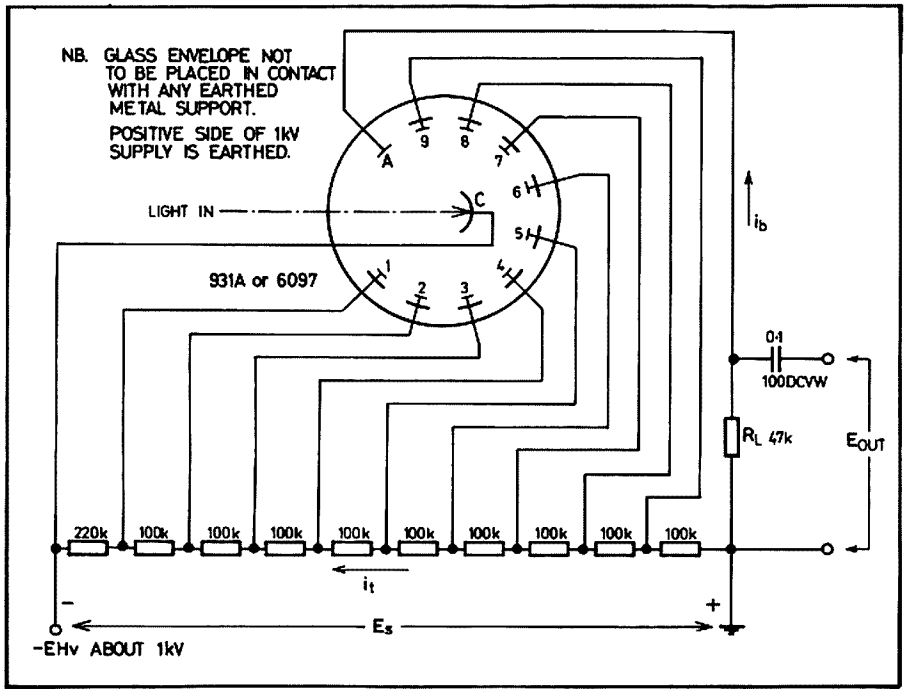

FIG. 13: Photomultiplier Circuit

It can also be used for omni-directional transmission over short distances.

Simpler transmission systems, requiring less than, say, 50 kHz bandwidth, may use any readily modulated light source. Short range systems may employ light emitting diode sources which, except for the green phosphor-activated type, have a linear modulation characteristic, and are readily internally modulated at low voltages. Long range systems could use modulated high intensity gas discharge lamps, carbon arcs, gas lasers or solid state lasers. A coherent (i.e. laser) light source is not mandatory ,and may prove to be economically unjustified where bandwidth and background radiation are not critical considerations.

Optical communication ranges through the atmosphere can extend to over 100 miles and may be stretched beyond the horizon by the use of cloud scatter in favourable conditions. There has been little quantitative experimentation over these distances, despite the relative ease with which they can be achieved.

The system outlined here, using modulation of the power supply to a mercury arc, and a 6097 photomultiplier receiver, is only one of many alternative schemes for use at visual frequencies. Its effectiveness, in spite of its simplicity, indicates that the time is ripe for a substantial upsurge in amateur interest in such systems (see Figs. 12 and 13).

LEGALITY OF OPTICAL COMMUNICATION EXPERIMENTS IN AUSTRALIA

While this article was being written, I approached the Regulatory and Licensing Section of the Postal and Telecommunications Department, and made enquiries regarding the licensing of the system outlined here. Mr. Ditchburn of the Victorian

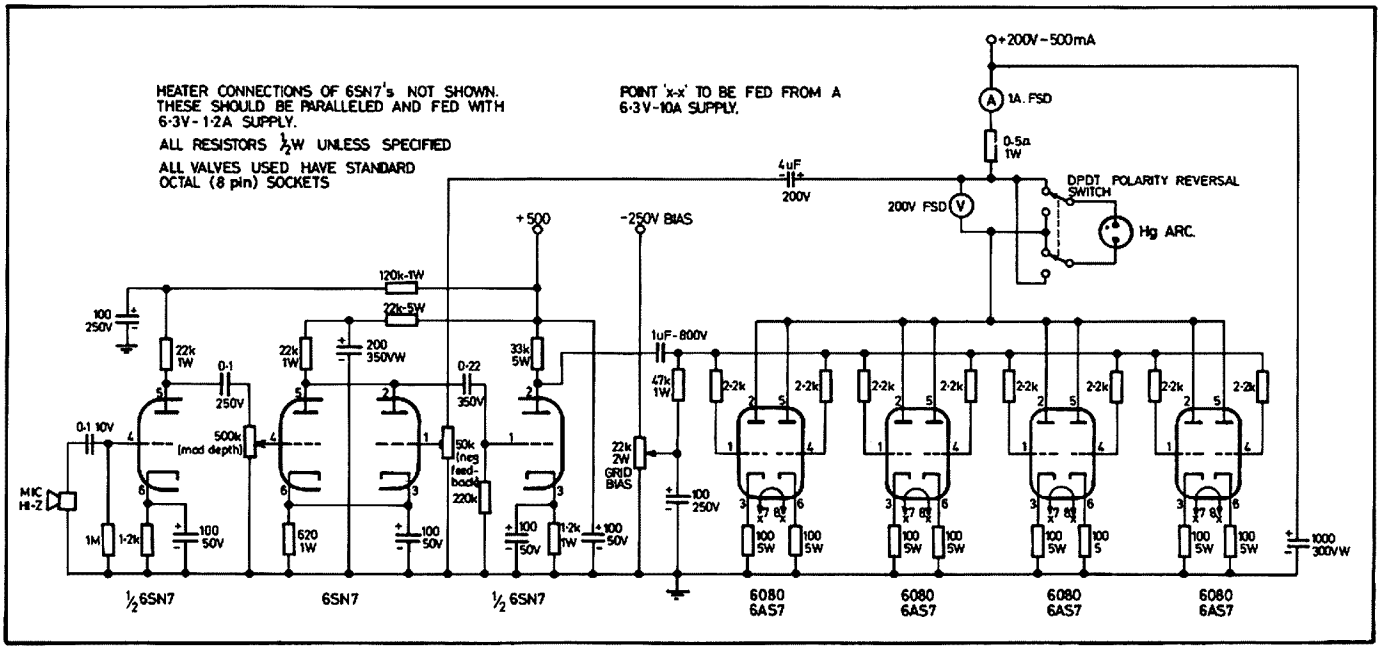

FIG. 13 'A': Arc modulator

branch assured me that while there is no licence covering such equipment, permits are available for such devices under the terms of the Wireless Telegraphy Act at no charge to the applicant. I have been given the verbal assurance that while my written application is being processed, I may proceed with my present experiments without fear of legal action. An amateur radio licence is not required in addition to the permit.

Chris has now received from the P. and T. an official permit to experiment in this system. —Ed.)

ACKNOWLEDGEMENTS

— Assistance with field tests and equipment, courtesy John Eggington VK3ZGJ.
— Assistance with research on optics, courtesy R. A. J. Reynolds VK3AAR.
— Graph of response curves of photodiodes, courtesy of Proceedings of IEEE, October 1970.
— Graphs of photomultiplier response curves and noise dependance on temperature, courtesy EMI Photomultiplier Applications Manual and HTV Photosensitive Devices Catalogue.

SUGGESTED READING

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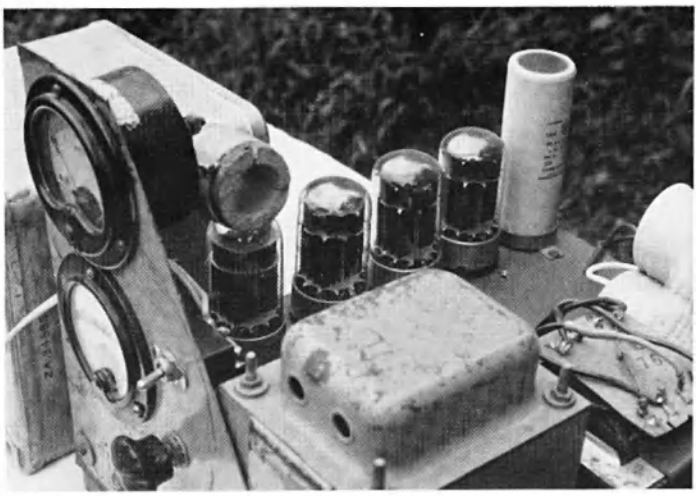
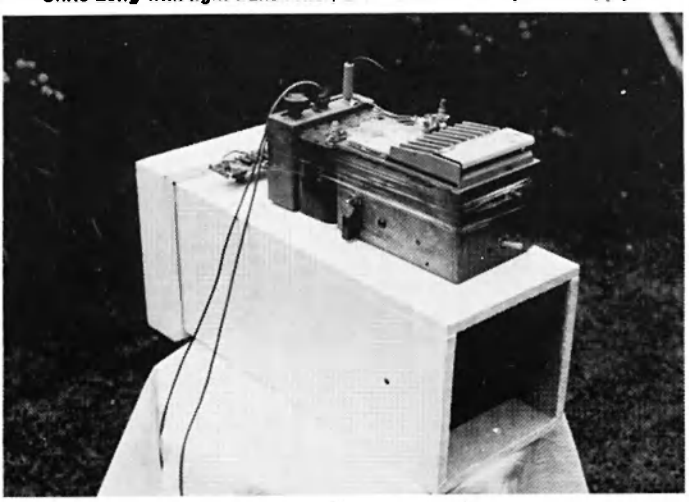
— RCA Photomultiplier Manual.
— A Review of Operational Laser Communication Systems, by F. E. Goodwin. Proceedings of the IEEE, vol. 58, pp. 1746-1752. October 1970.
— Modulators for Optical Communication, by Fang-Shang Chen. Proceedings of the IEEE, vol. 58, pp. 1440-1457. October 1970.
— Photodetectors for Optical Communication Systems, by Melchior, Fisher and Arams. Proceedings of the IEEE, vol. 58, pp. 1466-1486. October 1970.
— Modulated Light Communication, by K. Burlinson. Australian EEB, Aug. '68, Feb. '70, Aug./Oct. '72, Dec. '72.

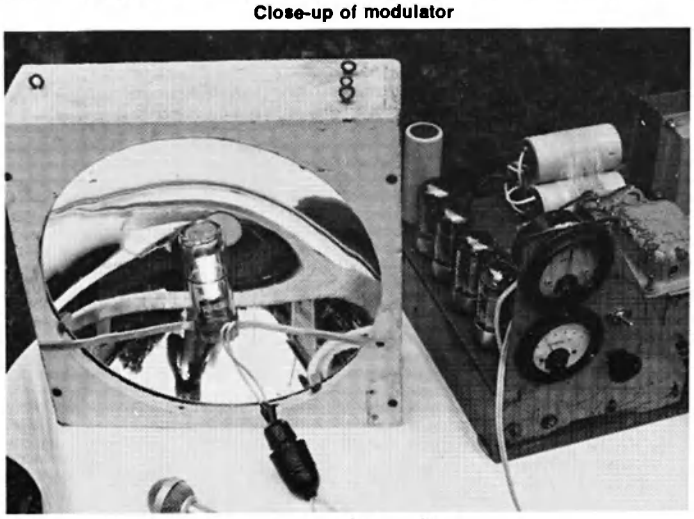
Chris Long with light transmitter, arc modulator and power supply.



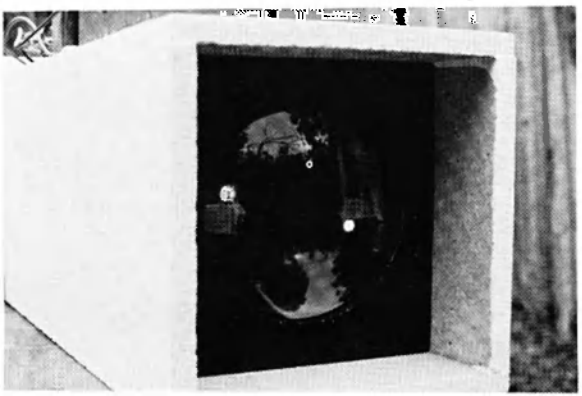
Close-up of modulator



Receiver with power supply



Close-up of transmitter



Photomultiplier receiver

Photographs for AR DON'T KEEP THEM TO YOURSELF Send them in — NOW

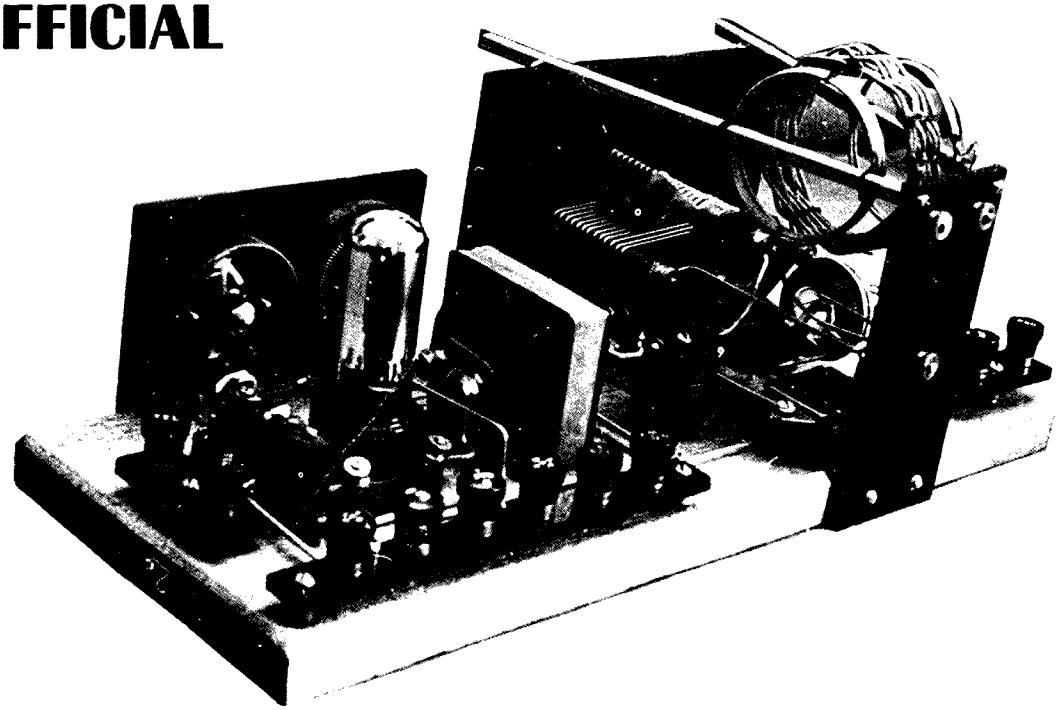
UNFINANCIALS — REMINDER

Next month's AR is your last issue unless you pay your 1979 subscription promptly. This could include new members from last year owing an amount to render them financial to 31.12.1979.

SOME UNOFFICIAL HAM HISTORY

Geoff Thompson VK3AC
78 Illawarra Road, Hawthorn 3122.

Recently Group Captain E. R. (Bon)Hall, formerly the OC of the RAAF School of Radio, published his well researched book covering a history of RAAF Radio "A Saga of Achievement". The book brought to mind those early days of ham radio when a zealous bureaucrat said "Put them (the hams) below 200 metres — they won't be able to get out over the back fence down there". Of course we all know what happened when the hams lost the LF and MF parts of the spectrum. They were forced as a result into unknown territory where they pioneered DX communication and as a result commercial interests were quick to see the value of the HF spectrum.



The replica of the two valve "low loss" receiver built by Gil Miles in 1924 and which is now a part of the historical radio section at Melbourne's Science Museum.

The receiver used "air-wound" coils, employed a regenerative detector and a transformer coupled audio stage using a UV199 valve. The base was removed from the detector valve to reduce losses.

The simple little receiver started the RAAF with the use of the HF frequencies at a time when they were thought to be almost useless. Hams knew differently and as a result of their experimentation, commercial interests were quick to follow in the hams' foosteps.

What has all this to do with Bon's book? Well the Science Museum of Victoria has on permanent display an early two valve "low loss" HF receiver which is an exact replica of one built by Gil Miles VK2KI in 1924. Gil was originally licensed as a ham in 1919. When he retired from the Radiophysics Division of the CSIRO, Gil went on the air again under his present call. In those early days of radio, Gil was a keen ham and when he joined the RAAF as an Aircraftsman Engine Fitter, his ham radio experience was to prove history making. Gil's OC of No. 1 Squadron was Flt. Lt. Arthur Cobby, who was later to earn many decorations in the Second World War and who became an Air Commodore. Gil had heard the MacMillen expedition in the Arctic on his two valve receiver and mentioned it to Cobby. The expedition ship the "Bowden" was located off Greenland and an American ham, Don Mix W2TS, using the call WNP, was communicating regularly with hams at home and elsewhere. Cobby was a little dubious about Gil's claims so the little receiver was set up in his quarters at Point Cook and that evening Gil was able to receive WNP and copy the text of the material being transmitted by the expedition.

The unofficial historical moment had now arrived when Cobby asked Gil what it would cost to set up a transmitter which could communicate with the RAF in Britain. Gill said he could produce the transmitter for about £80. Cobby then transferred Gil to the Squadron's wireless section and with the assistance of Flt. Sgt. Barfield, the equipment was soon in operation and contact was made with the RAF. It was a year later that the RAAF commenced using the HF part of the spectrum with a receiver which was a replica of the little two valve job Gil had demonstrated to Cobby. Cobby, possibly because of reasons of protocol, never claimed the credit for that historical event, but for Gil it got for him a whole string of flying experiences.

As an engine fitter, plus radio experience and a knowledge of morse, he was the one who had most of the opportunities on various flights in machines which could only carry one passenger. Needless to say, this aroused a certain amount of jealousy. This prduced one humorous episode In which Gil turned the tables. The RAAF, using two seaplanes, made an island hopping flight across Bass Strait to Tasmania during the survey of a proposed air mail route. Gil flew in one of the sea planes. Signals from Point Cook were last heard as the planes passed across Mornington. Gil couldn't raise the base at all after that but resourcefully he shifted to 600 metres where the obliging operator at VIM in the Domain, took his messages on the quarter hour and relayed them to the Navy Office a short distance away from the Domain station. Then when the VIM op. became busy he suggested to Gil that he call Flinders Island Radio VIL and he would no doubt be able to carry on handling the quarter hourly report from the seaplanes. This worked out well and all messages reached HQ. On the return journey signals from Base suddenly appeared again as they passed over Mornington. Was it gremlins, or was it that old green eyed monster? Hi.

There are many old-timers around with similar stories to tell about the contribution made by hams in the early days of radio. Perhaps some of them might be drawn out so that their experiences could be placed on record. Someone once said years ago "many a ham, after developing some improvement on his little rig at home, has gone to work next day and modified a high powered multi kilowatt commercial transmitter as a result". Maybe those days have now gone, but behind the scenes still, hams with their innovative approach to electronics are still making valuable contributions behind the scene.

If you know of similar stories to the one I have related, they should at this time be recorded because in some quarters ham radio is considered to be simply a fun thing without much to support its existence. We all know differently, but if we don't publish, how will the bureaucrats know. ■

OSCAR 8 READY-RECKONER

Ian O'Toole VK2ZIO
22 Leysdown Ave., North Rocks, NSW 2151

The recent launch of Oscar 8 has now enabled low power stations to make use of Mode A. Perhaps the most difficult problem in working Oscar is to know when to listen. Many articles have been published in this magazine describing appropriate formulae and methods. The actual process of working out pass times is not difficult, but it certainly is tedious.

You don't need a digital system driven by electromotive force and a floppy disc, the digit (fingerstrong method) driven by your own energy perhaps supported by a floppy wrist is really all that is required.

With in excess of 2,500 possible combinations of bearings and times to be encountered on the first GMT equator crossing of the day, some rationalizing of method is desirable.

The proposed system, through the use of tables, enables the raw data, as supplied by AR, to be quickly converted to meaningful data, allowing you to decide on the usefulness of the orbit, as well as providing the acquisition time in your local time.

It is proposed to work an example through as the tables are introduced.

RAW DATA:

Amateur Radio, May 1978, Page 30, Oscar 8 Information Supplied:

Orbit	Date	Time Z (GMT	Long (deg. W)
1023	18	0111	59.9

The orbit number and date are not required for our purposes here, the important data is the time and longitude.

Work through the longitude table first. From this you can determine if it is worthwhile trying to use the sattelite. The table gives longitudinal crossings (also called ascending nodes) for the evening orbits of interest, numbers 5, 6, 7 and 8 of the GMT day.

USING TABLE 1

With supplied longitude of 59.9 deg., look up 60 degrees along the top of the columns. A first time crossing of 60 degrees results in the following later longitudes (go down the column), orbit 5 163 deg., orbit 6 189 deg., orbit 7 215 deg. and orbit 8 241 deg.

The easiest orbit to work is the one directly overhead. Check the next set of figures to see if any of the selected orbits would show promise.

If you are trying Oscar 8 for the first time, try an orbit that does not deviate more than 10 degrees from overhead. You should have no problem putting a signal into the satellite. Hence, orbit 6, 189 degrees, should be useful in Sydney, Melbourne, Hobart and Brisbane, while it would not be regarded as "good" in

TABLE 1: PREDICTED LONGITUDES OF EVENING ORBITS OSCAR 8
LONGITUDE OF FIRST CROSSING OF GMT DAY

Orbit No.	(°) 42	43	44	45	46	47	48	49	50	51	52	53	54	55
5	146	147	148	149	150	151	152	153	154	155	156	157	158	159
6	171	172	173	174	175	176	177	178	179	180	181	182	183	184
7	197	198	199	200	201	202	203	204	205	206	207	208	209	210
8	223	224	225	226	227	228	229	230	231	232	233	234	235	236

LONGITUDE OF FIRST CROSSING OF GMT DAY

Orbit No.	(°) 56	57	58	59	60	61	62	63	64	65	66	67	68
5	159	160	161	162	163	164	165	166	167	168	169	170	171
6	185	186	187	188	189	190	191	192	193	194	195	196	197
7	211	212	213	214	215	216	217	218	219	220	221	222	223
8	237	238	239	240	241	242	243	244	245	246	247	248	249

ASCENDING NODES GIVING APPROXIMATE OVERHEAD PASSES IN CAPITAL CITIES (in degrees)

Sydney	Melbourne	Adelaide	Hobart	Perth	Brisbane
86	192	198	190	220	183

TABLE 2: FIRST GMT DAY CROSSING TIMES AND CROSSING TIMES FOR EVENING ORBITS AT THE EQUATOR (EXPRESSED IN MINUTES GMT)

Orbit No.	0000	0001	0002	0003	0004	0005	0006	0007	0008	0009	0010	0011	0012
5	413	414	415	416	417	418	419	420	421	422	423	424	425
6	516	517	518	519	520	521	522	523	524	525	526	527	528
7	619	620	621	622	623	624	625	626	627	628	629	630	631
8	723	724	725	726	727	728	729	730	731	732	733	734	735

MINUTES GMT

Orbit No.	0013	0014	0015	0016	0017	0018	0019	0020	0021	0022	0023	0024	0025
5	426	427	428	429	430	431	432	433	434	435	436	437	438
6	529	530	531	532	533	534	535	536	537	538	539	540	541
7	632	633	634	635	636	637	638	639	640	641	642	643	644
8	736	737	738	739	740	741	742	743	744	745	746	747	748

MINUTES GMT

Orbit No.	0026	0027	0028	0029	0030	0031	0032	0033	0034	0035	0036	0037	0038
5	439	440	441	442	443	444	445	446	447	448	449	450	451
6	542	543	544	545	546	547	548	549	550	551	552	553	554
7	646	647	648	649	650	651	652	653	654	656	657	658	659
8	749	750	751	752	753	754	755	756	757	758	759	760	761

MINUTES GMT

Orbit No.	0039	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	0050	0051
5	542	453	454	455	456	457	458	459	460	461	462	463	464
6	555	556	557	558	559	560	561	562	563	564	565	566	567
7	658	659	660	661	662	663	664	665	666	667	668	669	670
8	762	763	764	765	766	767	768	769	770	771	772	773	774

Orbit No.	MINUTES GMT												
	0052	0053	0054	0055	0056	0057	0058	0059	0100	0101	0102	0103	0104
5	465	466	467	468	469	470	471	472	473	474	475	476	477
6	568	569	570	571	572	573	574	575	576	577	578	579	580
7	671	672	673	674	675	676	677	678	679	680	681	682	683
8	775	776	777	778	779	780	781	782	783	784	785	786	787

Orbit No.	HOURS AND MINUTES GMT												
	0105	0106	0107	0108	0109	0110	0111	0112	0113	0114	0115	0116	0117
5	478	479	480	481	482	483	484	485	486	487	488	489	490
6	581	582	583	584	585	586	587	588	589	590	591	592	593
7	684	685	686	687	688	689	690	691	692	693	694	695	696
8	788	789	790	791	792	793	794	795	796	797	798	799	800

Orbit No.	HOURS AND MINUTES GMT												
	0118	0119	0120	0121	0122	0123	0124	0125	0126	0127	0128	0129	0130
5	491	492	493	494	495	496	497	498	499	500	501	502	503
6	594	595	596	597	598	599	600	601	602	603	604	605	606
7	697	698	699	700	701	702	703	704	705	706	707	708	709
8	801	802	803	804	805	806	807	808	809	810	811	812	813

Orbit No.	HOURS AND MINUTES GMT												
	0131	0132	0133	0134	0135	0136	0137	0138	0139	0140	0141	0142	0143
5	504	505	506	507	508	509	510	511	512	513	514	515	516
6	607	608	609	610	611	612	613	614	615	616	617	618	619
7	710	711	712	713	714	715	716	717	718	719	720	721	722
8	714	815	716	817	818	819	820	821	822	823	824	825	826

TABLE 3: CORRECTION TIMES TO BE ADDED TO TIME EXTRACTED FROM TABLE 2

(Adapted from Amateur Radio, October 1972 Insert)

Selected Orbit Bearing	Sydney	Melbourne	Adelaide	Hobart	Perth	Brisbane
155	90	—	—	87	—	90
160	88	88	—	87	—	90
165	87	87	90	85	—	88
170	87	87	88	85	—	88
175	87	85	87	83	—	87
180	85	85	87	83	—	87
185	85	85	87	83	—	87
190	85	83	87	83	90	87
195	85	83	85	81	88	87
200	85	83	85	81	88	85
205	85	83	85	81	87	85
210	83	83	83	81	87	85
215	83	83	83	81	87	85
220	83	83	83	81	85	87
225	83	81	83	81	85	87
230	83	81	83	80	85	87
235	83	81	83	80	85	—
240	—	81	83	80	85	—
245	—	81	83	80	85	—

Adelaide. Orbit 7, 215 degrees, would be reasonably close to an overhead pass in Perth. If you wish to study the positions of passes an dhow to interpret them, see the insert in AR for October 1972 and later articles.

Now you have established if a suitable orbit exists. If the orbits don't suit, try the above process on another night schedule. If you have found a suitable orbit, go back to the raw data and find the predicted time of the first equator crossing. Look at Table 2 until you find the crossing time, then look down the column until you find the time in GMT Minutes when your selected orbit crosses the equator. Using orbit 6, 189 degrees, by finding the column headed 0111 (the crossing time), look down to orbit 6 and you will find that 587 GMT minutes have elapsed since the satellite first crossed the equator after the beginning of the GMT day.

We now have to ADD a correction time to the 587 minutes, as the satellite has to travel over the North Pole, go down the opposite side of the earth to us and then approach us heading north west from the South Pole.

Use table 3 to find the number of minutes to be added on.

With an orbit 6 bearing of 189 degrees, if I was in Sydney, the amount of time to be added to 587 would be 85 approx. Hence the satellite should first be heard around 587 + 85 = 672 minutes GMT.

In Melbourne it should be heard 2 minutes earlier, i.e. 587 + 83 = 670.

The final step is to go to table 4, which converts the GMT minutes back to standard time. You will see that 672 GMT minutes is 9.12 EAST etc.

I hope the tables will give help to those who wanted to try the satellite, but were a little confused with working out acquisition times.

Remember, the satellite doesn't wait if you are running late. It is always better to be a few minutes early, just in case! See you on Oscar 8!

TABLE 4: TIME CONVERSION: GMT MINUTES TO AUSTRALIAN LOCAL

Minutes GMT	Eastern Standard	Eastern Daylight	SA/ NT	WA
480	6.00	7.00	5.30	4.00
490	6.10	7.10	5.40	4.10
500	6.20	7.20	5.50	4.20
510	6.30	7.30	6.00	4.30
520	6.40	7.40	6.10	4.40
530	6.50	7.50	6.20	4.50
540	7.00	8.00	6.30	5.00
550	7.10	8.10	6.40	5.10
560	7.20	8.20	6.50	5.20
570	7.30	8.30	7.00	5.30
580	7.40	8.40	7.10	5.40
590	7.50	8.50	7.20	5.50
600	8.00	9.00	7.30	6.00
610	8.10	9.10	7.40	6.10
620	8.20	9.20	7.50	6.20
630	8.30	9.30	8.00	6.30
640	8.40	9.40	8.10	6.40
650	8.50	9.50	8.20	6.50
660	9.00	10.00	8.30	7.00
670	9.10	10.10	8.40	7.10
680	9.20	10.20	8.50	7.20
690	9.30	10.30	9.00	7.30
700	9.40	10.40	9.10	7.40
710	9.50	10.50	9.20	7.50
720	10.00	11.00	9.30	8.00
730	10.30	11.10	9.40	8.10
740	10.20	11.20	9.50	8.20
750	10.30	11.30	10.00	8.30
760	10.40	11.40	10.10	8.40
770	10.50	11.50	10.20	8.50
780	11.00	12.00	10.30	9.00
790	11.10	12.10	10.40	9.10
800	11.20	12.20	10.50	9.20
810	11.30	12.30	11.00	9.30
820	11.40	12.40	11.10	9.40
830	11.50	12.50	11.20	9.50
840	12.00	1.00am	11.30	10.00

NOTE: The calculations are based on a satellite period of 103.232 minutes and a longitudinal increment of 25.81 degrees. ■

YAESU AMATEUR EQUIPMENT

1	SP-901	Extension Speaker for FT-901
2	FT-901DM	All HF Band Transceiver with Everything!!
3	FV-901DM	VFO with Scanner & memory for FT-901DM
4	FC-901	Antenna tuner for FT-901
5	FRG-7000	Full band HF Receiver with Digital Clock
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7	FT-301	All HF Band Transceiver
8	FT-301D	All HF Band Transceiver
9	FP-301D	25 amp 13.5V deluxe Power Supply with Digital Clock, Speaker & I. D. facility
10	YD-844A	Base Microphone
11	YP-150	Dummy Load
12	SP-101	Extension Speaker for FT-101E
13	FT-101E	HF Transceiver
14	YC-601B	Digital Counter for FT-101E
15	YC-500S	Frequency Counter
16	FT-227	2 metre FM Transceiver
17	FT-7	HF mobile Novice Transceiver
18	QTR-24	World Clock
19	YD-846	Mobile Microphone

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TASMANIAN AMATEUR RADIO CONVENTION, 1978

Story and photographs by —
Tom Moffat VK7TM
39 Pillinger Drive, Fern Tree, Tas. 7101

TARC '78 was held Hobart's College of Advanced Education over the weekend of November 4 and 5, after months of careful planning. In Tasmania the yearly conventions, or hamfests, are hosted by the three State branches of the WIA in rotation, the North, the Northwest, and then the South, so each branch organizes one every three years.

There's obviously a bit of competition among the branches to try to out-do each other, and the last one Hobart organised was a miserable flop.

Convention Committee Chairman Greg Noble VK7FT and his committee of nine were determined that this wasn't going to happen again, so they started planning seriously more than six months ago. The planned venue was changed several times because of space problems, so eventually it was decided to hold TARC 78 at the Mt. Nelson campus of the College, situated about 4 miles from the centre of Hobart.

There were a few problems to overcome, after all the place is a school and more or less open to the public.

But an area of the main administration block was set aside, which had plenty of display space, and also the advantage of a cafeteria nearby as well as a theatrette where children's films could be shown.

So the TCAE was a bit of an experiment, since most other hamfests had been held in country halls.

The whole experience turned out to be an eye opener.

As each amateur arrived he was greeted at the registration desk and given a beautifully produced convention program, with the front cover done on Viewgraph transparency material to resemble a PCB layout.

Past the registration desk the building is split up into various levels and areas, separated by stairways and railings; so the operating equipment was in one area, the static displays in another, kids creche in yet another.

The impact was one of modern, expensive, spaciousness. After all, the college cost several million dollars to build.

Most of the home brew equipment was displayed in tall perspex cases, which gave it protection from prying fingers.

A bit of a shame in a way, because home brew equipment should be seen to be working before it can be judged for quality.

There are lots of projects, as we all know, that look nice but don't work.

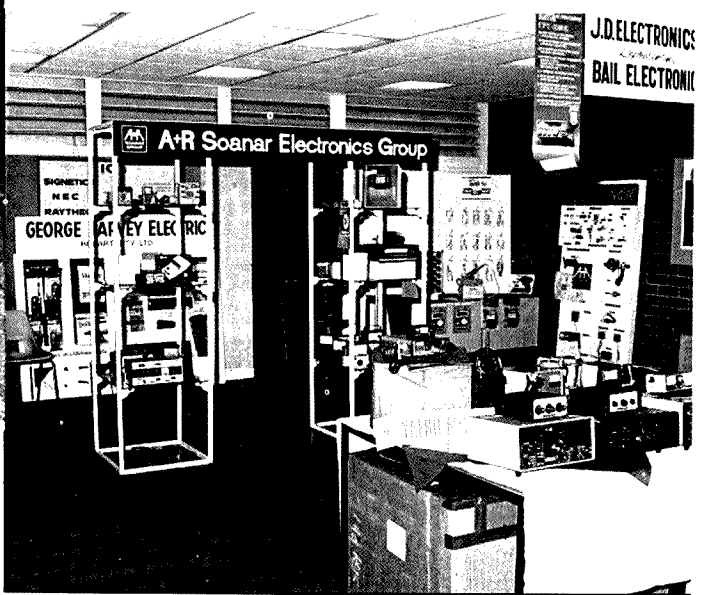
The convention station, AX7WI, was set up on two long tables, with all aerial cables carefully routed out of the building in such a way that no one would trip over them.

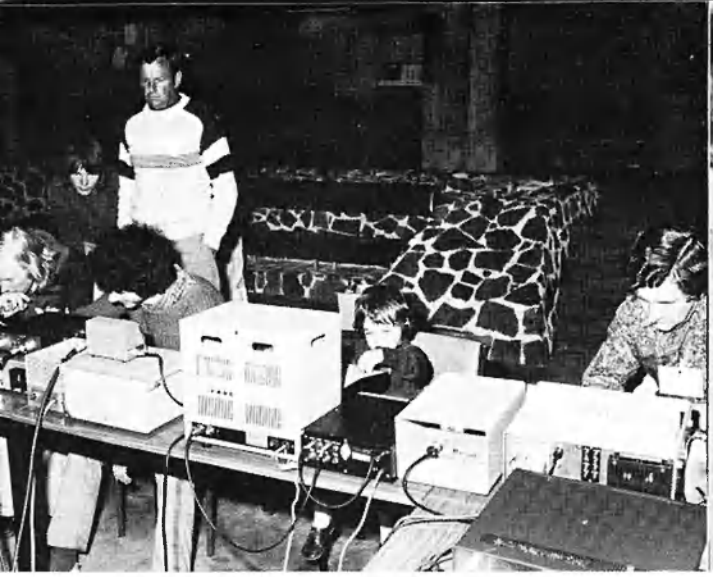
The station operated on most licensed frequencies, with some of the most modern gear.

One particularly striking feature was a commercial video display unit and RTTY/ Morse unit, a "glass teletype".

"Wag" Adeline and Terry VK7CT, both are very active in WIA affairs

Another nicely laid out commercial display area



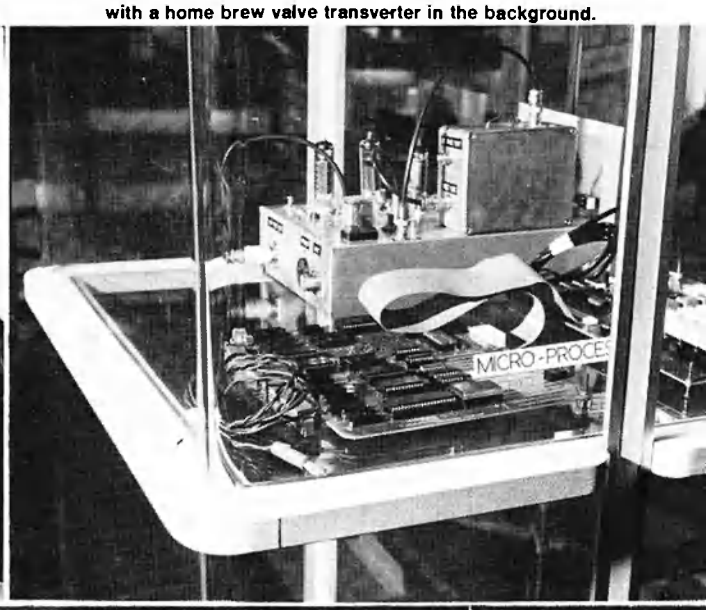


AX7WI. Operation goes on as the child in the centre discovers the joys of a video teleype terminal.

AX7WI in action. Graham VK7GD at the mic.

Greg VK7FT shows Mike VK7ZMK Convention programme. Michelle Burnett looks on. Over 800 people attended.

The old and the new. Home brew microprocessor with a home brew valve transverter in the background.



It was interesting to see it taking CW and displaying characters on the screen, although most of us were slightly ahead of it copying by ear (wishful thinking Tom—Ed.).

It had switchable speeds and shifts for teletype, so for several hours on Sunday it was left to copy test messages from Casey Base in Antarctica, just outside the 20 metre band.

The convention was a tremendous public relations coup for amateurs and the WIA.

It was open to the public on Saturday afternoon, and radio enthusiasts and CBers flooded through to be given the "soft sell" good word on becoming a licensed amateur.

Part of this may have been because of the publicity given to the convention in the local paper, and on ABC radio's "what's on" segment on the Saturday morning.

Harvey Skeggs VK7HK at Icom stand.

The whole works were capped off by a cabaret on Saturday night, said to be one of the best ever.

So perhaps TARC 78 was the start of the new breed of conventions, as opposed to "hamfests".

Not one word of criticism could be levelled at the organisers, it went like clockwork, everything worked as planned, and everyone went home happy.

But maybe now is the time to mourn the passing of the old-style "hamfest".

Gone this year was the rough-and-ready atmosphere of the country hall, the "hams" baskin gin the sun near the front door sipping beer as the kids played in the grass or on the beach.

The impromptu mini-conventions in caravans or on the tail gates of station wagons as participants argued over the niceties of aerial design or the best way to work DX.

Gone was being woken up in the mofning by a horse snorting through the open window of your caravan, or the fellow in the next van brushing his teeth in beer.

And gone was the big slap-up barbecue on Sunday afternoon, with hams, kids, wives, girlfriends, and dogs all gorging themselves on country sausages and steaks.

Gone were the fox hunts that finish up with the fox hiding in the ladies loo.

But maybe that's progress.

Perhaps the solution would be to have two get-togethers during the year, one a big glossy convention, open to the public, with the best equipment displayed, and every opportunity to freshen up one's knowledge on the state of the art.

And the other one, six months later, a good old country hamfest, just for the fun of it.

EDITOR'S NOTE:
It was also my own personal pleasure to have been able to attend the Tasmanian Amateur Radio Convention. — One point that Tom has perhaps overlooked in his report is the excellent co-operation and liaison that exists with the Division, also the driving force behind the scenes known as the "wags" (women's activities group) who consisted of several of the wives of members in organising social events and fund raising, and very ably headed by Adeline Connor, wife of Terry VK7CT. — A tremendous show — well done Hobart. — (VK3UV). ■

QSP

BERYLLIUM AND POISONING

A QSP in AR recently drew attention to the extremely dangerous to the eyes fibreglass catalyst MEKP (methyl ethyl ketone peroxide). Another very poisonous substance, according to an article in QST July 1978 is beryllium, and almost all the beryllium compounds, when inhaled into the lungs in even incredibly small concentrations (0.01 micrograms per cubic metre). Beryllium oxide as a ceramic is used between the anode and heat sink in conduction-cooled amplifier tubes, in metal-ceramic power tubes and in Gunn and IMPATT oscillators and amplifiers to mount semi-conductor devices. The article warns that under no circumstances should beryllium oxide or articles made from it be crushed, filed, sawn, chipped, sanded, ground, put in contact with acid, swept or vacuumed. ■

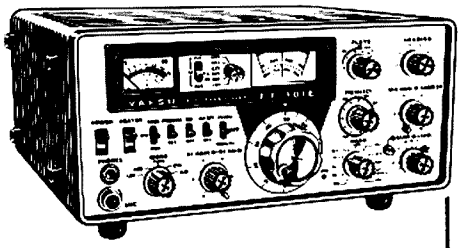
IARU REGION III CONFERENCE IN BANGKOK, OCTOBER 1978

With David Wardlaw VK3ADW (Federal President) and Peter Wolfenden VK3ZPA (Executive Vice-Chairman) is, at left, Jose Tupaz, Jnr., DU1JJT of PARA.

The "top" table at the Conference from left to right: Tan Lian Huat 9V1OD (Director), Maisami Saito JH3PJE (Director), David Rankin 9V1RH/VK3QV (Secretary), Fred Lawn HS1ARD (Chairman of the Conference), Victor C. Clark W4KFC (President IARU R2), Michael J. Owen VK3KI (Director).

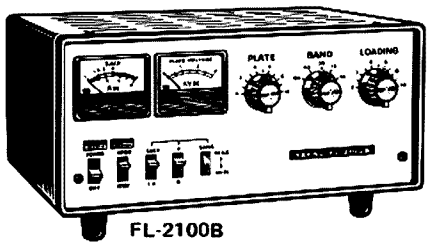
NEW YEAR TIME IS NEW GEAR TIME

Don't dilly dally pally – the longer you put it off the more it'll cost you



FT-101E

World's most popular transceiver! Get yours today, they'll never be cheaper!
Cat. D-2860.....$975.00



FL-2100B

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Cat D-2546.....$585.00

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RSL-14 20m mobile whip Cat. D-4114 $20.95
RSL-21 15m mobile whip Cat. D-4116 $20.95
RSL-28 10m mobile whip Cat. D-4118 $20.95

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18AVT 80-10m trapped vertical Cat. D-4302 $135.00
TH3JR 3 element triband beam Cat. D-4304 $199.00
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Balun kit. Cat. D-5350 $9.00

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TS-600-A All mode transceiver
TS-7000-A 2.M FM. 25W. Transceiver
TR-7500 2.M. FM. 10.W transceiver
TR-7600 2.M. FM digital transceiver 800 CH.
TR-8300 70. CM. FM. Transceiver
VB-2200-A. Power booster for TR-2200
VFO-30-G Remote VFO for TR-7200 TX-12. MHZ-RX. 45. MHZ.

TR-7200-G 2.M. FM 10.W Transceiver
TR-7010 2.M. SSB 10.W. PEP Transceiver
TV-502 2.M. Transverter
TV-506 6.M. Transverter
TL.922 2 KW. PEP. Lineal amplifier
SP-8 Regulated Power supply 8.Amps
VFO. 520-S External VFO for 520-S
VFO. 820 - External VFO for 820-S
VFO. 700-S External VFO for TS-700-SP

SM-220 Station monitor
BS-8 and BS-5 PAN adaptor
SP-820 Deluxe Speaker consul
SP-520 Speaker consul
SP-70 Speaker consul for TS-700 & 600
VOX-3 Vox unit for TS-700 & TS-600
DS-1-A DC converter for 520-S & 820-S
DG-5 External digital display TS-520-S
AT-200 Antenna coupler
MC-30-S Microphone 500 OHM
MC-35-S Microphone 50. K. OHM
MC-10 Microphone 50. K. OHM.
MC-50 Deluxe desk Microphone dual imp
HC-2 Deluxe Ham clock

YG-68 CW. filter for TS-820
YC-3395 CW filter for TS-520
LA-30-A Lowpass filter
HS-5 Headphone
HS-4 Headphone
RD-15 Dummy load 450 MHZ. 15. Watts
RD-300 Dummy load 150 MHZ. 300 Watts.

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KENWOOD AMATEUR RADIO EQUIPMENT

CHANNELS 0 AND 5A — THE GOOD NEWS!

QUEENSLAND CONVENTION REPORT

Don Marshall VK4AMA
23 Karowara Street, The Gap, 4061

Television on the non-international standard channel 5A is "just not on", and channel 0 stations are likely to change channels.

This was the good news for Australian amateur operators given to the WIA Queensland division convention by the Federal Liberal Member for Bowman, Mr. David Jull, as reported by Don VK4AMA.

More than 100 people heard Mr. Jull, a Parliament broadcasting committee member, open the convention at St. Lucia, Brisbane, on October 14.

More than 200 operators, friends and guests attended the convention at some time over the week-end and the good news travelled fast.

Mr. Jull said: "The decision for channel 5A to be used in metropolitan areas has been completely shelved and won't happen.

"Furthermore, an investigation is now under way by the department to eliminate those areas that are using channel 5A for translator facilities in some of the country TV areas".

Mr. Jull said he believed if it hadn't been for the pressure by Institute members, channel 5A use would have gone ahead. Australia would have been in all sorts of trouble and got into a ridiculous situation, certainly internationally.

"The power of the people is something that is often debated . . . in Parliament House. It is very easy to get yourself cut off from the outside world.

"Consequently, we found out from the Institute's members of the very real concern that you were having about the possibility of channel 5A being used.

"May I congratulate members and people who approached Members, who wrote to the Minister and who wrote to committee members.

"In fact, they formed themselves into a very satisfactory and hard hitting lobby group."

On channel 0 changes, Mr. Jull said the original idea was to transfer channel 0 stations in Melbourne and Brisbane to Channel 10.

But this would have caused problems in areas like Traralgon, Victoria, and Toowoomba, Queensland. Channel 5A was then a very real alternative.

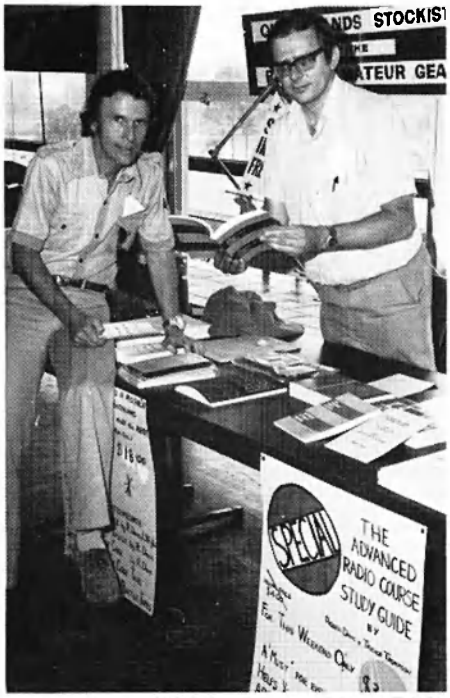
On October 11, it was announced that Channel 0, Melbourne, was going to channel 10 as soon as possible.

"I should think a similar announcement will be made in Brisbane about the fate of Universal Telecasters, "said Mr. Jull, a former Channel 0, Brisbane, employee.

"Both stations I understand are quite pleased about the change because that certainly suits their network arrangements as well."

Mr. David Jull, M.P., opening the Convention

Peter Williamson VK4ZWP (left) and Graham Carseldine VK4ZCL with their amateur TV equipment entered in the "home brew" contest.



Ian Binnie VK4ZEB (l) and Roger Davis VK4AAR discuss Roger's radio course study guide.

Noel Mitchell (r.) and assistant at his Kenwood stand

(On October 12, the Post and Telecommunications Minister, Mr. Staley, announced the Federal Government was considering a proposal to change ATV-0's frequency to channel 10. He said before a final decision, he would invite comments from all affected stations and from the industry body.)

(Universal Telecasters manager, Mr. R. Archer, is reported to have said that ATV's proposal had no bearing on Brisbane's frequency.)

Questioned, Mr. Jull told the convention he believed quite a few adjustments could be made in Victoria. Queensland was not quite so bad, but channel 5A was just not on and that was terribly important.

He said the fact channel 0 was shifting would make him think that amateur radio operators would automatically get back to 50 MHz and up, the international 6 metre band.

He said there was worry with an initial concept that with Brisbane and Melbourne going to channel 10, the Special Broadcasting Service would take over channel 0 right round Australia.

"That's not on now either," he said.

Asked if the channel 0 change would alter the government's decision so far as WARC was concerned, Mr. Jull said he would get an answer for the Institute.

In covering several topics, Mr. Jull said he was terribly concerned with what was happening with the planning of the frequency spectrum in Australia.

A lot of stop gap decisions had been made. In many frequency areas, the country was starting to get into trouble.

There had to be much more time spent in the planning of frequencies and on their use if there was going to be some rational planning position.

CB radio was a major problem about to be faced. It was already a problem of the magnitude that many don't realise.

"I'm not here to decry CB operators en masse, but we certainly have problems with many people who call themselves CB operators."

Mr. Jull said: "We all know of the decision to go to UHF that is supposed to happen in 1982.

"There have been estimates of from 400,000 to 1.2 million sets on 27 MHz now. If they are supposed to become illegal in 1982, there is going to be tremendous pressure from that part of the community.

"It is going to be a hard decision when you consider the number of legal battles that may have to be faced.

"One would hope that when the Wireless Telegraphy Act is completely re-written, and it must be re-written, that some of those hard decisions for government will be written fairly and squarely in the Act.

"If there is a delay in that Act coming to Parliament, that could be better in the long run."

"But will a government have the strength to fulfil that ultimate decision to take those sets off 27 MHz in 1982?"

"It's something I certainly ask for your co-operation.

"I think it is a very good idea for your members as a group to continue to pressure the minister on that point to make sure that decision is ultimately made.

"CB operators have had five years notice.

"Despite that, I feel we are going to have a fight on our hands.

"Anything you can do to alleviate that would certainly be appreciated.

"I think by the experience of channel 5A, you probably realise the amount of power and punch that an organisation such as yours can have.

"Indeed, if there are any other areas of these particular operations that concern you, I would ask that you submit objections so that again a concerted approach can be made to try to get some sensible and sane decision by government."

Mr. Jull spoke on the long delays in the handling of amateur examinations.

He said the management division had suffered a number of problems since the introduction of CB radio.

A review last year recommended 105 new positions. This had been whittled down to 67.

However, negotiations were under way with the Prime Minister.

An announcement of a staff increase was expected in a few weeks.

Questioned about how the department would cope in 1982, Mr. Jull said the last job anyone in the world would want at the moment would be that of a radio inspector.

In Brisbane, there were up to 50 and 60 TVI complaints a day. If there were 10,000 RIs, a start might be made tackling the problem.

"One can only hope that something like an army of RIs will be available to clean up the place," he said.

(The statements attributed to Mr. Jull, M.P., in this article have been checked against a copy of a transcript of the Opening Address supplied by the VK4 Division. Minor differences in wording occur, however the meanings are the same —Ed.) ■

PORTABLE ARMY WIRELESS SETS OF WORLD WAR II

Compiled by R. Champness VK3UG
(Photos by Ken Reynolds VK3YCY)

7. The Teleradio 3BZ transmitter is a 8 to 12 watt AM/CW transmitter covering the frequency range 2.5 to 10 MHz using up six crystals to control its frequency. The output stage is the common 807 which is plate and screen modulated by a pair of 6V6-G valves in parallel. The unit works off 12 volts DC and draws 7.5 amps on transmit, which is about two amps more than the No. 122 set putting out the same power and including its receiver current drain too. The 3BZ could not be considered to be economical in its use of power.

The transmitter is reputed to have been used extensively by the coast watchers in WWII. The unit is extremely sturdily built and weighs 20 kilograms, and the companion 3BZ receiver weighs 19 kilograms — the weight of the accumulator is extra. The 3BZ enjoyed reasonable popularity amongst amateurs as it was easy to get at to do the various modifications they may have thought necessary. The circuitry is very ordinary and no doubt this is why it proved popular.

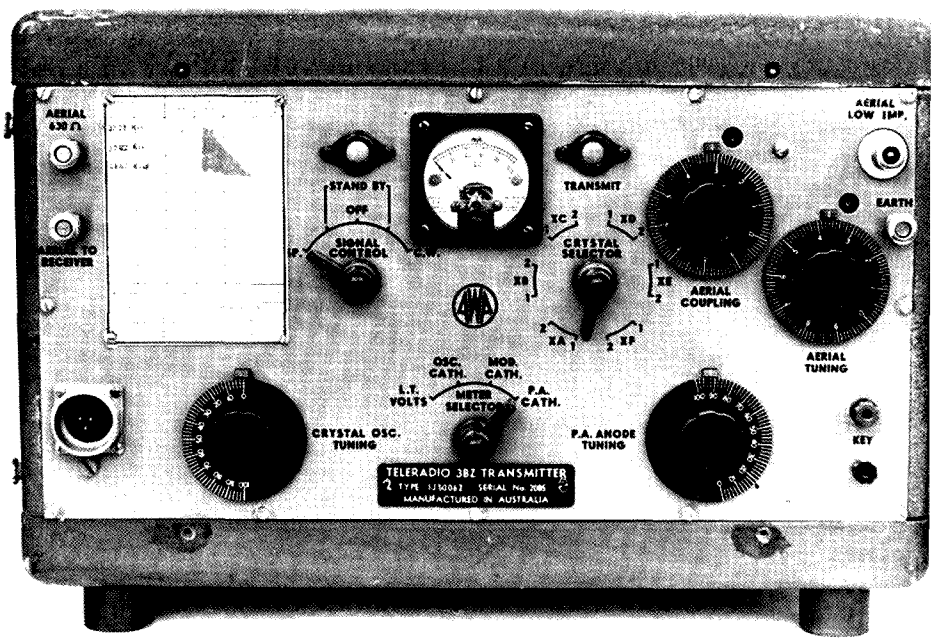


PHOTO No. 7

8. The 3BZ receiver, the companion to the 3BZ transmitter came in several different versions, the main difference being in the frequency ranges covered. The receiver in the photograph covers from 200 kHz to 30 MHz with a small gap between 520 kHz and 540 kHz, the IF frequency being 530 kHz. These sets were used in ships, coast watchers and many other areas. The set will operate on either 6 or 12 volts DC. The circuitry of the set is very ordinary having an RF stage, converter, one IF stage, a BFO and two audio stages. A vibrator supply provides the HT for the set. A separate loudspeaker goes with the receiver.

These sets proved popular as general purpose communications receivers with many people, and until recently were still being used on board some Australian ships as their main receiver — not bad for a set 30 years old. Amateurs also found the sets good and many used them but no doubt most are gathering dust now. ■

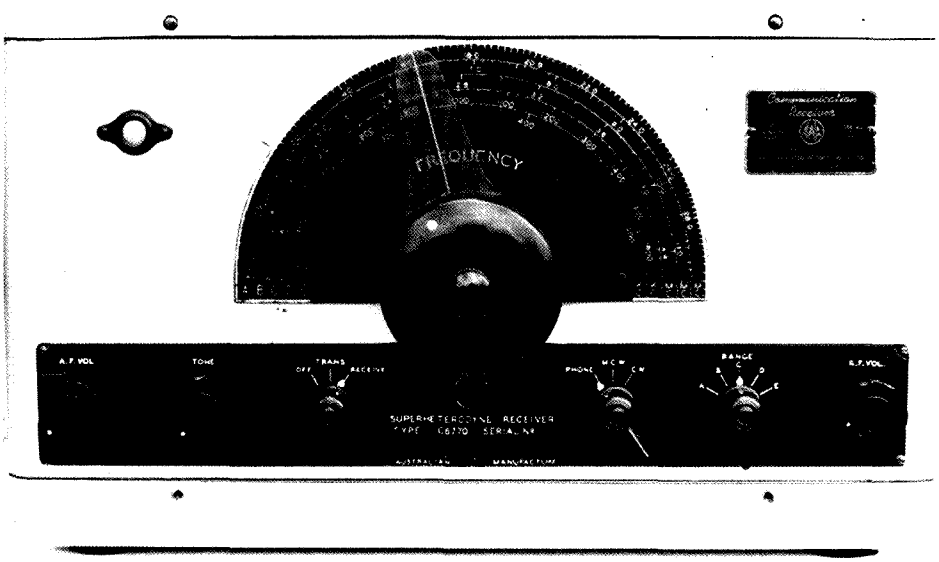


PHOTO No. 8

JOHN MOYLE MEMORIAL FIELD DAY CONTEST — RULES, 1979

Amateur operators and Short Wave Listeners are invited to make this contest, held in the memory of the late John Moyle, a huge success. Contestants may participate either as individuals or as part of a group. There are two divisions in this contest. The first is for 24 hours continuous operation, and the second for any continuous period of 6 hours. Either period must be within the 26 hours available.

CONTEST PERIOD

From 0400Z 10th February to 0600Z 11th February.

OBJECTS

The operators of portable field stations or mobile stations within the VK and P29 call areas will endeavour to contact other portable, mobile or fixed stations in VK, P29, ZL and foreign call areas on all bands.

RULES

1. In each division there are 8 sections.
(a) Portable field station, transmitting phone.
(b) Portable field station, transmitting CW.
(c) Portable field station, transmitting *open*.
(d) Portable field station, transmitting phone, multi-operator.
(e) Portable field station, transmitting open, multi-operator.
(f) VHF portable field, or mobile station, transmitting.
(g) "Home" transmitting stations.
(h) Receiving portable and mobile stations.

2. In each division, 24 or 6 hour, the operating period must be continuous.

3. Contestants must operate within the terms of their licence.

4. A portable field station must operate from a power supply which is independent of any permanent installation. The power source must be fully portable, i.e., batteries, motor generators, solar panels, etc.

5. No apparatus may be set up on site more than 24 hours before the contest.

6. All amateur bands may be used, but cross band operation is not permitted.

7. Cross mode is permitted, but note Rule 21.

8. All operators of a multi-operator station must be located within approximately an 800 metre diameter circle.

9. Each multi-op. transmitter should maintain a separate log for each band. A 2 FM rig may be separate from 2 AM or SSB rig, but note Rule 11. A separate QSO number series is required for each band.

10. All multi-op. logs should be submitted under one call sign.

11. Only one multi-op. transmitter may operate on a band at any one time.

12. RS or RST reports should be followed by serial numbers beginning at 001 and increasing by one for each successive contact.

13. **SCORING FOR PORTABLE FIELD STATIONS AND MOBILES.** Portable field stations and mobiles, outside entrant's call area — 15 points. Portable field stations and mobiles within entrant's call area — 10 points. Home stations outside entrant's call area — 5 points. Home stations within entrant's call area — 2 points.

14. **SCORING FOR HOME STATIONS.** Portable field stations and mobiles outside entrant's call area — 15 points. Portable field stations and mobiles within entrant's call area — 10 points.

15. Portable field stations may contact any other portable field station twice on each band and mode (10-160) during the period of the contest provided that at least 4 hours elapse after the previous contact with that station on that band and mode.

16. Stations may be worked repeatedly on 52 MHz and above providing 2 hours have elapsed since the previous contact on that band and mode. Note that FM, AM, SSB and any other voice modes are grouped together as PHONE.

17. Operation via active repeaters or translators is not acceptable for scoring.

18. All logs shall be set out under headings of date-time in GMT, band, emission, call sign, RST sent, RST received, and points claimed. List contacts in correct sequence. There must be a front sheet to show — name, address, division, section, call sign, call signs of other operators, location, points claimed, equipment used and power supply. You must also certify that you have operated in accordance with the rules and spirit of the contest.

19. Certificates will be awarded to the highest scorer of each section of the 6 hour and 24 hour divisions. The 6 hour certificates cannot be won by the 24 hour entrants. Additional certificates will be awarded for excellent performance.

20. Entrants in sections a, b, c, d, e and f must state how power for transmitting is derived.

21. All CW-CW contacts count double. Cross mode contacts count single.

22. Logs to be postmarked no later than 28 February 1979 and sent to F.C.M. Box 1065, Orange, 28000.

RECEIVING SECTION

This section is open to all short wave listeners in VK and P29 call areas. Rules are as for transmitting stations, but logs do not have to show report and serial number of the second station. Logs must show the call sign of the portable or mobile station heard, the report and serial number sent by that station, and the call sign of the station called. Scoring is as shown in Rule 14 for home stations. A station calling CQ does not count. Portable and mobile stations, which must be listed in the left hand call sign column of your log, alone count for scoring. Stations in the right hand column may be any station contacted. A certificate will be awarded to the highest scorer of each of the 6 and 24 hour divisions, individual or multi-operator entries. Certificates will be issued for excellent performance. ■

PROCEDURES — PROCEDURES

What's that?

What are we on about again?

We're on about what happens when you report Intruders!!

The first question asked by a new recruit to the Intruder Watch most usually is — "When you get our reports, what do you do with them? What happens?"

Well now! That is a moot question, and can only be answered by giving you a complete run-down on our procedures —

Firstly — Reports are received from you on our form "Observer's Log Sheet", or on form Appendix 8, according to whether the intruder has been identified or not.

At the end of each month all Appendix 8 card copies are taken in to the Frequency Management Division of the Postal and Telecommunications Branch in Marland House, Bourke Street, Melbourne for appropriate action or filing. The green, or top copy is filed by the Federal Co-ordinator, and the yellow, or centre copy by your Divisional Co-ordinator.

The Federal Co-ordinator or his assistant then transfers all reports, both Appendix 8 and the Observer Log Sheet to forms designated IARUMS/5, and forwards them to the Regional (3) Co-ordinator. After receiving the Australian, New Zealand, and any other Region 3 reports, these forms are sorted into order of frequency and forwarded to the Headquarters Co-ordinator in the United Kingdom who, along with all the Region 1 and Region 2 reports compiles a World Summary (usually consisting of 20 pages of 60 or more reports per page) which he distributes to all Societies and Administrations throughout the world (65 copies in all).

It is known that these summaries will be taken into account by the delegates at WARC 79 this year, and will be used as

evidence against those countries perpetuating intrusions. Both the Regional (3) Co-ordinator and the Assistant Federal Co-ordinator keep weekly schedules with the Co-ordinators in Region 1 and in Region 2 comparing reports and any relevant matters concerned with them.

Any reports that warrant immediate action are brought to the notice of our Administration, and during our skeds to the Region 1 Co-ordinator, who then acts upon them reporting to the British Post Office and to the Foreign Office. Very often he gets results by so doing.

Our Administration will not act upon any one individual report, but requires many more on any one intruder. Neither will they act unless their monitoring station can receive and verify the reports. Thus, it is encumbent upon us, the Amateur Observers, to supply as many reports as possible on any one intruder, and therefore, it is necessary to have many Observers to supply these reports.

Recently, it has been noticed that many more intruders are operating in our bands, especially on the 14, 21 and 28 MHz bands. Some occupy more than their fair share of any one frequency segment.

The Intruder Watch is constantly aware of this and of the devastating effect that some S9+ signals have on the Amateur Service. However, as specified above, **without the number of reports necessary** very little can be done.

Identification of the modes used by intruders can be ascertained by listening to the Region 3 identification tape which has been up-dated, and copies obtainable by forwarding a blank cassettte or reel to the undersigned.

GO TO IT! WE NEED TO BE MORE VIGILANT.

Alf Chandler VK3LC
Region 3 Intruder Watch
Co-ordinator ■

ATV NOTES

The photograph shows the British Amateur Television Club award which Winston VK7EM, recently received. Details of the award were published in AR in March 1978 but to briefly reiterate the requirements — 10,000 points must be logged at the rate of 2 points per kilometre for a successful identification of a fast scan amateur television transmission with a bonus of ten points for a confirmed two-way transmission. All Winston's contacts were with VK3 or VK5. It appears to be the first CQ TV award issued. Congratulations Winston.

Winston has written to notify readers of his intention to be active again this summer from his home QTH of Penguin. He will be looking for any VK3 or VK5 station interested in ATV DX.

The equipment at VK7EM is all home brew except for the monitors. Pictures are transmitted on 426.25 MHz with intercarrier sound on 431.75. Approximately 15 watts are fed to a broadside array with a clear view of Bass Strait towards Melbourne and districts further East.

Since his first two-way contact across Bass Strait in February 1972 he has taken part in 160 QSOs where test cards, photos and scenes around various shacks have been exchanged. The highlight of last season was the reception of pictures from Trevor VK5TH, at Mt. Gambier, a distance of 550 km. The current Australian record for two way ATV (fast scan) is held by VK7EM and Peter VK3ZPA (413 km).

During favourable propagation periods VK7EM will monitor :

1. 147.63 MHz FM Channel "V",
2. the Mt. Gambier repeater 6 VK5RMG and
3. 3.640 MHz

nightly from 1930 hours local time and will be pleased to carry out ATV experiments. Winston's phone number is (004) 37 2582. ■

WHO LISTENS TO SHORTWAVE BROADCASTING?

One of the least efficient users of the HF spectrum is International Broadcasting. This service still uses double-sideband AM emission, transmits the same programme on several frequencies in the same band, often to the same target area, and operates with seemingly unlimited power. Yet, a very basic question is seldom asked or ever asked, by broadcasters: Who is listening? Think of the people you know. How many of them use shortwave broadcasting as a source of news or entertainment? Unless you know an SWL hobbyist who collects QSL cards and who probably cares very little about the programme content of the stations he is listening to, chances are that you know very, very few people who pay attention at all to these high-powered broadcasts. In their travels to dozens of countries on all continents, the members of the International Amateur Radio Union (IARU) headquarters team have asked the question time and again, and generally have received the same answer. Even in the remote corners of the world, the regular audience for shortwave broadcasting is vanishingly small. Yet the greatest demands for more spectrum between 3 and 30 MHz are coming from the broadcasters.

Broadcasters often speak in terms of "hundreds of millions" of listeners, and use questionable statistical techniques to bolster this claim. Last year the League commissioned SRI International (formerly the Stanford Research Institute) to study the available reports on the size and composition of the shortwave broadcasting audience and prospects for future growth. The 40-page SRI report, which was included as an appdenix to the League's filing, concluded: " Reduced to a single comprehensive statement, this study clearly shows that any demands made by HF broadcasters for increased spectrum due to increased audience demand simply cannot be supported by the information now available."—From WARC Newsletter No. 18 of IARU. ■

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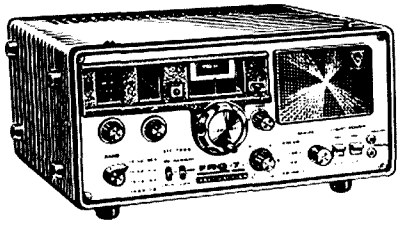

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$339 ONLY

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DR-48

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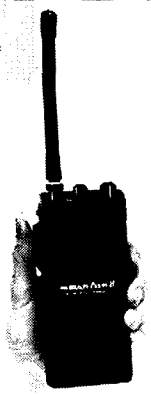
2m FM POCKET TRANSCEIVER

SPECIFICATIONS:

Transceive Frequency Range: 2 MHz in 144-148 MHz; Transceive Channels: 6 Channels; Mode of Operation: FM; Antenna Impedance: 50 Ohms unbalanced, BNC connector; Power Requirement: 12V DC (Negative Grounded); Power Consumption: Transmit 300 mA, Receive 100 mA, Stand-by 25 mA; Weight: 1.03 lbs. (470g); Repeater Offset: ± 600 kHz; Modulation: Variable Reactance phase modulation; Max. Deviation: ±5 kHz; Microphone: *Condenser Microphone; Receiver:* Double conversion superheterodyne (1st IF = 16.9 MHz, 2nd IF 455 kHz); Sensitivity: —4 dBu (NQ 20 dB); Audio Output: Maximum 0.3 Watts; Attachment: Rubber ducky antenna, Nicad battery pack, DC cable with cigarette lighter plug, Carrying strap.



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DX-555D FREQUENCY COUNTER/SIGNAL GENERATOR

Featuring a 220 MHz counter upper limit and 30 MHz generator upper limit. Generator frequency is read directly on the counter. **Technical Data:** 10 Hz to 220 MHz counter; 0.4-30 MHz generator; 600 Hz tone oscillator; 2mS and 200mS gating time; 5 Digit LED display. Switchable kHz and MHz. **A Must for every Ham Shack.**

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With approved power supply	$139
Additional Mast Clamps	$11
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Constructed for long trouble-free operation. 200 kg vertical weight capacity. Extra heavy duty disc brake that prevents wind-milling.

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YAESU:	**FT101E** (NEW STOCK — END NOVEMBER)	$899
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	FT301D	$1090
	FP301	$175
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	TS820S	P.O.A.

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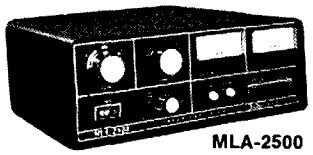

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MIZUHO

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ANTENNAS SUITABLE FOR 10M:

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ACCESSORIES & COAX CONNECTORS:

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Bumper Mount with ⅜" 24 thread antenna mount	$7
Gutter Mount with ⅜" 24 thread antenna mount	$4.50
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M-ring body mount	$3
12V Regulated supply	$26
GLP Right angle RG-58U to SO-239 w/lock nut and weatherproof cap	$3.50
MLS Right angle RG-58U to PL-259	90c
PL-259 standard & solderless, RG-8U & RG-58U	75c
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Right angles & T-connectors	$1.50
Double male & Double female connectors	80c
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Channel 51 T/R 146.55	$5 pair
Channel 64 T/R 146.20	$5 pair
No. 14 hard drawn copper wire	10c per meter
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Type RG-8U foam coax	80c per yard
Type RG-58U coax	30c per yard
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KEN KR-400 rotator with 28V AC control box	$125
CDR HAM III rotator with 28V AC control box	$175

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TS-820S 10-160M SSB/CW w/Digital readout	$1100
TL-922 10-160M Linear Amplifier	$1200
TS-700SP 2M all-mode transceiver	$800
TR-7400A 2M transceiver	$475
TR-7500 2M transceiver	$275
DG-5 Digital display for TS-520S	$200
TV-506 6M transverter	$225
TV-502 2M transverter	$275
AT-200 Antenna matchbox	$175
DS-1A DC-DC converter	$70
DK-520 adaptor for DG-5 to TS-520 use	$20
LF-30A low pass anti-TVI filter	$30
VFO-820 external VFO for TS-820S	$175
VFO-520S external VFO for TS-520S	$150
SP-820 external speaker for TS-820S	$60
SP-520 external speaker for TS-520S	$30
YG-88C CW filter for TS-820S	$55
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HC-2 Ham clock	$25
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NOVICE SPECIALS: Still available at these low prices — Transceivers for 10M coverage, AM/USB, 15W PEP:

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All prices quoted are net, ex Springwood NSW, cash with order, subject to change without prior notice. All risk insurance is free; freight by air, road, rail or post at cost. All orders cleared on a 24 hours basis after receipt with payment.

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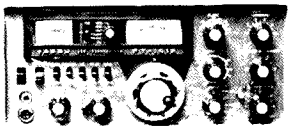

FT-101E $919

YAESU

FT-901DM.160-10M Transceiver. ..... $1585.
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TV-901. Transverter for FT-901.6M,2M,70cM... $TBA.
SP-901. External Speaker for FT-901. ..... $53.
FT-101E. 160-10M Transceiver. ..... $919.
FT-7. 80-10M Transceiver. ..... $639.
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FRG-7. General Coverage Receiver. ..... $369.
FRG-7000. Digital General Coverage Receiver. ... $675.
FT-227R. 2m. Mobile Transceiver. ..... $369.
FT-225RDM. 2M. ALL Mode Transceiver. ..... $995.
FL-2100B. 1200 Watt Linear Amplifier. ..... $549.
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Optional Crystal Filters. ..... $59.
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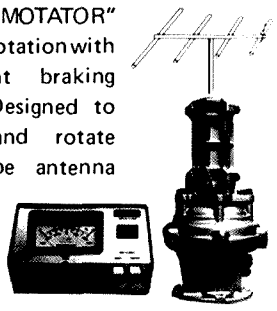

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103LBX. Medium Duty. ..... $169.
502CXX. Heavy Duty. ..... $243.
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1103MXX.Extra Extra Heavy Duty..... $395.
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DR-7500S. Medium Duty. ..... $180.
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HC-500A. Tokyo Hy-Power Labs.Transmatch 500W PEP.inc.160M. ..... $142.
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TOYO. $18.

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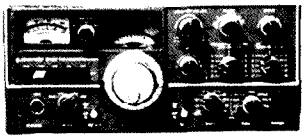

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P.O.A.

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VFO-820 Matching VFO for TS-820S ..... $165.
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DG-5 Digital Display for TS-520S ..... $194.
DS-1A DC Converter TS-520-820..... $79.
DS-5 Pan Adapter for TS-520S ..... $60.
DS-8 Pan Adapter for TS-820S ..... $60.
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Optional crystal filters..... $54.
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TS-120 80-10M Mobile Digital Display 30W PEP $625.

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VS-33. 3el.Triband Beam 20-15-10M.Inc.Balun. . $259.
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BN-86 1-1 Matching Balun ..... $24.

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ALL Adjustable Tip Rod for easy SWR

Yaesu Mobile Set.RSL Base and Mast plus 80,15,10M Whips. Complete..... $89.
BPM. Bumper Mount (Adjustable) to suit Helicals.

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NEW IC 280 NOW AVAILABLE.

2 M.10 W Transceiver spacing 144.148 EX-STOCK ALL Digital Remote Computer Controlable 3 memories YES 3

OUR PRICE ONLY $399.

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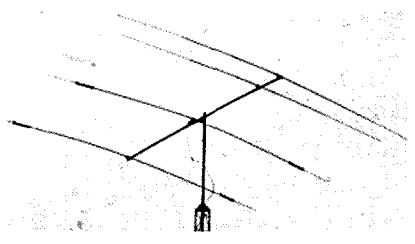
Now also available

All Australian made DUO-Band Beams -15-10 M.4 elements only $159.00



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DUO BAND BEAM $159.
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ALL AUSTRALIAN MADE TRAP BEAMS,
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DUO BAND 15-10 M
BUILT IN AUSTRALIA.

Soon available ALL BAND trapped verticals.
DEALERS WANTED IN ALL STATES NOW.

Prices and specifications are subject to change without notice.

All prices include Sales Tax. Freight and Insurance extra.

AMATEUR SATELLITES

Bob Arnold VK3ZBB

RUSSIAN SATELLITES

On the morning of 28 October we were thrilled to hear the first signs of the new Russian OSCAR in its second day of operation. Its presence was first noted by Andy VK5ZWO and later by Peter VK7PF, and efforts were made to alert interested amateurs across the country. By the same evening contacts were being made by VK and ZL stations and these were repeated by more enthusiasts the following day. Excellent QSOs were achieved and the beacon on 29.4 was coming in at 5 x 9+ The telemetry code was unique, comprising seven groups of figures and letters followed by RS, which is presumably the code of the satellite; some study was carried out to interpret the data — without significant result!

Perhaps the most interesting early observation was that RS 1 was travelling in the opposite direction to the AMSAT OSCAR series, i.e. North to South for evening passes.

Later information confirmed the presence of two satellites RS 1 and RS 2, each with identical orbital parameters but with RS 2 running twenty minutes ahead of RS 1. The two can be identified by observing the telemetry data. This comprises seven or fourteen groups of letters and figures, the following being typical —

— P01U
— C18U
— F32U
— Z31U
— L83U
— B45U
— H38U

At the conclusion of this series, an RS is sent by RS 1 and RS RS by RS 2. The sequence is then repeated in updated form. It has been observed that when the groups end in U or K the transponder is OFF and when ending in W it is ON — this observation has to be confirmed.

The Russians at "Sputnik Control" have urgently requested that uplink power from an Earth station be limited to 10 watts ERP and it is hoped that all operators will adhere to this request. There is no doubt that the battery failure on OSCAR 7 has been primarily caused by excessive input power used by certain European stations. We should all co-operate to avoid this problem with our new satellites.

Elsewhere you will find predictions for RS 1 for January 1979 — I hope they will turn out to be reasonably accurate.

When both RS 1 and 2 are operating we shall have about forty minutes of continuous working each pass; starting in the North with RS 2, moving to the South and then repeating the process for RS 1. This is for an evening pass; reverse the procedure for morning passes.

Unfortunately, at the time of writing — November 8th — the transponders have been switched off but we presume this is to stabilise the satellite electronics and will only be for a couple of weeks or so. The latest available data on RS 1 and 2 is given in the attached table, some of which is from the USSR and therefore considered to be reliable.

HOW TO FIND THE RS SERIES

Passes around 4 and 5 are visible in the Eastern States each night and passes around 10 and 11 in the morning. Each pass is roughly two hours, so for pass 5 add eight hours to the time of Pass 1 from the table, then add 1 hour (for Melbourne, and a few minutes less for locations further north) to allow for the time the satellite takes to travel from its equator crossing to its acquisition time north of Australia.

Therefore, for pass 5 on 1 Jan. 1979 the acquisition time in Melbourne is 0043 + 0800 +0100 = 0943 GMT or 8.43 p.m. EAST.

The ascending node will be 250° (from the table) plus 4 x 30° minus 360, i.e. AN 10.

The path of ascending node 10 is roughly from 195° Lat. 40°N, over Rabaul PNG, over Launceston, Tas. The path of any other ascending node can be found by adding or subtracting the difference between that AN and AN 10 quoted above and drawing a line parallel to the one described above. Don't forget the calculations given are for RS 1, RS 2 will be twenty minutes earlier.

I must emphasise that no official Information has been released on RS 1 and 2 and it is only through contacts with many friends that I have been able to compile this report. I particularly thank the following for their enthusiasm and assistance:— VK3ACR, VK7PF, VK5HI, VK3QI, VK5ZIM, VK4ZIL, VK3ZDE, VK2ALU, ZL3AAD, JA1 ANG.

OSCAR ACHIEVEMENT AWARD

I know that many OSCAR operators have worked many Australian States and countries within the range of OSCARS 6, 7 and 8, but only four have yet claimed the OSCAR Award. The "old timers" particularly should have received confirmation of their contacts, so why not send in your claim? All you need is confirmation from six Australian call areas together with two other countries. Send your QSLs to Col. Hurst VK5HI, 8 Arndell Road, Salisbury Park, S.A. 5109, and receive your attractive certificate. Let's show the rest of the world that we do have a few able operators in Australia. Without this support we shall be left for dead when new ventures are being planned — possibly it is already happening.

AMSAT — OSCAR 7

Battery troubles still plague AO7 and communication difficulties have been noticed from time to time. Col VK5HI reports that the battery temperature has been up to a high 58°C and this no doubt accounts for fairly continuous operation on Mode B in early November to cool things down.

Slightly varied parameters are given in the table to enable enthusiasts to calculate their own orbital data for future months.

AMSAT PHASE III

Revised frequencies for the Mode B transponder are given in the table.

AMSAT — OSCAR 8

Revised parameters in table.

SATELLITE PARAMETERS — REVISION 3. NOVEMBER 78

		AO7	AO8	RS 1 & 2	AOIII	P76/5
Launch Date		15 Nov. 74	5 Mar. 78	26 Oct. 78	Est. Dec. 79	
Inclination Degrees		101.7010	98.99	82.5587	57	99.655
Orbit Period Minutes		114.945247	103.233	120.29461	11 hr. approx.	105.729
Orbit Increment Deg.		28.737617	25.807905	30.12		26.43
Apogee km		1461	930	1794	24249	1025.968
Perigee km		1450	910	1688	932	
				Max. inp. 10W ERP		
MODE A	UP	145.85-145.95 RC	145.85-145.95 RC	145.88-145.92		
	DN	29.40-29.50 L	29.4-29.5 L	29.36-29.40		
MODE B	UP	432.125-432.175 LC			435.110-435.290	
	DN	145.925-145.975 Inverted LC			145.810-145.990 Inverted	
MODE J	UP		145.90-146.00 LC		145.850-145.990	
	DN		435.10-435.20 Inverted L		435.150-435.290 Inverted	
BEACONS		A 29.502 L A 435.10 RC B 145.972 LC 2304.1 LC	29.402 L 435.095 L	29.4012 435.105 RS 2 is 20 min. ahead of RS 1	145.805 145.995	435.970 A0 Modulation No comm'cation

Polarisation for Southern Hemisphere:
L — Linear. LC — Left hand Circular. RC — Right hand Circular.

OPERATING

No new DX stations have been reported recently although it is probable that some new call areas will be recorded when RS 1 is operating. It should be possible to work northern JA and most of SE-Asia from the Eastern States together with the Pacific area as far as Hawaii.

Martin VK4ZIL tells me he has worked all VK call areas including the elusive VK9 and VK0 in the past few months together with several overseas countries. When you receive the QSL cards Martin, don't forget to claim the OSCAR Achievement Award.

ORBIT PREDICTIONS — JANUARY, 1979

	RS 1			OSCAR 7 (REVISED)		
Data	Orbit No.	EQX GMT	EQX °W	Orbit No.	EQX GMT	EQX °W
1	800	0043	250	18884	0123	82
2	812	0046	251	18896	0022	67
3	824	0050	252	18909	0117	80
4	836	0054	253	18921	0016	65
5	848	0057	254	18934	0110	78
6	860	0101	254	18946	0010	63
7	872	0104	255	18959	0104	77
8	884	0108	256	18971	0003	62
9	986	0111	257	18983	0057	75
10	908	0115	258	18996	0152	69
11	920	0118	259	19008	0051	74
12	932	0122	260	19021	0145	87
13	944	0125	261	19033	0045	72
14	956	0129	261	19046	0139	86
15	968	0132	262	19058	0038	71
16	980	0136	263	19071	0133	84
17	992	0140	264	19083	0032	69
18	1004	0143	265	19096	0126	83
19	1016	0147	266	19108	0026	67
20	1028	0150	267	19121	0120	81
21	1040	0154	268	19133	0019	66
22	1052	0157	269	19146	0114	80
23	1063	0001	239	19158	0013	64
24	1075	0004	240	19171	0117	78
25	1087	0007	241	19183	0006	63
26	1099	0011	242	19196	0101	76
27	1111	0015	243	19208	0000	61
28	1123	0018	244	19221	0054	75
29	1135	0022	245	19233	0148	89
30	1147	0025	245	19246	0048	73
31	1159	0029	246	19258	0142	87

REFERENCE ORBITS — FEBRUARY, 1979

	OSCAR 7			OSCAR 8		
Data	Orbit No.	EQX GMT	EQX °W	Orbit No.	EQX GMT	EQX °W
1	19271	0041	72	4636	0133	62
2	19283	0136	85	4650	0138	63
3	19296	0035	70	4663	0000	48
4	19309	0129	84	4677	0005	49
5	19321	0029	69	4691	0010	51
6	19334	0123	82	4705	0016	52
7	19346	0022	67	4719	0021	53
8	19359	0117	81	4733	0026	55
9	19371	0016	66	4747	0031	56
10	19384	0110	79	4761	0037	57
11	19396	0010	64	4775	0042	59
12	19409	0114	78	4789	0047	60
13	19421	0003	63	4803	0052	61
14	19434	0058	76	4817	0057	63
15	19446	0152	89	4831	0103	64
16	19459	0051	75	4845	0108	65
17	19471	0146	88	4859	0113	67
16	19484	0045	73	4873	0118	68
19	19496	0139	87	4887	0124	69
20	19509	0038	71	4901	0129	71
21	19521	0133	85	4915	0134	72
22	19534	0032	70	4929	0139	73
23	19546	0126	83	4942	0001	44
24	19559	0026	68	4956	0006	46
25	19571	0120	82	4970	0012	47
26	19584	0019	67	4984	0017	48
27	19597	0114	80	4998	0022	49
28	19609	0013	65	5012	0027	51

■

AWARDS COLUMN

Brian Austin, VK5CA

P.O. Box 7A, Crafers SA, 5152

THE UNIVERSITY OF CAPE TOWN FESTIVAL AND AWARD 1979

To commemorate the 150th anniversary of the University of Cape Town, Cape Town, Republic of South Africa, the Cape Town Branch of the SARL will operate a special festival station with call ZS1-UCT (ZS1 - University of Cape Town) and issue an Award.

UNIVERSITY OF CAPE TOWN FESTIVAL STATION

Call Sign:
ZS1-UCT.

Dates of transmission:
Saturday, 17th February, to Sunday, 4th March, 1979.

Time of transmission:
Saturdays and Sundays: 0600 to 2000 GMT.
Week-days: 0700 GMT to 1000GMT; 1500 GMT to 2000 GMT.

Frequencies:
Use for calling. Actual frequency will depend on QRM.

40 metres — 7.050 MHz.
20 metres — 14.210 MHz.
15 metres — 21.200 MHz.
10 metres — 28.580 MHz.
2 metres — 145.500 MHz.

Transmission modes:
SSB, CW, RTTY, FM.

QSL:
SARL Bureau, P.O. Box 3037, Cape Town 8000, Republic of South Africa.

UNIVERSITY OF CAPE TOWN AWARD 1979

1. The award is open to all licensed amateurs and short-wave listeners (SWLs).
2. DX stations and SWLs must log ZS1-UCT plus two other ZS1 stations. ZS1 contacts log between February 15 to March 15, 1979.
3. ZS and ZR stations log ZS1-UCT plus 5 other ZS1 stations.
4. All modes or combination of modes permitted.
5. All bands or combination of bands permitted.
6. Closing date for the award is July 1979.
7. No QSL cards are required. Send a copy of your log verified by two local amateurs.
8. Fee: US$1 or 10 IRCs; ZS R1.00.
9. Send applications to —
   The Award Manager ZS1MO,
   P.O. Box 5100,
   Cape Town 8000,
   Republic of South Africa.
10. A special indication is given for VHF contacts.

INITIAL ASSIGNMENT OF NEW W CALL SIGN PREFIXES

Prefix	Location
AH1, KH1 NH1, WH1	Baker, Canton, Enderbury, Howland Is.
AH2, KH2, NH2, WH2	Guam
AH3, KH3, NH3, WH3	Johnston Is.
AH4, KH4, NH4, WH4	Midway Is.
AH5K, KH5K, NH5K, WH5K	Kingman Reef
AH5, KH5, NH5, WH5	(except K suffix) Palmyra, Jarvis Is.
AH6, KH6, NH6, WH6	Hawaii
AH7, KH7, NH7, WH7	Kure Is.
AH8, KH8, NH8, WH8	American Samoa
AH9, KH9, NH9, WH9	Wake, Wilkes, Peale Is.
AL7, KL7, NL7, WL7	Alaska
KP1, NP1, WP1	Navassa Is.
KP2, NP2, WP2	Virgin Is.
KP3, NP3, WP3	Rancador Key, Quiita Sueno Bank, Serrana Bank, Serranilla Bank
KP4, NP4, WP4	Puerto Rico

SOME NEW PREFIXES ALLOCATED

The International Telecommunication Union in Geneva has allocated the prefix block J4A-J4Z to Greece, and J5A-J5Z to Guinea-Bissau, effective immediately. This does not mean that amateur call signs in these two countries will necessarily reflect this change; it does mean that the national administration may choose to assign these to amateurs if they wish.

(Editor's note: Brian is entering a hospital for a short stay in early November — we all hope you have a speedy recovery, Brian, and are up and about very soon.—VK3UV.) ■

CONTESTS

Wally Watkins VK2ZNW/NCU

Box 1065, Orange 2800

CONTEST CALENDAR

January

26-28	CO WW 160 DX CONTEST.
27-28	THE 1979 FRENCH CONTEST CW.
27-28	MARCONI ARI PHONE CONTEST.

February

10-11	JOHN MOYLE MEMORIAL FIELD DAY.
24-25	THE 1979 FRENCH CONTEST PHONE (SAME TIMES AND RULES AS CW SECTION).

See separate column for the John Moyle Memorial Field Day rules. Times 0400Z 10th February to 0600Z 11th February. Logs to be postmarked no later than 28th February, 1979. This contest counts for the Contest Champion trophy.

CORRECTION

Page 42 AR November 1978, Ross Hull VHF/UHF Memorial Contest Rules 1978-1979, 4th para. Date of contest is 16-12-78 to 7-1-79 and NOT as quotsd. —Ed. ■

AROUND THE TRADE

Dick Smith Elsctronics is pleased to announce that it now has available a heavy duty PVC cover available to suit the Yaesu models FT-101E, FL-2100B, FRG-7, FRG-7000, and the FT-901D.

They are ideal for keeping out dust, as well as preventing scratching of the unit when it is not in use, and should therefore help in maintaining the appearance and resale value of these items.

They are supplied free with the purchase of any major piece of Yaesu apparatus, or can be purchased separately for $3.95 each (Cat. No. D9050). ■

QSP

WHO IS WORKING DX?

One of the most prestigious awards in amateur radio is the DXCC of ARRL. Many amateurs are happy to reach 100 countries confirmed enabling them to send in a claim for our own Australian OXCC or the DXCC of ARRL. However, DXCC does not end at 100 countries because endorsement credits are given for more. Imagine not 100 countries confirmed but over 300 confirmed. That is what the DXCC Honour Roll is all about. In fact the roll in QST for September 1978 lists over 400 amateurs in the mixed Phone/CW section who have qualified for over 309 countries confirmed. The top few have qualified for 318 confirmations. Only one solitary VK appears in this list — VK4QM, only 2 ZLs and 1 ZS; 15 South Americans qualify and that is the sum total for the entire southern hemisphere — 19 in all. In the R/T section of the Honour Roll, which contains nearly 200 calls, there is no VK at all, and for the southern hemisphere 3 ZLs, 1 ZS, 1 5Z4 and 16 South Americans. Here again the lists cover 309 to 318 country confirmations. In terms of amateur populations the southern hemisphere has about 1/7th of the world's total amateurs — perhaps even only 1/8th. On these figures there ought to be about 50 in the Honour Roll, not merely 19. There are probably as many "countries" in the southern hemisphere as in the northern hemisphere, so why the discrepancy? ■

VHF-UHF
AN EXPANDING WORLD

Eric Jamieson, VK5LP
Forreston. 5233

AMATEUR BAND BEACONS

Freq.	Call Sign Location
50.025	6Y5RC — Jamaica
50.050	WA1ENX — Maine
50.080	TI2NA — San Jose
50.085	WA6JRA — Los Angeles
50.087	WA6MHZ — San Diego
50.088	VE1SIX — New Brunswick
50.090	WA6JRA — Orange
50.092	W7KMA — Oregon
50.098	KG6JIH — Guam*
50.100	ZK1AA — Cook Island
50.104	KH6EQI — Pearl Harbour
50.104	FX3VHF — Lannian
50.110	HL9WI — Seoul
50.110	KG6JDX — Guam†
50.110	JD1YAA — Marcus Island
50.500	5B4CY — Cyprus
52.110	HL9WI — Seoul
52.200	VK8VF — Darwin
52.300	VK6RTV — Perth
52.350	VK6RTU — Kalgoorlie
52.400	VK7RNT — Launceston
52.440	VK4RTL — Townsville
52.450	VK2WI — Sydney.
52.500	3D2AA — Fiji
52.500	ZL2VHP — Palmerston North
52.500	JA2IGY — Nagoya
52.800	VK6RTW — Albany
53.000	VK5VF — Mt. Lofty
53.100	VK0MA — Mawson
144.101	VK2WI — Sydney
144.400	VK4RTT — Mt. Mowbullan
144.475	VK1RTA — Canberra
144.500	VK6RTW — Albany
144.700	VK3RTG — Vermont
144.800	VK5VF — Mt. Lofty
144.900	VK7RTX — Ulvarstone
145.000	VK8RTV — Perth
145.100	ZL1VHF — Auckland
145.150	ZL1VHW — Waikato
145.200	ZL2VHF — Wellington
145.250	ZL2VHP — Palmerston North
145.300	ZL3VHF — Christchurch
145.400	ZL4VHF — Dunedin
432.400	VK4RBB — Brisbane
432.475	VK7RTW — Ulverstone

TV SOUND CANNELS

50.740	ZL1 — Te Aroha, near Auckland
50.750	ZL2 — Kaukapunake, Wellington
50.750	ZL4 — Hedgehope, Invercargill
50.760	ZL2 — Whakapunake, 200 miles S.E. of Wellington
51.740	VK2 — Wagga
51.750	VK4 — Brisbane
51.760	VK3 — Melbourne

* See text.
† See text.

The beacon list has been changed in format for this month and includes additional stations. The idea came when I read a very comprehensive list ot beacons in the WA VHF Group Bulletin prepared by their beacon officer, Phil VK6ZKO. I cannot vouch for the total accuracy of all listings, but I am sure Phil has researched the situation and one could believe they are substantially correct, the same as that is all I can claim for my own monthly listings. I have left out VK2RHR, the Mittagong beacon on 144.120, in response to a letter from Jeff VK2BYY, Vice-President of the VK2 VHF and TV Group, indicating that the beacon has been taken out of service as the site is to be used for a repeater!

* I do query whether KG6JIH is really a beacon on 50.098, but it is in Phil's list; similarly under † I query the call sign, as I had been informed the call is KG6DX. If the bands open sufficiently in the near future we may be able to clear that one up anyway by direct listening!

There will be those who will wonder at the sense of including those beacons in exotic places, but I would think it fair to say it is quite likely all will be heard or worked from some parts of VK during the next two years. It seems almost nothing is impossible on six metres given enough time.

The TV sound frequencies are included as they can be heard from time to time throughout Australia. Additionally, there are many signals to be heard in the area between 30 and 50 MHz, emanating from mainly areas to the north, FM stations of all types, two-way radio stations, TV sound and video channels, etc. I have personally logged more than 20 signals in that portion of the spectrum with signals rising to over S9 at times. It is very interesting to follow the rise in frequency of the MUF if you have a suitable receiver. One generally starts around 28 MHz and signals can be noted perhaps as far as 38 MHz. That's about where the MUF is at that time. Perhaps later signals can be heard up to 47 MHz. On a suitable day they may later be heard on 50 MHz, with some amateur stations in Japan being audible. There are plenty of occasions in southern areas anyway when the MUF may not rise above 50 MHz and we have the frustrating position of being able to hear JAs on 50 MHz and not able to work them because of our 2 MHz frequency difference. Given right conditions, of course, the MUF will continue to rise and JAs and others can then be worked on 52 MHz. And so the MUF can go on and on and on up too! When conditions change the MUF may slowly retract or go out quickly, but will often sit around 35 to 38 MHz for long periods. So a sweep of 30 to 54 MHz every so often is a good exercise and can be rewarding. I do, however, make a point of covering that portion of the spectrum in its entirety because it is just possible that a signal may be emanating from an area other than the north, e.g. Hawaii, with no FM signals to alert you, but as a general rule, there will always be something just below 50 MHz as an indicator if you are likely to hear anything from other places anyway.

Receivers to tune 30 to 50 MHz or above are very scarce and the rather poor type of portable available from some retail sources which cover that area are next to useless if you live within the service area of capital city TV stations. There are so many sub-harmonics and birdies from those stations that it is impossible to tell what you are listening to. Their front end selectivity is so poor that such problems must be present. So what to do?

If you are fortunate enough to get on to one of those small portable Army transceivers, then buy one. They are known as the PRC 10 or PRC 10A. They were made in the USA and used by the Australian Army until fairly recent times. They are beautifully made, fully tuneable between 38 and 55 MHz with two RF stages in the receiver. They operate on FM (narrow band) and the transmitter has an output of about half a watt. They have a very reasonable bandspread, fitted with squelch, 1 MHz calibrator dial light switch, etc.

They are designed to work from dry cells, and have special valves of the 5678 series, 1.25 volts on the filaments, 67½ and 135 volts HT supply, and minus 6 volts also for the transmitter. It is not too hard to make up a suitable power supply to operate from the mains, but it is difficult to get rid of all the hum unless you are careful to have suitable filtering for the 1.25 volt filaments. The audio output is limited to a headphone but this can quite readily be disconnected and the output taken to the audio section of a cheap AM transistor radio. I made use of the —6V provided for the transmitter in the power supply to operate the audio from a disused AM receiver, with very satisfactory results. The receiver is extremely sensitive and I believe would pace it with anything you could find on the market at almost any price!

For best results you must feed in 1.5 volts to the filaments, anything less and they will not operate. The receiver needs 67½ volts at 25 mA and it needs to be at least that many volts, anything less and performance is down. I use 75 volts. The transmitter needs 135 volts at 27 mA plus —6V at 300 mA for the 5A6 valve. David VK5KK and I had no difficulty in having a 5 x 9+ QSO over 35 miles using our 6 metre beams, and also a contact using a unity gain vertical antenna. There is a coaxial antenna input socket on the transceiver, and for wideband operation I use a colour TV antenna, made by Hills, called a TL3/01. This is a log aperiodic type antenna designed for use in Channel 0 areas, but gives good results down to 38 MHz and works quite well right up to 220 MHz, and is fed by 75 ohm ET13M coax and 57 feet high, and is rotatable on the six metre tower.

So go to it. A supply of these transceivers were very smartly snapped up in VK5 once their potential was realised. I do note they are being advertised in the eastern States so have a look through your magazine. One word of warning, though. Be very careful if you go poking around inside the transceivers with voltages applied. One slip of the screwdriver or meter test lead between HT and filament and you will need to replace every valve in the receiver at least, and there are about a dozen! You will not be given a second chance I assure you!

HAWAII WORKED ON SIX METRES

Such a statement might not raise many eyebrows in northern VK but it does mean something when applied to southern States. As the rush item indicated last month, KH6EQI was finally worked in VK2 and VK5. To fill you in on the scene, perhaps we should start with this letter from Phil VK2YDY, who lives in Moree, northern NSW.

"1-10-78: 0913Z JAs 1, 2, 3, 4, 5 and 6. The 4, 5 and 6 gave me WAJA on six metres! 2-10: 1106Z JA4 and 6, open for about 6 minutes. 12-10: 1100Z KH6EQI beacon heard S4. 1120Z: Phoned Bert, beacon custodian, to get him to call me. He advised he can only use CW on beacon frequency and he would listen on 52.104 MHz. 1130Z: beacon faded out. Rang Bert next day and he said he heard me for a few seconds. 15-10: 0645Z KH6EQI in again, S1. 0650Z: beacon faded out and JAs heard. Worked a couple of JA3s. 0755Z: JAs faded out and KH6EQI appears again. Rang Bert. 0759Z: CW from Bert S1-2. Bert heard nothing from me. 16-10: 0850Z KH6EQI barely audible. 0900Z: Signal strength to S1. Rang Bert again, to try again. Third time lucky? 0924Z: Signal reports exchanged, received R4S4. Sent R5 SO. (Gain of my receiver doesn't look good at 50 MHz.) Cross mode CW/SSB split frequency. 0945Z: Kerry VK2BXT worked KH6EQI. Signals peaking S9. 1030Z: Still copying KH6EQI calling CQ, VK, faded out shortly after. 17-10: 0330Z: Rang Bert again to discuss last night's happenings. He was very pleased to work you (VK5LP) and David (VK5KK). He didn't expect to work anyone else. He also said after his QSO with me he heard KH6IAA on backscatter calling me on 52.104 MHz. KH6IAA is about 18 miles southeast of Bert, but I did not hear him.

"I will get in touch with KH6GRQ and Don KH6DX and see if they can work SSB on 52 MHz. The KH6EQI beacon runs 80 watts output to a 6 element yagi on a 110 foot mast in Pearl Harbour dockyards. Bert receives with a 6 or 8 element quagi at his QTH. The beacon is remotely controlled from Bert's QTH and is also programmed to point to VK from 0700 to 1600Z."

Thanks for the information, Phil, and congratulations to both you and Kerry. To say that David VK5KK and I were pleased to work Bert also would be an understatement! David worked Bert first, with signals peaking to S9. David worked him both as KH6EQI and also under his own call sign of KH6HI. I worked him as KH6EQI at 1016Z, sending 559 and receiving 569. Mark VK5AVQ tried hard to latch on to Bert but was unsuccessful. Several others tried, too, with no results. KH6EQI was audible in VK5 for almost two hours from around 0945 to 1140Z with the strongest signals about 1000Z. So it's been done from VK5 once again but after a wait of some 18 years or so. It is believed Al VK5EK (ex VK5ZCR) worked Hawaii on six metres around 1960-61, and there is no supportable evidence it was done by anyone here during the last cycle.

Thus my statement of more than 12 months ago that I felt it necessary to include beacons from far away places because one day they would be heard has been vindicated. I firmly believe that our contacts will not be the only ones to such areas before the present high peak is gone, but you must be prepared to monitor the six metre band constantly when conditions are right, and that also includes knowing where the MUF is. Who said beacons are useless and outmoded? Maybe you don't need beacons if you are looking at an area of intense amateur activity, viz., Japan. But I am

certain the KH6EQI contacts would never have been made without the help of the beacon alerting those keen enough to listen and be on the bands. No grumbles, please, from those who missed out, it may be your turn next time, but it won't be if you are not able to or prepared to spend some time monitoring. The KH6EQI contacts just don't happen as a general rule, it means someone somewhere has done some homework in this case it was Phil VK2YDY and David and I were fortunate enough to share in the final results. After KH6EQI had faded out, a number of JAs were worked in VK5 with signals to S9, which shows a pattern similar to that at Phil's QTH, in that the JAs and KH6 are not available at the same time.

Neville VK2ZLL writes from Hargreaves, 40 miles north of Orange, to say he has been sharing in the six metre DX, particularly to Japan. First contacts started on 18-9. On 14-10 he worked VK4XZ in Townsville, and further JA contacts on 15-10 and 16-10, with the latter the best to date (same day as KH6EQI contacts). Further contacts to JA on 18, 19, 20 and 22-10.

Neville mentions he operates from a TV Channel 1 area, but fortunately the station is vertically polarized which helps a lot. He uses an IC502 barefoot to a 5 el. yagi 10m high, but is currently making some improvements, including a better dial drive, 3N210 pre-amp, 25 watt linear (for out of TV hours!), but as this is his first 6 metre season he needs time to get going properly, but is very pleased so far. Thanks for writing, Neville, and good luck.

FROM DARWIN

Graham VK8GB sends along a lot of information again. From it one notes two metres has been open regularly to Japan, but no new call areas except JA3WEG on 25-9 at 1110.Z. The other JA3 he worked previously was portable in JA4. Graham goes on to say:

"I worked Torres CR9AJ one evening for country No. 13 on six metres. He is looking for VKs on 52.050, but he hasn't been heard since 24-9. Gerry KG6JIH reported hearing an unidentified WB7 on CW on 50.106 at 0516Z on 14-10. Solar flux was 181 that day so maybe it was a marginal F2 opening. He was hearing KH6EQI at the time.

"The evening openings have been getting a long way south. Last night, 15-10, JAs worked VK1, 2, 3, 4, 5, 6 and 8, P29 and KG6. I haven't heard any JAs working you yet!! (Yes they have, I've been around! . . . 5LP.)

"FQ8DR has been fairly active. He has worked JA, KH6 and W6 recently and has been heard by HL9WI. The KH8 stations have been working into W and PY recently. KH6EQI was heard in Darwin every day (7 to 14-10) last week but no contacts. The guys over there don't seem to be too active at present. VK9ZR has worked widely into JA and KG6 in the evenings. VK9ZM has worked a lot of JAs but has been very quiet lately. The backscatter opening to VK4 on 9-10 was interesting. Signals were reflecting from an area over the Solomon Islands. Barry VK4ZBJ gave Brian VK8VV an S9 report!"

Graham sent me a copy of his log for the period 20-9 to 15-10 and again it is interesting to note the large number of two metre contacts to Japan. It appears Graham starts off woring stations on 28 MHz up to about 1000Z, then switches to 52 MHz, around 1100 changes to 144 MHz for an hour or so, then when these signals fade out, 52 MHz can be resumed again up to 1400Z or later, then back to 28 MHz. What is going to be interesting in the next year or two is whether this pattern is going to be maintained in Darwin with an increase in such activity in southern regions, or whether we will see a continuation of the rather spasmodic contacts we now get. Certainly here in VK5 there are many small openings, almost on a daily basis at present, to Japan, with one or two stations being worked, mainly on CW during the day, with stronger openings later.

So, in Darwin the following has emerged. 20-9: 52 MHz, 5 JA contacts 1325 to 1348Z. 21-9: 144 MHz, 7 contacts 1143 to 1223. 52 MHz, 6 contacts, including 3 to KG6, 1230 to 1318Z. 22-9: 1148 to 1152Z, 144 MHz, 2 contacts: 1158 to 1259Z 8 to JA, plus HL9WI. 23-9: 1058 to 1129, 52 MHz, 5 contacts. 1137 to 1202, 144 MHz, 2 contacts. 1217 to 1250, 52 MHz, 3 to KG6, one JA. 24-9: 1057 to 1144Z, 144 MHz, 14 contacts to S9. 1155 to 1400Z, 52 MHz, 7 to JA, 3 to KG6, and CR9AJ, a new country, at 1305Z at 5 x 9. 25-9: 1052 to 1158Z, 144 MHz, 24 contacts. 1205 to 1320 three contacts KG6 and JA. 28-9: 1048 to 1147Z, 52 MHz, 7 to JA. 29-9: 1130 to 1149 one JA, 2 KG6. 1245 to 1305, 52 MHz, 2 to JA, 1 to KG6. 1-10: 1050 to 1325, 52 MHz, 6 contacts. 1135 to 1332Z 9 to JA. 4-10: 1002 to 1029Z, 52 MHz, 5 to JA. 5-10: 1100 to 1132Z, 52 MHz, 4 to JA, 1 to KG6. 1202 to 1213Z, 144 MHz, 3 contacts. 1220 to 1258Z, 52 MHz, 7 to JA. 6-10: 1155 to 1347Z, 52 MHz, 6 to JA, plus HL9TG. 7-10: 1134Z, 52 MHz, JA2BZY. 1153 to 1157Z, 144 MHz, 2 contacts. 1304 to 1413Z, 52 MHz, 10 to JA, 1 KG6, HL9WI. 8-10: 1100 to 1120Z, 52 MHz, 3 to JA. 1142Z, 144.110, JH6TEW. 1208 to 1309Z, 52 MHz, 7 to JA, HL9WI and KG6DX. 9-10: 1220 to 1322Z, 52 MHz, 5 JA, KG6JIH and VK4ZBJ (backscatter). 11-10: 1045 to 1212Z, 52 Mhz, 3 to JA and KG6. 12-10: 1140 to 1210Z, 144 MHz, 4 contacts to JA. 1223 to 1231 Z, 52 MHz, 3 to JA. 1241Z, 144.154, JH6DVD. 1326 tto 1350Z, 52 MHz, 4 to JA. 13-10: 1035Z, 52.046, JH2VHL. 1144to 1157Z, 144 MHz, JA6SZC and JR6HRE. 1215 to 1230Z, 52 MHz, 5 to JA. 14-10: 1115 to 144Z, 52 MHz, 3 to JA. 1150 to 1203Z, 144 MHz, 3 to JA. 1245 to 1407Z, 7 to JA, KG6JIH. 15-10: 1110 to 1241Z, 144.110, 11 to JA. 1225 to 1325Z, 52.033, KG6JIH, 2 JA.

For those of you who have been following the trend of events by reading the detail of these contacts will note that 144 MHz does not come any earlier than 1100Z except for those days of a large number of contacts when they may start soon after 1030Z. The band appears to remain open at that frequency for 1 to 1½ hours with a variety of signal strengths — but this may be due in part to station efficiency at the JA end rather than band conditions. The contacts continue to appear on a very narrow north-south path with no deviations so far. It would be interesting to know how much further than Darwin the signals are travelling south. If there were 2 metre operators at Wave Hill Station, some 300 miles due south of Darwin, we might get some idea where signals are finishing up, and how they relate to the Darwin contacts.

VHF ADVISORY COMMITTEE

It was very encouraging to listen to the WIA broadcast of 5-11 and hear Peter Wolfenden VK3ZPA, Chairman of the VHF/UHF Advisory Committee, say it now appears unlikely there will be any proliferation of the use of Channel 5A, particularly in the capital city areas. No doubt due in no small way to the depositions submitted by the WIA and the general lobbying by amateurs in their own way has brought enough pressure to bear for the matter to be reviewed at the appropriate level. I have always conceded in these notes that there are enough people with the necessary skills in the P. and T. to enable sensible decisions to be made if the necessary facts are presented. We hope this has been the case this time, and if the present statements means the end of Channel 5A eventually throughout the country it will be a great step forward. Our thanks to all concerned, including the P. and T. from Ministerial level downwards.

We can now only hope something can be done about Channel 0. Whilst it appears some thought is being given to the changing of Melbourne and Brisbane away from Channel 0 one does wonder what went wrong with P. and T. thinking to allow the setting up and operation of a Channel 0 translator in the Cairns area of North Queensland — right in the heart of sporadic E propagation. I have already had reports of a similar station in Vladivostok causing interference during September. It's just too hard to credit the thinking which precedes such a decision, surely it can only be noted as an official blunder. I know the translator operates with 500 watts and a directional antenna pointing inland, but the low power will allow interference to be received all the more readily. Whatever next are we going to hear about!

GENERAL NEWS

I recently advised Aub VK6XY in Albany by telephone that the Adelaide beacons were now back on the air after an overhaul, during which a new specially cut crystal was installed in the 2 metre beacon in an effort to improve its stability. Aub in return mentioned their six metre beacon was undergoing a frequency change to 52.800 MHz as from early December due to a mixing problem caused by one of the local TV stations appearing as a spot on the old beacon frequency. The beacon list has been amended accordingly.

In talking with David VK5KK he mentioned that to 6-11 he had worked 89 JAs for the month, but considered it a slack month as the previous period from 17-9 he had worked 102! So that makes a total of 191 from 17-9 to 6-11, of which he worked 50 on 18-9! Total for 1978 to 6-11 stands at 374 contacts with stations in Japan.

These figures give some idea of the consistency of contacts being made with Japan, some are only CW strength but are worked, and can appear as early as 0300Z or as late as 1440Z, depending on the mode of propagation. Many of the contacts appear to be made at a relatively low angle of reception as anyone shielded by hills like myself or some in Adelaide find the signals much weaker and at times unworkable. David consistently receives such signals 4 or 5 S points stronger due to his open location at Wasleys, 55 miles north of Adelaide. He is now aided further with the installation of two stacked 8 element yagis for six metres which lower the vertical angle considerably.

It appears the Japanese effectively know about our 2 MHz difference from their main operating area of 50 MHz, and there seems little doubt the large amount of publicity we have tried to make available overseas regarding the difference has been noticeable in getting stations to look for us, but we must still miss many contacts because lesser known areas like Hong Kong, Korea, Philippines, various island groups, etc., are never heard on 52 MHz, always and 50 MHz, where they are in demand by areas which can work 50 MHz, so of course they can work all they want to without having to worry about us. So it seems we are going to miss out on useful and unusual contacts through not operating on 50 MHz and unless P. and T. unbends a little that situation is going to continue or some will take the chance and operate on 50 MHz anyway, something which is not desirable. Many CBers operate on illegal channels with immunity because they are not known; we may find it difficult to do the same if we wanted to because of the needs to give call signs to confirm contacts.

Thought for the month: "Married life teaches one invaluable lesson: to think of things far enough ahead not to say them." That's all for now. Many thanks to David VK5KK for providing the excellent notes last month.

73. The Voice in the Hills. ■

INTERNATIONAL NEWS

Reciprocity. When making application for a reciprocal licence in the UK the Home Office have required a UK address. According to Radio Communcation September 1978 this is no longer a requirement for touring visitors requiring a licence for 28 days or less.

TONGA

Printed in the September 1978 issue of Break-In is a letter to NZART from the Supt., Dept. of Tel. and Tel., Nukualofa, Tonga, advising that all A35 amateur radio licences expire 30th June each year and can only be renewed on personal application at a T. and T. office. ■

QSP

PIRATES

It appears from the DX notes in Radio Communication October 1978 that pirate activities on the amateur bands using amateur call signs is not confined to Australia. One example quoted was deliberate interference by a known pirate call sign (that of G3RCA) on several DX dog-piles by calling CQDX on the frequency.

70 cm INTERFERENCE

According to Ham Radio August 1978 amateur users of the 70 cm band may be in for severe interference problems when the US Air Force "PAVE PAWS" radar goes into operation in the next year or so. This is a very long range system which has an average ERP of about 1000 megawatts; the main beam could burn up a receiver front end 15 km away. ■

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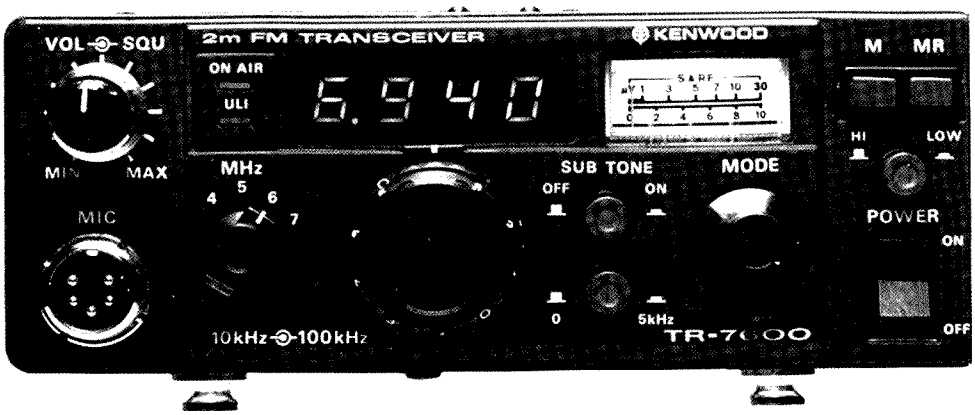

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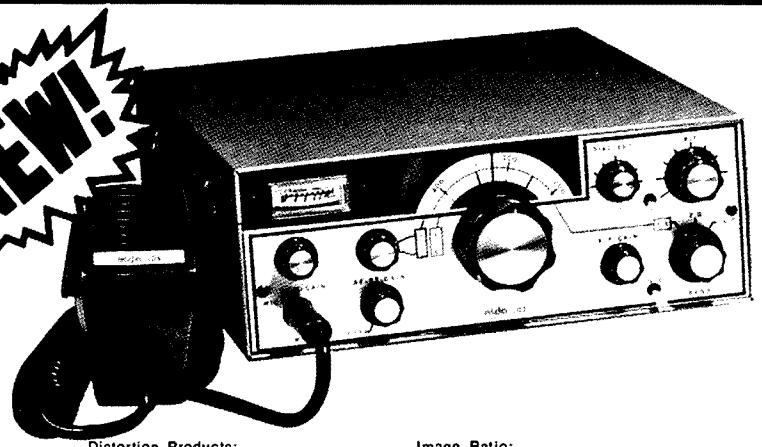

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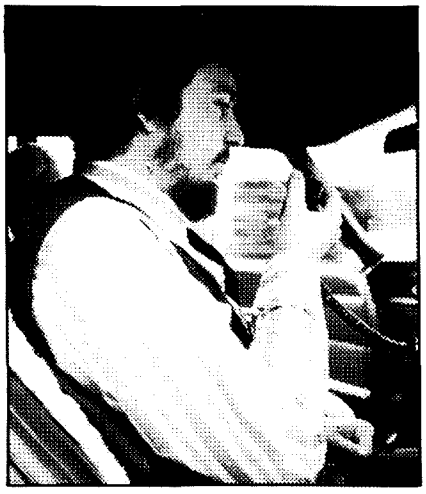

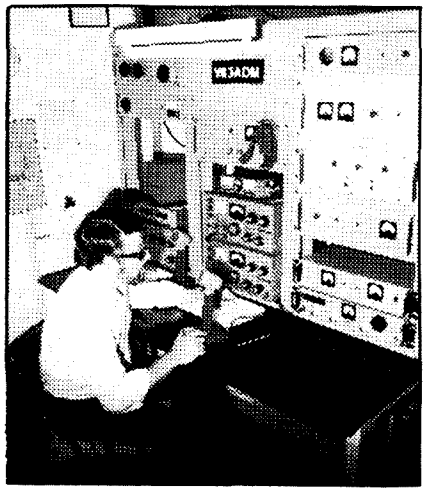

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LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

Dick Ashton VK5DQ
P.O. Box 11, Woomera, SA 5720
28th October 1978

The Editor,
Dear Sir,

I thought that you might be able to use the enclosed "press" we got from the Woomera newspaper (The "Gibber Gabber") in Amateur Radio. We don't often get mention in AR, so how about putting it in? — **(Yes, most happy to — is published elsewhere in this issue — Ed.)**

We are involved in regular (not quite weekly) Sunday morning QSOs with other SA Scout stations since the virtual demise of the 80 metre weekday night SA Scout net. Our skeds are with VK5BPN and VK5BPT on 7070 +/— QRM most Sunday mornings at about 10.30 SA time, after the VK5 40 metre call-back has concluded. A number of Jamboree-on-the-Air stations in the Eastern States and Tasmania have expressed interest. ■

The Editor,
Dear Sir,

Your reply to Ron Goodwin VK2BKN, page 45, AR October 1978, is, I think, incorrect. That is if you wish to convert GMT to "VK2" time.

GMT never changes, but LMT at Greenwich does sometimes, however local time for VK2 land is GMT plus 10 and, come daylight saving time (or local daylight saving time) will be GMT plus 11, not 9 hours as suggested.

Yours faithfully,
G. Lanyon VK2AGL.

(Yes, so I found out, see p. 22 November AH 1978.—Ed.) ■

Newspress Pty. Ltd.
250 Spencer Street, Melb. 3000.
October 16, 1978.

The Editor,
Dear Sir,

A letter appeared in issue 6 of Amateur Radio Action (not AR) which complained of the intrusion of full-grade operators into frequencies allocated for Novice usage.

This letter was attributed to Mr. Rob Stewart (VK3NOW), and I wish to make it clear that this letter did not, in fact, originate from this operator.

Mr. Stewart not only does not share the opinions expressed in the letter, quite to the contrary — he is very happy to hear full-call stations operating on these frequencies as on several occasions he has made worthwhile contacts as a direct result of assistance from a full-call station.

I wish to sincerely apologise for any embarrassment caused to Mr. Stewart as a direct result of this letter and, in consequence of this situation, the following now applies to any letters intended for publication in Amateur Radio Action.

No letter will be considered unless it contains a private phone number or other means which can be used to check the authenticity of the letter and verification of the author.

Again, my sincere apologies to Mr. Stewart, who, we again stress, was in no way associated with the letter in question; also, my thanks for his understanding of the regrettable occurrence.

Yours faithfully,
Len Shaw, Managing Editor. ■

11.10.78

The Editor,
Dear Sir,

As a VK3 divisional councillor, and a person who had not been involved with many on-air contests in the past, I felt that it was my obligation to enter and to operate in the last Remembrance Day contest.

Prior to the contest, my wife, who consented to stay up through the contest and keep log for me and myself put in several hours of work making the equipment set up satisfactory for the contest and making the house suitably visitor and distraction proof for the duration. All in all, we were both quite enthusiastic about the coming ordeal.

At the starting time and after the address, the bands became alive with signals and I was wondering how long we could keep the pace. However, as time moved on, the contact rate generally slowed down with occasional bursts of rapid activity and continually scanning the bands coupled with gallons (many litres) of the Xyl's coffee kept us going.

It was not until the early daylight hours of Sunday morning that I started to regret that I had *entered* the contest as *time after time* we were subjected to very poor operating tactics by other stations, i.e. piracy of the frequency I was operating on to catch my last contact and to keep the new frequency as fresh unbroken ground from which to score a few more elusive points.

As our tolerance started to wane, I became more critical of not only the very poor operating ethics of some amateurs but also of their signals. Some sideband signals were so wide in frequency and distorted that in comparison one could be forgiven for thinking that AM was the new mode that conserves frequency space. I presume that these competent operators were inclined to think that if they made their signals wide enough and loud enough they would not only suffer from adjacent QRM due to effective blocking of adjacent frequencies but be regarded as an easy contact to be had by others with a callous disregard to the spirit of the contest.

By 2 p.m. EST, both my wife and myself were on the point of complete disgust with some operators and so after some 400 point scoring contacts, I turned the equipment off and vowed to never again enter any on-air contest that did not discriminate against the poor operator, or one that allows the idiot, the unthinking and ratbags to certify that they have operated in the spirit of the contest . . . Let us all look at our operating habits and if found wanting in some areas, don't shrug it off as a joke, do something about fixing the problem. After all, amateurs are not the only ones who listen on our frequencies. Remember the slogan "use them or lose them"?? How about, use them, but don't abuse them or lose them . . .

Perhaps next year, depending on rule conditions we will again try the RD . . .

Ian Foster VK3BLF,
Watts Road, Nicholson 3882. ■

10 Farrow Street,
McDowell 4053.

The Editor,
Dear Sir,

"2 METRE FM CHANNEL CHANGE"

Amateurs have witnessed the exceptional growth of FM activities within the 2m band and, by discussion, most have been conditioned for the inevitable revision of the FM and Repeater channel system incorporating a closer spacing. What is happening to the band 144 MHz to 148 MHz is merely a repetition of the problems experienced with the commercial FM two-way radio bands which resulted in a 15 kHz spacing. This final spacing was achieved in several steps but was hindered by the technology of those days. We are more fortunate, as the technology is now here to allow us a channel spacing of 15 kHz and possibly less with minimum co-channel interference. So when planning a band change why settle for half measures? Why not establish a system that will, or is working now and allows ample expansion with nil or insignificant alteration?

Even amateurs are reluctant to change an accepted system, and to suggest an idea that has some anomalies is to provide criticism which need not be.

By analysing the suggested system as kindly listed in the October edition, it is apparent that if a 25 kHz spacing only is considered, then the channel numbering appears to be systematic.

Example 1.

CH 602 = 146.025
605 = 146.050
607 = 146.075

However if the numbering is to exhibit a relationship to the actual frequencies (as would be displayed on some synthesized sets) then discrepancies would be most apparent.

Example 2.

CH 602 = 146.025
603 = 146.035
605 = 146.055 **

or Example 3.

CH 602 = 146.020 **
603 = 146.030
605 = 146.050

The last two conceptions illustrate the inadequacies involved.

If the first system (1) is the intended interpretation then may one be excused for inquiring as to the whereabouts of channel 603, 604, etc.

Credit should be given to the committee that instigated our existing 80 channel concept as it is easily expanded to an 800 channel version of 5 kHz spacing without *affecting* the present 60 channels.

e.g. 146.000 = CH 40 maybe CH 400
146.025 = nil maybe CH 405
146.550 = CH 51 maybe CH 510

System of Calculation:—Example CH 506.

1st Digit = 5 x 500 kHz = 2.500 MHz
2nd Digit = 0 x 50 kHz = 0.000
3rd Digit = 6 x 5 kHz = 0.030

144.000
CH 506 = 146.530 MHz

This concept should prove widely acceptable due to its relationship with the present system and yet be more versatile than other suggestions because of its 5 kHz channel spacing. It also lends itself to synthesiser control with three thumbwheel switches.

Remember, time is here for criticism but your approval or disapproval will be wasted if it is not aired prior to the committee meeting which may select a concept that is not ideal.

Gary Ryan VK4AR. ■

98 Natimuk Road,
Horsham 3400.
November 8, 1978.

The Editor,
Dear Sir,

Further to a letter from David Robertson VK5RN in your November columns about lack of success in relation to Channel 5A, may I have space in Amateur Radio to tell of my experience?

Along with a number of others, I wrote to the Minister for Posts and Telecommunications about the Channel 5A problem. Part of his reply is reproduced below:

"Channel 5A is currently allocated to four television stations and seven translators throughout Australia. In each of these cases, interference to amateur radio operations has been able to be resolved. The Minister recognises, however, that the use of the channel in this manner does not accord with International practice. Its more extensive use in recent years has been due to the increasing demand for television services and the allocation of certain VHF frequencies for FM broadcasting.

The 1979 World Administration Radio Conference will consider the future use of the VHF band. It is likely that the Australian brief for the conference will recognise that the use of channel 5A for television should be phased out as soon as practicable."

I believe this goes even further than the Departmental Media Release reproduced in WIANEWS in November Amateur Radio headed "Go Ahead for Ethnic Television".

Yours faithfully,
S. G. Phillips VK3JY. ■

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

This issue I wish to provide some guidance for regional and club WICEN officers on training programmes.

A WICEN course must be short to retain maximum interest and participation, Initially four evenings or one full day are suggested as a suitable duration.

A suggested WICEN course block syllabus is as follows:

Aims of WICEN, register of members and equipmen: 1 period of 40 mins.
Emergency service voice procedure: 1 period.
Message writing: 2 period.
Formal message handling on air: 2 periods.
SIGCEN procedures, formalities P. and T. regs. insurance: 1 period.
VHF local coverage forum: 1 period.
Call out procedure and WICEN administration: 1 period.
May reading: 1 period.
SES — local organisation and liaison: 1 period.
This should be followed by a half day field radio exercise to consolidate the classroom work.

Voice procedure is based on SES practice, i.e., the grey "Civil Defence Communications, Part III, 1969" booklet.

The scope is deliberately wide, including as it does message writing and map reading, for example, to ensure that the WICEN operator has a good knowledge base to complement his local SES official in any emergency situation.

Course organisers can obtain more details, including instructors' lesson plans, by writing to the Federal Co-ordinator, or contacting their Divisional Co-ordinators.

WAGGA WICEN

So lar this season there has only been one moderate flood on the Murrumbidgee, and WICEN was used to provide communications for the Wagga Rescue Club as part of the excellent standing arrangements that exist between the two organisations. During the past six months, members of the Wagga Rescue Club obtained adn completely reconditioned a 75 foot heavy-duty radio tower for the purpose of erecting WICEN's VHF and HF aerial systems. This tower, when combined with a most excellent operating console and telephone, would serve as an indication of the top liaison that exists between this VRA Club and Wagga WICEN. It is also pleasing to report that an association of a similar manner exists between WICEN and the Regional Headquarters of the State Emergency Services, with whom Wagga WICEN is greatly involved during times of major river flooding.

Recently, a large WICEN exercise was conducted in conjunction with a Handicapped Persons Radio Appeal Day via the local broadcast station. WICEN's role was to accurately handle over 1000 messages during a twelve hour period. A base was set up at the broadcast station centre and information was continuously passed to six WICEN mobiles strategically positioned throughout the city. The efforts of many WICEN members helped in making the worthwhile event most successful and at the same time provided members with the opportunity to handle high density messages, quite often under pressure.

WICEN INVOLVEMENT IN NDO EXERCISE

On Thursday, 2nd, and Friday, 3rd November, 1978, Australian amateurs took part in the annual Natural Disasters Organisation (NDO) exercise.

Exercise COMCOORD involved a simulation of cyclone damage at Cairns, floods in Northern NSW and major bushfires in the Blue Mountains to exercise the staff of the Natural Emergency Operations Centre (NEOC). WICEN groups were involved in providing communication links to the affected areas from NDO headquarters in Canberra.

The ACT WICEN group provided and manned a series of stations to give total coverage of the 28 hours of the exercise. During this time a large amount of message traffic was exchanged with WICEN groups in Cairns, Lismore and Orange. Also the SA and WA groups were on listening watch and exercise traffic was passed to WA during the night period. A link into NEOC was maintained using a NDO high band VHF portable set.

At the initial debriefing, immediately after the exercise, the NDO Exercise Director expressed his thanks to WICEN for a job well done and invited the Federal Co-ordinator to make proposals for WICEN involvement next year. Thanks are due to all amateurs who took part and demonstrated our capabilities. ■

DIVISIONAL NOTES

ACT

The Mt. Ginini repeater stolen earlier this year was recovered in Melbourne.

NSW

All the "N" suffixes have been used up and new suffixes in the VAA-VZZ series are being issued as well as "N" suffixes vacated when Novices upgrade. Even the AA to BZZ call sign series have almost been completely used. 1979 VKZ subscription rates will be the same as for 1978.

NEWS FROM WAGGA ARC
AOCP AND NAOCP TRAINING

The Novice Course for 78 is now completed, and the candidates are now waiting for the 21st November examination. It is envisaged all of those that have completed the 1978 NAOCP course are intending to enrol for next years full AOCP. For those who are not currently undertaking training with the Wagga Amateur Radio Club, and who wish to join the Club's 1979 Training Scheme (either NAOCP or AOCP) you are invited to write to the Secretary, c/o P.O. Box 71, Kooringal, Wagga 2650 for full details.

VHF REPEATER

The Wagga Club VHF Repeater (Ch. 3) is still fully operational and provides around 50 km mobile coverage in most directions. The power output has recently been raised to 30 watts into the coax. which feeds a 4.5 dB aerial system. The receiver is operating via a temporary antenna until the system duplexer is satisfactorily completed and tested.

VICTORIA

In a recent appeal the Victorian Town Planning Appeals Tribunal decided that a planning permit for an amateurs' tower was not required even though erected on residential zoned land. Only a building permit is now necessary. 1979 VK3 subscription rates will be $23.00 for F and C, $20.00 for A and T, $12.00 for students and pensioners.

QUEENSLAND

The Sunshine Coast ARC has been re-formed under the Presidency of VK4CY. VK4 subscription rates for 1979 will be the same as for 1978.

SOUTH AUSTRALIA

A new amateur radio club was recently formed in Port Lincoln. At the inaugural meeting on 5th September Jack Martin VK5EJ was elected President. Jack was a valued member of the Federal Executive some years ago before he moved house.

Michael Owen VK3KI visited Adelaide in September at the invitation of the Divisional Council to give an expert opinion relating to the refusal of a Local Authority (upheld by the Planning Appeals Board) to grant an application from a WIA member to erect a tower. Michael briefed Divisional Council on WARC 79 matters during his visit.

A one-day Divisional Planning Conference to be held in December will assist the Council to determine the right direction for future progress.

VK5 subscription rates for 1979 will be $23.00 for F members, $21.50 for ACT members and $11.50 for students and pensioners ($4.50 for family membership).

TASMANIA

Bruce Bathols VK3UV attended the Hobart Convention early in November as a representative from the Executive. 1979 subscription rates will be $20.00 for all grades FACT and zones. ■

MAGAZINE INDEX

Syd Clark, VK3ASC

BREAK IN August 1978
Otago Branch 70 cm FM Transceiver; SL600 Series Transceivers; Great Circle Bearings.

CO July 1978
Collectoholics; The General Radio 821 RF Admittance Bridge; The Ten-Tec Argonaut (Review); Pre-Launch Testing of AMSAT/OSCAR 8; Economical Diode-Switched Crystal Filters; An RTTY Primer, Pt. 5 — Getting on the Air; Trouble Shooting Techniques for Solid State Circuitry; Home-Brewing, Soviet Style; A New Prediction for Cycle 21; Incorporation of the Vacuum Relay QSK Into a Commercially Equipped Station, Pt. 2 — The Heathkit SB400/401; An Unabashed Look at Personal Computing; It's a Snap; Antennas: Quads and More Quads.

QST July 1978
A Digital Speech Readout for the Electronic Keyer; Series-Section Transmission Line Impedance Matching; Put Your All-Mode 2 Metre Rig on 220; Transmitter Design — Emphasis on Anatomy, Pt. 3; CB to 10 Metres; Power Relations and Decibel Made Painless; West to Macao; How Safe Is Your Ham Shack? Pt. 2; OSCAR 8 Has a Message lor You; Results, 1978 Simulated Emergency Test Results, 31st ARRL VHF Sweepstakes; Rules, 1978 ARRL UHF Contest; Of, By and For . . .; The Worst Form of Government; Moved and Seconded; South America and WARC 79.

OST August 1978
A 2 Metre Frequency Synthesizer; Transmitter Design — Emphasis on Anatomy, Pt. 4; Simple Ladder IF Filter; The Audiobox — An Amplifier with a Twist; Updating Phased Array Technology; A Programmable Regulated Power Supply; Antennas — Keeping Them Up; Amateur Radio Shines through the Blizzard Blitz of '78; CQ Ham Radio; What's So Rare as a QST from 1915; September VHF QSO Party; Revised Club Competition Rules; Results, 1978 Novice Roundup; Those FCC Exams; San Diego, Here I Come; ARRL Testifies in Support of Goldwater RFI Bill; Amateur Radio In Pakistan.

RADIO COMMUNICATION September 1978
A Simple Repeater Control System; The Phoenix; Modifications to the FR50B; Technical Topics; OSCAR News, FAE Courses 1978-9; HF NFD 1978 Results; Contests Calendar SSBTV Scene; Raynet—Special Event Stations Mobile Rallies Calendar.

73 July 1978
Enjoy All Five Bands; Reincarnating Old Test Equipment; Finding Radio Pests; Video Magic for Your Home; Novice Guide to Phased Antennas; Can a $20 FM Rig Work?; Hiss Exterminator; Instant Engraving; The New, Improved Automatic Thermostat; Give 'Em a Break; It's Flora Clock; Build Your Own Digital Dial; The FM Rebroadcaster; J. B. Fields, Radioman; Counter Accuracy for Perfectionists; The New Op Amps; 22 Remote; Handling Old George; The IC-22S Scanner; Computerized Capacity Meter; A Much Needed Micoder Power Supply; Your Scope Can be Improved; How About SSB CB Conversions; The Universal Notcher; The $5 Memory Keyer; Should Repeaters Use Sub-Audible Tones; RAMmed by Morrow; Six Said His First Words Today; The 22S Programmer Program; The Occult Computer; A Baudot Program for Your Micro; VHF Notch Filler; Yes, You Can Build a Synthesizer; Beat the Microphone Blahs; Forbidden Contacts; A Darn Good IDer; Pick a Frequency . . . Any Frequency; Sometimes a Kit is Best; Coming Out ol the Cold; Roy Rogers Special; Triggered Sweep; VHF Transverters and the FT-101; Instant Paddle; Watch the Wind; The War Against Rust. ■

QSP

YUKON PREFIX

July 1978 QST advises that the Canadian DOC has changed the prefix of all amateurs in the Yukon to VY1. Amateurs In the north-west territories will retain their VE8 calls. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

Surplus Conversion Manuals, radio astronomy, weather satellite, FM and Repeater books, VHFer, EA, ETI, RTH, E.E. Mags. GC, pwr. trans., pwr. supplies, meters, antennas, Ameco PCL RF preamp. 1.8 MHz-54 MHz; many other misc. items; send large SAE for lists. Jeff Silvester L30409, QTHR. Ph. (03) 546 3940 A.H.

TS520, complete with AC-DC power supply (1977 model), perfect cond., $600, or swap for near new FT7, with or without AC-DC power supply — will haggle. VK2AZT. Ph. (069) 42 1392.

Kenwood TS700S 2m multi-mode transceiver, as new cond., $700 ONO. S. Greening VK2ADP, 4/56 Wallace Street, Kingsford. Ph. (02) 398 2951.

Hidaka VS-41/80 KR multi-band trapped vertical 10-80m, incl. VS-RG radial wire traps for 80m and 40m, $90; 3 el. mono band beam antenna for 10m/11m, $60. VK3NRB. Ph. (03) 459 8378.

ICOM IC202E 2m SSB, new model 3W PEP hand-held/base transceiver, unused, in original packing with standard accessories, $185 cash. Ian Cousins VK5IK, QTHR. Ph. Eudunda (SA) 252.

Kenwood TR7400A, 2m mobile, 800 ch., 25W, $449; Kenwood TS700A, 2m all mode base transceiver, $699; trap vertical 18 AVT 80-10m, $95; all equipment new. VK2ZHL, QTHR. Ph. (047) 31 1616.

Drake Rx SSR1, $220; Katsumi electronic bug key, model EK 127, $35; Katsumi programmable memory electronic bug key, model EK 1024, $120. VK3ZAN, QTHR. Ph. (03) 306 9380.

Hygain 204BA 20m mono band yagi with BN86 balun, good cond., 3 yrs. old, $155. VK3UV, QTHR. Ph. (03) 90 6424 A.H.

TEN-TEC Century/21 solid state CW tcvr., model 574 (digital), as new, $475; Eddystone 880/2 Rx 30, band high stability full coverage — 400 kHz to 30 MHz (1 kHz readout), five position selectivity xtals, filters, $400; Nagara 5-band trapped vertical, as new, $100, or exchange lot for IC701 tcvr with cash adjustment. Ralph VK5NRD, Regency Park Community College, Regency Park 5010, S.A. Ph. (08) 46 6260 anytime.

ICOM IC-22 2m FM Trx., mobile mount, manual, channels RPT 2, 3, 4, 8, Simplex 40, 50, Scalar 25 5/8 mobile antenna, $140. VK3ZZT Cesare, QTHR. Ph. (03) 51 9156 Bus., (03) 277 2023 A.H.

Morse Key, Wm. Nye, American type with switch, brand new in box, $14. VK3XU, QTHR. Ph. (03) 725 0824.

Uniden 2020 SSB Transceiver, 10-11-80m, 240V AC, 12V DC operation, with Uniden 8010 external VFO, matching Uniden speaker, microphone, in as new excellent cond., suitable for novice and/or full call operation, $650 complete. VK2JO. Ph. (02) 36 7756 or (02) 389 0428.

Are you checking our bands for

INTRUDERS

AND REPORTING SAME TO THE INTRUDER WATCH CO-ORDINATOR?

MFJ-16010ST Super Tuner, very compact ATU, 6 x 5 x 2½ in., rated at 200W, 10m to 160m, takes coax., twin or single feed, ideal for portable (or base) use, $55. VK3LJ, QTHR. Ph. (053) 32 3412.

Trio AG202A Audio Sig. Gen., $100; Trio SG402 R/F sig. gen., $100; communications Rx, type R5223 (1.5-30 MHz), plus tuning and line up details, $100; Johnstone Viking converted to 10m, complete with circuit and photo handbook, $80. VK3BIW, QTHR. Ph. (03) 560 3513.

ICOM IC-22 FM Transceiver, mobile mount, xtals ch. 40, 50, manual and carton, ex. cond., $155; Eimac 2 x 7035/4X150D linear finals, 1 x 8621-4CX250F, also GE 0-6 RF amp. ammeter, $40. Reg Hardman VK4XH. Ph. (07) 341 2228.

UNIDEN 2020 Transceiver, complete with mic., external VFO and matching ext. speaker; all units in mint cond., unmodified in any way and complete with manuals. Will not separate, $700 the lot. All offers considered. VK3ASI, QTHR. Ph. (052) 9 9692.

18 AVT/WB Vertical, $95; Yaesu UD844 desk mike, $30; Daiwa RF550 AC-DC 6 dB speech processor, $130. All as new. VK4ZT, QTHR.

Realistic AX 190 Communic. Rx, without faults and unmarked, amateur bands 80 to 10m and 15 MHz, 27 MHz, complete with 12V lead and instruction book, $165. VK2NDT, QTHR. Ph. (02) 871 8394 A.H.

Philips Colour VCR, model N1500, VHF—in/out, video—in/out, with svce. manual, $715; Shibaden SV700E ½ in. B/W VTR, complete with conv. kit and instructions for colour conversion, inc. h/book, $325; Philips ½ in. VTR LDL 1000 (new), plus w'shop manu., $225; Heathkit digital multimeter kit 1M-1202, $72; 3 x 1 in. Vdilcon camera tubes, brand new, amateur grade, $30 each; professional flying spot scanner tube MC13-16, $25; Hewlett Packard freq. counter 5381A (7 digit), near new, $250. Mick Cole VK6TV, QTHR. Ph. Kellerberrin 245, A.H. 303.

Power Transformers, 240V PRI 110-127V sec. at 16A (1760W-2032W), ideal for high current power supply; a steal at $40 each. VK2DC. Ph. (047) 39 2782.

Toroids as on p. 581 of 1978 ARRL handbook, take legal power 3-30 MHz, $7.55 each, plus p. and p. 50c for one, $1 for two. VK3AGF, QTHR. Ph. (03) 379 6524.

FTV650 6m Transverter, 195; Cushcraft 5 el. beam, $59, both never used; crystals for IC22A, five anti-repeater, R3, R4, R5, R6, R8, $8 per set or $35 the lot. VK2BBJ. Ph. (02) 84 7170 or Bus. (02) 631 7588.

FT620 50-54 MHz Transceiver with AM filter, $290; Hygain beams, 10-15m duo-bander, $125; 20m 4-el. 204, $170; TH6 tri-bander, offers. VK1VP, QTHR. Ph. (062) 48 5882 A.H.

TS520 AC-DC outboard VFO hand mike, $750. VK2ACC, QTHR. Ph. (02) 520 8659.

FV401 VFO, $130; SP400 speaker, $35; Heath HFW-1 sweep generator, 3.8-220 MHz, with manual, $60; 4 TT22 valves, suitable 400W linear with GEC circuits and data, $20. VK2ZHF, QTHR. Ph. (02) 631 1269.

3 GHz x 5 ft. 6 in. Dish, fully steerable, with 24V DC motors, bearing 0-360 degrees and elevation 0-180 degrees, remoted using 50V Selsyns, waveguide feed, $250; B-60 Tx Rx 4.5-5.0 GHz, complete less dishes, tropicalized, new 240 V AC, 3 ch. RTTY duplex and 1 voice, $100 for two; 12 core cable x 50 ft., new with plugs, $8; 1 MHz vacuum mounted xtal, $10. Doug VK3YMG. Ph. (058) 21 2309 Shepparton.

The Ideal present. A complete Novice self study kit, theory tests, questions, morse tapes and text; ideal for budding Novices, only $15 posted. WIA (NSW) Education Service, PO Box 109, Toongabbie 2146.

Morse Tapes C60 Cassettes — specify morse speed with order — only $2 posted. WIA (NSW) Education Service Tapes Officer, F. Santos, 8 Cooper Street, Blacktown 2148.

Ten 4-125A Valves (manf. by Siemens), unused in cartons, $15 each; four 10.7 MHz HY-Q xtal filters (QMF 10712), new, $12 each; model 15 TTY keyboard with tape punch, $20. VK4KC, QTHR.

Kenwood TS520S Transceiver, 40 ft. telescopic tubular mast with 80, 20 and 10m dipoles and co-ax. feeders and SWR3 meter, $600 ONO. VK5VE, QTHR. Ph. (08) 258 6070 A.H.

IC202 2m SSB, mint cond., with IC20L 2m linear, $220 the pair. VK3WW, QTHR.

TS520S, showroom cond., plus YD844 desk mike, $670. VK2AAM. Ph. (049) 43 7000 A.H.

Standard SR-C146A 2m FM, 5 ch. hand held tcvr., with leather case, Ch. R2, R4, R8, 40, 50 fitted, AC charger, Nicad batteries, helical ant., speaker/mic., earphone, orig. packing, $225. Brinsden VK3YFJ. Ph. (03) 560 5233 Bus., (03) 870 0640 A.H.

Tower, triangular, self-supporting, hinged at base and halfway up main section, 44 ft. high with ladder; will extend to over 60 ft.; can be transported in two 22 ft. sections, $150 or best offer. VK2ZHR. Ph. (049) 45 9373.

WANTED

Looking for equipment with which to work on 6m FM. VK2AJS, Unit 6, 34 The Trongate, Granville 2142. Ph. (02) 682 4015.

ICOM 502 Portable 6m Transceiver for new licensee; also other 6m accessories, beams, etc. Prices and particulars to L. White, 30 Oaklands Parade, East Brisbane 4169, Old. Ph. (07) 391 6160.

Photostat copy of PC board of the VOX constructed by W1KLK, originally appearing in QST for March 1976. VK4NBP, QTHR.

Allen Bradley Feed-through Condensers, 450 to 1500 pF, as used in VK3 432 conv. or some older TV tuners; will pay $1 each for new or used; also wanted to know anybody interested in purchasing a range of chip capacitors. VK5MC, QTHR. Ph. (087) 35 9014.

Collins 800 Hz Filter, type F455FA-08 or 500 Hz filter, type F455FA-05 to suit 75S3 receiver. A. Stowar VK2AS, QTHR. Ph. (02) 467 1784.

All Mode 2m Transceiver or FM multi-channel, solid state or hybrid; also high band VHF FM single channel transceiver, solid state prel. Max Wood VK3NHZ RMB4217, Tallangatta 3700. Ph. (060) 72 5217.

Conversion details to 28 MHz for super Panther, American Electronics 76-577 digital PLL SSB CB. VK2ZQC, QTHR. Ph. (02) 81 2143 A.H.

TH3 Junior, good cond. Ph. "Jack" (03) 758 5670.

SERVICE

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Central Coast Amateur Radio Club 22nd Annual Field Day. Sunday, 18th February, 1979, Gosford Showground. Radio events, trade displays, market place, ladies' stall, children's events, afternoon outings, showground food bar open, pensioner concession. Book accommodation early. For full details send SASE to PO Box 238, Gosford 2250.

XITEX "Glass Teleprinter", needs only a keyboard and TV set to originate and display 16 lines of 64 chars; switchable for 45.45 Baudot-110/300 ASCII, 20 mA or TTL interface; full U/L and Greek chars in ASCII mode, addressable cursor; feed on-board PSU 9-12V AC or plug into an S-100 slot; micro computer controlled pre-programmed; full kit, $169, including delivery and sales tax; suitable keyboard kit, $70. From The Micro Shop, Box 207, Gawler, SA 5118.

QSL Cards, log books, contest log sheets — send 20c stamp for samples and prices to Linda Luther VK4VV, P.O. Box 498, Nambour, Qld. 4560.

APOLOGY TO ADVERTISER

J. Vaile Quad parts advertisement on page 13 of November AR — prices were incorrect and should have read $44.20 instead of $39.50 for the Quad Hub and $190.50 instead of $153 for the Quad Kit. The correct prices were shown in the AR advertisement on page 17 of June AR. ■

IONOSPHERIC PREDICTIONS

Due to early printing deadlines for the Christmas/New Year holidays, we regret that the Ionospheric Predictions chart was not able to be included in this month's issue — please refer to last month's chart for a guide to openings.—Ed.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. T. F. EVANS	VK2NS
Mr. G. D. KING	VK2ZUD
Mr. T. J. C. BROWN	VK2ZBL
Mr. G. P. LEE	VK3SN
Mr. RON HUGO	VK6KW
Mr. KEN J. (SNOWY) MILLBOURN (Prop. Ham Radio Suppliers)	VK3CW

OBITUARY

Mr. RONALD W. HUGO VK6KW

It is with deep regret that we record the passing of another OT, Ronald William Stuart Hugo.

Ron passed away on September 15th, after being hospitalised some time previously as a result of a stroke.

He was licensed in 1937, and active till his passing. Always an active amateur, he was keen on working DX, and spread his friendship throughout the world by this means.

He saw service in the RAEME, AIF and, following hostilities, took up the administration of Amateur Radio, through both the WIA and RSWA simultaneously. He was elected to Federal Council from 1952 till 1963.

In both bodies he was elected to Life Membership. For many years the VK6 Division received more attention and care than most would give of their leisure time. Many amateurs will remember Ron from his employment by Atkins (WA) Ltd. Often to be seen in his office near the front counter, a friendly nod, or a quiet greeting would be given when he saw you.

During all that time, he and his wife brought up a family of four, and it is to them that the members of this Division and Amateur Radio extend their sincere sympathy.

WILLIAM CARLYLE JOHNSTON VK2CJ

The recent death of William Carlyle Johnston VK2CJ, of Sawtell, NSW, marks the loss of one of Australia's pioneers in Amateur Radio.

Carl became interested in radio in 1926 while at that time he lived at Grafton, NSW, where he set up his first station. He moved to Coffs Harbour in 1936 and then to Sawtell in 1947. Carl has been an active Radio Amateur for almost half a century, during which time he made radio friends throughout the world. Carl is survived by his wife, Eileen, two sons and two daughters.

John Gerard VK2ADN.

TREVOR EVANS VK2NS

Trevor's many friends throughout Australia and overseas will be saddened to hear of his passing at Bathurst, NSW, on Sunday, 29th October, 1978.

He was born around the turn of the century at Blayney, NSW. At a very early age he became interested in radio communications and in 1912 he experimented with a Spark Transmitter and a Coherer Receiver. He was licensed in 1923 and from that time until the day of his death he was actively engaged in all facets of amateur radio. He was an immaculate CW and Phone operator. His "Fist" and operating procedure was world renowned and an inspiration to all.

Many years ago he specialised in accurate frequency measurements and was one of the pioneers in hand grinding crystals, having supplied these to broadcasting stations.

Apart from Radio, Trevor had many hobbies. During the 1930s he became interested in dirt track motor cycling. He also was an expert photographer. Model making was another hobby at which he excelled, constructing miniature blast furnaces for smelting iron ore, steam driven locomotives, turbines and stationary engines. He also built hot air and suction gas engines.

In 1931 Trevor won the British Empire Radio Union's trophy in the inaugural contest and the trophy was presented to him in Sydney by the Lord Mayor, Alderman J. Jackson. Many of his associate amateurs attended.

VK2NS in 1926 founded the Rag Chewers' Club, which functioned for many years to encourage and improve the standard of CW operation. He was a member (No. 575) of The Oldtimers' Club and held the No. 1 50 Years Award.

For 55 years Trevor upheld the principles of the amateur radio code.

To his wife and family we extend our deepest sympathy.

VK2XO.

RAY OHRBOM VK3OC

And still another old-timer has left our bands for unknown frequencies . . . Ray Ohrbom VK3OC. He will be remembered by OTs as a keen member of the VIC WIA council and one of the Centenary Contest Committee in 1934. At WIA meetings we recall his somewhat terse and often controversial opinions following a drawn out debate which were invariably accepted. He was an active CW operator until the advent of black boxes and SSB, and he had his share of good DX. In the early days of the home brew era his transmitters and receivers were a delight to behold and very efficient were they. His "loop modulation" was a gem. Ray leaves behind his two daughters Dawn and Judy with their young families. His wife Betty predeceased him by two years. Ray passed away on 30th October 1978.

(M. R. Campbell VK3MR)

ADVERTISERS' INDEX

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A big wave maker in the world of amateur radio . . . FT-101E HF transceiver

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TAS.	G. T. ELECTRONICS, 131 Westbury Rd., South Launceston 7200	Ph. 44 4773
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	J.D. ELECTRONICS, 64 Wentworth St. Launceston 7200	Ph. 44 5000
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	Amateur & Novice Comm. Supplies, W. E. BRODIE, 23 Dalray Street, Seven Hills 2147	Ph. 624 2691
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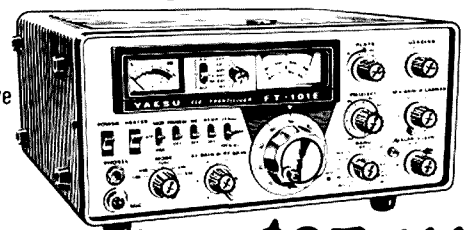

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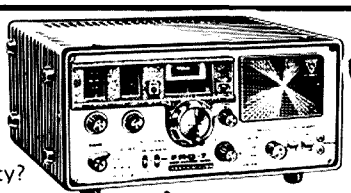

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amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 2 FEBRUARY 1979

FEATURED IN THIS ISSUE:

- ★ CONVERTING AN HF LINEAR TO SIX METRES
- ★ BROADLY SPEAKING — A CHEAP HF BEAM ANTENNA
- ★ AIDS TO 70 cm FM
- ★ RTTY — QUIETEN A MODEL 15 ELECTRICALLY
- ★ WIA ROLE IN SPM

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Transistors, 13; channel number, 3, on 28 MHz Citizens Band; transmitter frequency tolerance, ±0.005 per cent; RF input power, 1 Watt; tone call frequency, 2000 Hz; receiver type, superheterodyne; receiver sensitivity, 0.7 uV at 10 dB S/N; selectivity, 45 dB at ±10 kHz; IF frequency, 455 kHz; audio output, 500 mW to external speaker jack; power supply, 8 UM-3 (penlite battery); current drain, transmitter — 120-220 mA, receiver — 20-130 mA; accessory, shoulder strap, battery UM-3, 8pcs, instruction manual.

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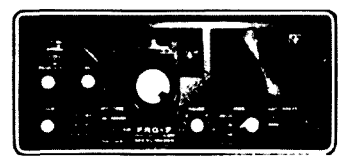
THE RADIO FOR WORLD-WIDE LISTENING AT ITS BEST — 0.5-29.9 MHz COVERAGE SYNTHESIZED COMMUNICATION RECEIVER



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Published monthly as its official journal by the Wireless Institute of Australia, founded 1910.

FEBRUARY 1979
VOL. 47, No. 2

PRICE: 90 CENTS
(Sent free and post paid to all members)

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Enquiries and material to:
The Editor,
PO Box 2611W, GPO Melb., 3001

Copy is required by the first of each month. Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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amateur radio

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DEPARTMENTS

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CONGRATULATORY PLAQUE

On 24th February, 1978, Graham Baker VK8GB established a first. This was a two-way contact on 2 metres with Noriteru Tajiri JH6TEW, as reported in VHF-UHF Notes in AR April and May, 1978.

The Japan Amateur Radio League was so deeply impressed with this contact that they honoured JH6TEW at the annual assembly at Kagoshima on 21st May and simultaneously struck a plaque for VK8GB, which was sent to the Federal office in Toorak to arrange a suitable presentation. This task was passed to the President of the Darwin Amateur Radio Club to execute.

The presentation was made by Senator Ted Robertson at a dinner held at the Travelodge Terrace Lounge in Darwin on Saturday, 30th September, in the presence of 43 members and their families.

The picture shows Graham receiving the plaque from the Senator, with Barry Burns VK8DI and Dick Klose VK8ZDK/NDK, President of the Club, as spectators. ■

Photo courtesy N.T. News Services Ltd. (see also page 42)

WIRELESS INSTITUTE OF AUSTRALIA

Federal President: Dr. D. A. Wardlaw VK3ADW

Federal Council:
VK1 Brig. R. K. Roseblade VK1OJ
VK2 Mr. T. I. Mills VK2ZTM
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VK6 Mr. N. R. Penfold VK6NE
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Secretary — Mr. Ted Radclyffe VK1TR
Broadcasts— 3570 kHz & 146.5 MHz: 10.00Z.

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Secretary — Mr. T. I. Mills VK2ZTM
Broadcasts— 1825, 3595, 7146 kHz, 28.47, 52.1, 52.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and ch. 3 and 6).

VIC.:
President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. J. A. Adcock VK3ACA
Broadcasts— 1825, 3600, 7135 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (5) repeater: 10.30 local time.

QLD.:
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Secretary — Mr. W. L. Giells VK4ABG
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Secretary — Mr. C. M. Pearson VK5PE
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

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Secretary — Mr. P. Savage VK6NCP
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Secretary — Mr. M. Hennessy VK7MC
Broadcasts— 3570, 7130 (AM) kHz with relays on 2m Ch. 2 (5), Ch. 8 (N), Ch. 3 (NW), 28.56 (AM), 52.525 (FM), 144.1 (AM) and 435 (FM) MHz 09.30 EST.

NT:
President — Dick Klose VK8ZDK
Vice-Pres. — Barry Burns VK8DI
Secretary — Graeme Challinor VK8GG
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

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VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Sat 10.00-12.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HO at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

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The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 1173, Canberra, A.C.T. 2601.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse, 83 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001.
VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP

"OVER-REGULATION"

If there were no regulations controlling Radio Telecommunications inevitably a situation would arise which would be absolutely chaotic. This ensuing chaos would mean that the Radio Frequency spectrum could only be utilised in a most inefficient way.

At an international level this is what WARC 79 is all about.

In Australia the Wireless Telegraphy Act and associated Radio Regulations, amongst other things, provides for the organised use of the Radio Frequency spectrum, even though some of their aspects are outdated.

The Amateur Service, like all other services in this country, is subject to this Act and its regulations.

The last Australian Handbook for Operators of Radio Stations in the Amateur Service was published twelve years ago, and has been reprinted on many occasions. It appears that no further reprints are feasible. It is the Institute's view, which has received some official support, that the Amateur Service should be as self-regulatory as possible.

It is reasonable, for example, to state in regulations what frequencies, transmitter power, and types of emission may be used. Also regulations to protect all users, including other Amateurs, from spurious emissions and sub-standard transmissions are also desirable.

Certain other conditions, such as what type of messages a particular service might handle, are to some degree a matter of government policy.

In the framing of regulations for the Amateur Service the Institute feels strongly that they must be in a form that indicates concisely what is required, are readily remembered and in application uncomplicated.

This is particularly important as the newcomer must fully appreciate the regulations and the reasons for certain inclusions.

Again it is the Institute's view, which has been conveyed to the Department, that the Amateur Service should not be hamstrung by unnecessarily complicated regulations, particularly when a much simpler means would produce the same result.

What are the reasons which prompt governments to over-regulate in any particular area? We can all name many reasons, but in reference to the Amateur Service we believe one reason might stand out — the irresponsible use of amateur radio by some operators.

Is it right that the shortcomings of the few — and the numbers are indeed small — should penalise the many?

DAVID WARDLAW VK3ADW,
Federal President. ■

WIANEWS

The appeal to non-members to donate something towards the WIA costs involved with WARC 79 is producing results. In addition to actual donations received a number requested membership forms to join the Institute. A similar appeal was published in the Electronics press. Donations from non-members will be acknowledged in due course.

It is encouraging to observe that many members included a WARC donation when paying their annual dues. A list will be published as soon as possible.

Over the holiday period the Executive office had been inundated with subscriptions payments. A preliminary survey indicates that compared with previous years a greater percentage of members are paying earlier. At the same time the number of individual payments are well in excess of previous years. This is to be expected having regard to the greatly increased membership.

IF YOU HAVE NOT YET PAID YOUR 1979 DUES, PLEASE DO SO NOW TO AVOID DISAPPOINTMENTS SUCH AS THE DISCONTINUANCE OF AR — THE COMPUTER IS QUITE IMPERSONAL.

Strength in numbers is a "must" in the world of negotiations. The discussions on the new Handbook for Amateur station operations proceeded briskly. A few days before Christmas a copy of the latest revision was handed to the WIA but it was marked not for publication". The attitude of the Department appears to indicate that publication means the date when it comes from the printer and is released for general sale. if, for any reason, there is a delay in printing it, the final edition could be amended even further if circumstances require.

There are numerous amendments and concessions granted in the latest revision compared with the draft originally discussed last November. In so important a document every word counts and members will be pleased to know that every word was "counted".

REPORTS OF MEETINGS

The Publications Committee meeting on 5th December noted with regret the passing of our printer, Eric McAdam of Equity Press, earlier the same day. Disposal of the extra 1000 run of the December issue was discussed. Awards tor 1978 were agreed and details appear elsewhere in this issue. The dearth of front cover photos for AR was again discussed. The Executive meeting on 13th December spent time on discussing the Handbook revisions and how best to utilise the $3,500 received for educational purposes. No final decision was reached on the latter except the consensus of opinion is that donations of cash to clubs could possibly lead to frittering the money away. Thoughts crystallised to some extent on the production of educational aids possibly in the form of brochures, leaflets and visual aid material.

A short discussion about band planning the 23 cm band ran straight into the very real problem that the amateur service is the secondary service and must avoid interference to the primary user. A month-to-month lease on the office, as required by the landlord, was approved.

Meetings of the Project Asert Committee were held on 22nd November and 18th December under the chairmanship of Bob Arnold VK3ZBB. Slow but steady progress was reported but more interest was required. By the time this appears in print recording stations in VK7, VK3 and VK5 should be operational.

WICEN

The following is the text of letter RB53/2/1 recently received from the Department —

> "In confirmation of our discussions on 22 November 1978 the following revised conditions for the operation of Emergency Amateur Networks and the requirements for the conduct of practice exercises have been notified to our

State Superintendent for introduction on a trial basis. It is proposed that these conditions, modified where necessary, will be printed in the next edition of the Amateur Handbook.

It should be noted that practice exercises are to be considered as primarily a means of training operators in the passing and recording of messages.

1. With the approval of an authorised officer of the Department, the licensee of an amateur station may, as a member of an organisation of amateurs approved by the Department, participate in special amateur radio communications networks in times of civil emergency or disaster.
2. During a period of emergency, such networks, through a nominated co-ordinator and control station, may pass messages on behalf of the statutory authority responsible for the particular emergency (e.g. bush fire, flood, etc.). The log book of the control station shall have entered in it the name, rank, or position and telephone number of the officer of the statutory authority who requested the communications assistance, and the name and position of the Postal and Telecommunications Department officer who authorised the transmission of third party messages. (See Wireless Telegraphy Regulation 36 (3).)
3. During the period of the emergency, the licensee shall confine his transmission to those necessary for the exchange of essential traffic. Casual conversation or unnecessary calling or testing should be avoided. Any necessary testing should be conducted on a frequency separate from that used for emergency communications. Correct procedures as detailed in the Handbook should be adhered to during the emergency working.
4. Copies of messages handled by all stations in the emergency network should be retained for 12 months.
5. A licensee not participating in an actual emergency network once aware that an emergency exists should ensure any transmissions he makes do not cause interference to any stations involved in emergency communications.
6. Exercises by organisations mentioned in paragraph 1 above, to enable members to obtain practice in passing and recording messages, may be permitted, following written application to and approval by the Superintendent, Regulatory and Licensing. As a general rule the following conditions will be applied:
   (a) Applications should reach the Superintendent at least two weeks prior to the exercise, indicating time, date, benefits expected, frequency, location, etc.;
   (b) In any case where the exercise is to consist of providing communications for a group, the group must be either a statutory authority (fire, State emergency service, etc.) or a recognised community service group or charitable organisation (e.g. Apex, Rotary, Red Cross);
   (c) The Amateur organisation should not be involved in press or media promotion;
   (d) A report on the exercise as a message handling experience is to be provided to the Superintendent by the co-ordinator within two weeks, accompanied by a sample of message forms from the exercise;
   (e) Log book of control station is to be submitted for Departmental inspection from time to time;
   (f) Abbreviated call signs not permitted — full identification to be used by all participants; and
   (g) The use of any specific frequency should not cause Interference to other stations already in contact."

■

WIA 1979 SUBSCRIPTIONS

These are the 1979 subscription rates:—

	$	Grades
VK1	21.00	All
VK2	20.00	Full
	18.00	Associate
	15.00	Student (proof required)
	10.00	Pensioner*
	10.00	Family (no AR)
VK3	23.00	Full
	20.00	Associate
	12.00	Student (proof required)
	12.00	Pensioner*
	15.80	Full Family (no AR)
	12.80	Associate Family (no AR)
VK4	20.00	Full
	18.50	Associate
	7.50	Student (proof required)
	13.00	Pensioner*
	13.00	Club (with AR)
	5.00	Club (no AR)
VK5	23.00	Full City
	20.50	Full Country and Associates
	11.50	Student (proof required)
	11.50	Pensioner*
	4.50	Family (no AR)
VK6	20.50	Full
	19.50	Associate
	12.50	Student (proof required)
	12.50	Pensioner*
VK7	20.00	Full and Associate
	10.00	Student (proof required)
	10.00	Pensioner*

* Pensioners — only as graded or re-graded by your Division.

New members, add joining fees:
VK2 — $2.00; VK7 — $1.00.

Federal dues (unchanged since 1976) included in the above rates as appropriate are —

Exec.	$7.50
IARU	0.30
AR	7.20
Total Federal	$15.00

■

QSP

MEMBERSHIP CERTIFICATES

Members, especially new members, are asked to note that membership certificates are issued free by Divisions and are signed by Divisional Presidents. No grade of membership is shown on certificates and they are valid only as long as the member remains financial. ■

AR AWARDS

The Publications Committee has pleasure in advising the names of the recipients of awards for the year 1978.

HIGGINBOTHAM AWARD

Mr. S. Voron VK2BVS — For general amateur radio work for publications inclusive of contributions to AR. Worth $50.00 p.a.

TECHNICAL AWARD

Mr. Roy Hartkopf VK3AOH — Presented for the best adjudged technical contribution to AR. Worth $25.00 p.a.

ASJA (Al Shawsmith Journalistic Award)

Mr. P. Arriens VK1PA. Worth $15 p.a. and an engraved plaque for the best adjudged piece of amateur radio journalism in AR.

■

MIDLAND ZONE CONVENTION

Don't forget the Annual Convention of the Midland Zone to be held at the Strathfieldsay Hall (8 km from Bendigo, on the Eppalock Road), on Sunday 25.2.78, at 10.00 a.m.

Talk-in facilities 80m, 10m, Ch. 4 FM.

Good range of equipment on display, competitions, good prizes, barbecue lunch supplied. ■

SUPERB KITS from DENMARK

Additional high quality kits coming soon !

JOSTYKIT is Europe's leading manufacturer of electronic kits featuring attractively styled boxes of Scandinavian design and high quality electronic components which will satisfy the most demanding kit builder.

JOSTYKIT's staff of qualified electronic engineers and educationalists supply up-to-the-minute, reliable electronic kits, designed around space-age solid state technology, but capable of construction without any great technical know-how or practical experience.

The JOSTYKIT instruction booklets supplied with each kit give clear, precise directions for assembly and testing. For those with special technical interests, each instruction booklet ends up by describing how the kit works. You'll always learn something when you construct a kit from JOSTYKIT.

Audio

AF300 AUDIO AMPLIFIER – 3 WATTS

A real work-horse., this universal power amp has a wide range of applications such as car radio, record players and small receivers. Due to its well designed electronic circuit, the AF300 can be used over wide voltage ranges without deterioration of the specification parameters.

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AF340 40 WATT AUDIO AMPLIFIER MODULE

High quality 20-20,000 Hz, 37w RMS with low distortion.

Kit AF340 . . . . . $35.00

FM Tuners

HF325-2 QUALITY FM TUNER MODULE

The HF325 is a complete high quality FM tuner of professional standing. The tuner unit is ready-made and pretrimmed, making it child's play to assemble. Tuning range 88-108 MHz, operating voltage 12-55v ac.

Kit HF325 . . . . . $79.00
Stereo decoder HF310 . . . . . $24.00

HF310 FM RECEIVER

The HF310 is a very reasonably priced HF FM tuner. Fully trimmed, the sensitivity according to IHF standards is better than 10uV. Features 60 dB S/N radio and low harmonic distortion.

Kit HF310 . . . . . $49.00

HF330 STEREO DECODER

Gives 40-45 dB channel separation, just add to a good quality FM receiver.

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Pre-amps (RF)

HF395 RF PREAMPLIFIER

Gain 30 dB to 20 MHz, 10 dB to 100 MHz and 5 dB to 225 MHz. Ideal to boost reception on short-wave receivers.

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HF385 VHF/UHF ANTENNA PREAMP

Superb quality with two aerial inputs and one down lead which simultaneously supplies current from the power supply. Frequency range 40-250 MHz and 400-820 MHz. Gain 9-18 dB, depending on frequency.

Kit 385 . . . . . $30.00
Box B850 . . . . . $6.00
Optional Power Supply NT410 . . . . . $20.00

Quick assembly kits

JK01	GENERAL PURPOSE AMP 0.5w.	$18.00
JK02	MICROPHONE AMPLIFIER	$19.00
JK03	SINE WAVE GENERATOR 20-20,000 Hz	$30.00
JK04	FM TUNER 88-108 MHz	$30.00
JK05	27 MHz RECEIVER	$33.00
JK06	27 MHz TRANSMITTER	$29.00
JK07	DUAL TONE DECODER FOR R/C MODELS	$43.00
JK08	240 Vac LIGHT OPERATED RELAY	$20.00
JK09	SIREN KIT inc. SPEAKER	$19.00
JK10	PHOTOGRAPHIC TIMBER 240 Vac.	$23.00
JK101	BURGLAR ALARM KIT	$55.00

Light Shows

AT465 LIGHT SHOW

Turn your music into light. Simply connect this 3 channel light show to the audio terminals of your amplifier and this quality kit does the rest for you!

Kit AT465 . . . . . $64.00
Attractive box and knobs B6065 . . . . . $25.00

AT468 4 CHANNEL LIGHT SHOW

This superb kit drives 4 lights (400w per channel) from the audio amplifier output.

Kit AT468 . . . . . $75.00
Attractive box and knobs B3265 . . . . . $48.00

AT365 LIGHT SHOW

This quality kit uses microphone input instead of connection to the audio output. 1500w max.

Kit AT365 . . . . . $69.00
Box and knobs B3265 . . . . . $48.00

FM Transmitter

HF65 FM TRANSMITTER 60-148 MHz

Will run 5w output with heat sink. Ideal for signal testing or for a miniature transmitter which could be received on a standard FM receiver.

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Ham Converter

HF305 AMATEUR BAND 2m CONVERTER

Converts 2m FM down to the FM band 88-108 MHz.

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AM Receiver

HF61 MEDIUM WAVE RECEIVER

540-1600 KHz receiver complete with ferrite coil antenna.

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Power Supplies

NT415 LAB POWER SUPPLY 0-30V

1 amp well-regulated supply for professional use. Complete with box and transformer.

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NT300 LABORATORY POWER SUPPLY 2-30V

High quality supply, regulated 2-30V dc at 2 amps with overload protection. Complete with box and transformer.

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AT320 ALL ROUND AC/DC REGULATOR

This kit is a control unit with almost incredible possibilities. Use it as a touch control, burglar alarm, timer, heat/cold regulator. Power supply is built-in.

Kit 320 . . . . . $54.00

high quality

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CONVERTING AN HF LINEAR TO SIX METRE OPERATION

S. Gregory VK3OT
P.O. Box 414, Hamilton 3300, Vic.

This project was brought about by the frustration of living hundreds of miles out from capital cities and being unable to alert stations occupying 6 metres of my presence.

Melbourne in particular has a very high "crud" level, generated by Channel O, with which operators have to contend; this noise tends to make intrastate communicating on 6 metres difficult to say the least. The extended ground wave paths on east-west circuits can be pushed out to over two hundred miles if good receiving equipment is used, with power levels above 100 watts to at least a four element yagi. So to those who consider any VHF power linear, please look to your receiving department first, as it is quite fruitless for an operator to read you 5 x 5 with your high power, if you have a "deaf" receiver.

There are several good low noise preamplifiers for both 6 and 2 metres which give an excellent lift to an ailing front end, also post converter amplifiers as featured in the early VK3 converters can add lift to the transceiver on the 10 metre band and provide a useful pre-amp. for 10 metres during non-six metre activity. At this QTH a 3N210 dual gate FET preamp. is incorporated into the transverter, with an RF gain facility adjusting the bias on one of the gates, whilst the post converter amplifier is a 3SK140. High power is not required for most summer sporadic E conditions. This article is for the serious long haul and back scatter, meteor scatter and forward scatter operators.

Well how do you modify a HF linear amp to the VHF 6 metre band? First, I guess, you obtain or have the necessary amplifier, which is now not so easy in Australia. I'm always being told that because the HF conditions are so good you don't need "boots" any more, so why not convert yours to 6 and convert it back when the sunspots die in a few years time? I decided to axe the station FL2100B after months of indecision, and I'll tell you after the first silver-plated capacitor is removed it doesn't hurt a bit. I found out a few truths about construction which are hidden by the green paint and tinsel, but that's another story.

The first things to go were the PA tank circuit components, valves, RF choke, bandswitch and coils; left are the two capacitors for load and tune. The removal of all these components was achieved with very little unsoldering and a small amount of unbolting. After removing the coil assembly the ten metre tank coil, which is a separate air wound inductor, was disconnected and put to one side. For those with queasy stomachs buy a foot of 3/16 in. copper tube. The new final tank coil is about four turns of above size the same diameter as the ten metre tank but with two turns air spaced instead of one. This can readily be achieved by expanding out the ten metre coil to twice its length (you can always squeeze it back again!).

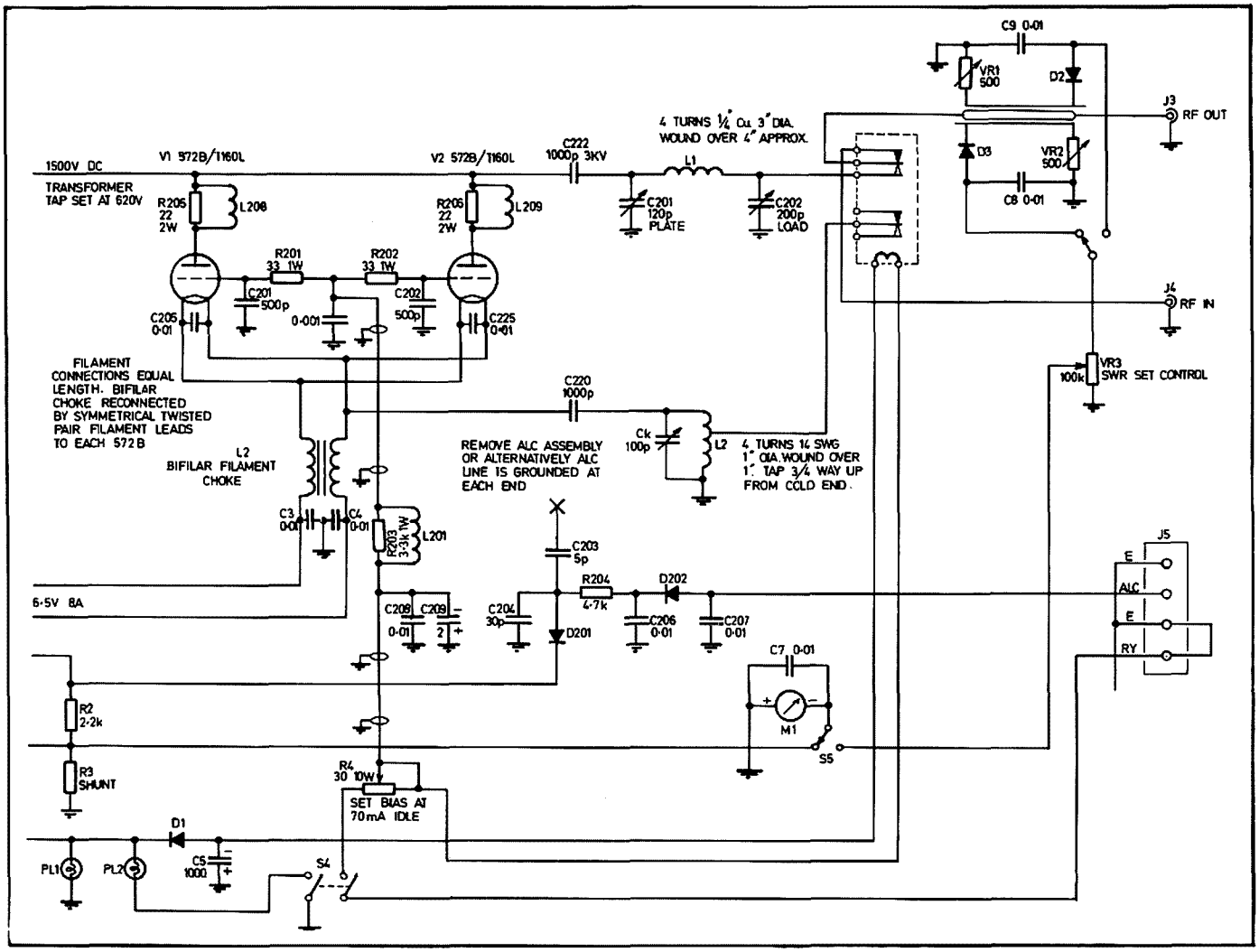


FIGURE 1: Modified FL2000/FL2100B Circuit

Next the RF choke, which is also a mechanical support for the anode leads of the 572B triodes, was replaced. This requires duplicating mechanically the existing structure or remove the windings of the choke and rewind with suitable material to the correct dimensions. I used 30 turns of 18 gauge enamelled copper wire on a ¾ in. ceramic or teflon former wound with one turn spacing over approximately 4 in. The existing choke is a pi wound multiband unit with a top frequency of 30 MHz. It will work in a sense but not for long. The ten metre section will overheat and become discoloured, then the insulation will break down — and 572Bs are $55 each. Enough said. The bypass capacitor, 1000 pF 3000 VDCW fitted below the cold end of the RFC, was retained.

The coupling capacitor can remain the same 1000 pF unit fitted to the end of the RFC. Two 470 pF give a slight improvement in performance because their reactance at 50 MHz is 6 ohms compared

SPECIFICATIONS	**FL2100B/6**	**Gain = 12 dB**
	Class B Grounded Grid (RF)	
2 x 572B/T160 Triodes	**Carrier**	**Two Tone**
Va = 1500V* DC		
Anode Current = (2 Tubes)	20W PEP	425 W PEP
Power Input (DC)	750 watts†	350 mA
Grid Current (including Idle)	75 mA	50 mA
Volts Drive	65 RMS	64 RMS
RF Driver Ouptut (approx.)	20 W PEP	25 W PEP
Anode Dissipation	320 W	310 W
Power Out (average)	430 W	215 W
Power Out (PEP), including Drive	430 W	425 W PEP†
Power In (PEP)	750 W PEP	735 W PEP
% Efficiency, including Drive	57.2%	57.5%*

* This figure due to reduction in duty cycle and regulation of anode voltage which fluctuates between 1700V no load to 1400V full load.

† These figures exceed those allowed by P. and T. regulations.—Editor.)

with about 24 for the 1000 pF unit, however since the PA runs in Class B Grounded Grid, it was not expected to have any regeneration in the circuit.

Unfortunately this was not to be; more on the reasons and remedies later.

The two 572B/T160 triodes were mounted back into the PA cage. A Grid Dip meter showed that the range of the tuning with the parallel tube configuration was 30-70 MHz, depending on the setting of the load and tune capacitors. The cathode circuitry was modified by removing all the bandswitching components and bypass capacitors to reveal the filament wiring and ALC circuitry.

It was found necessary to remove all of this circuitry. I did not do this initially and found that C203 of the original circuit introduced instability due to a positive feedback path through the ALC system. The driving stage should be carefully adjusted to minimise overdriving and distortion. The whole plate with all the HF coils was removed; all the capacitors whether soldered or bolted were also taken out. The filament wiring was removed due to its unbalanced configuration. A new loom was made up from heavy Insulated wire, twisted equal lengths, soldered to the socket pins and returned to the bifillar RFC filament feeds.

A four turns airspace coil wound over one inch was constructed of 18 gauge wire followed by the mounting of an Eddystone 100 pF silver-plated variable capacitor in the hole vacated by the bandswitch.

The coil was soldered into place and a 1000 pF coupling capacitor connected between the variable capacitor and the filament choke. See Fig. 1.

The frequency of resonance was checked with a GDO to see that it covered the required range. A fibreglass shaft coupled through to the front panel was fitted with the original band change knob. You cannot tell what changes are inside, that's for sure.

At this stage I did a little detailed reading on how to set up G-G linears and found out that you don't run drive without plate voltage applied so I left the matching of the driver till later. I fitted four capacitors from the original parts back into the cathode enclosure for bypassing the grid. Bias is applied for normal standing current, and I had to make sure that it was down to earth for RF at 6 metres. This was achieved by using two of the 250 pF and two of the 200 pF coaxial chassis mount capacitors. The two 33 ohm grid stoppers were left in but their junction was bypassed with another 1000 pF disc ceramic. C205 and C225 were changed to 1000 pF disc whilst C200 and C202 in the grids were removed and replaced with the coaxial combinations. I noticed the bias feed wire was an unshielded piece of hook-up wire so I used the shielded ALC wire to feed the cathode enclosure with the bias required. The tagstrip containing the ALC diodes was removed and the one containing the grid stoppers and bias feed choke was altered to allow better symmetry in the layout.

I dipped the cathode coil again and then set about hooking up the transverter feed tap. With the help of Orr and Johnstone I discovered that the cathode impedance is about 150 ohms for grounded grid and that a suitable driver tapping point would be about ¾ of the way up the input coil. With this done the rear section enclosure was boxed up to avoid coupling and possible feedback. I then set the secondary tap to the lowest position, 425V AC, which gives around 1100 volts on the anodes.

The top cover of the PA cage operates a HT interlock, so it has to be replaced before any testing is done. It also removes the temptation to prod, which is unnecessary if you've done your ground work; dangerous, too.

The first turn on showed no shorts or other gremlins, so an SWR meter was connected between the transverter and the linear amp and drive applied with HT. A check showed about 2 : 1, so the unit was switched off and the tap in the cathode coil accessed and moved a quarter of a turn down. Several adjustments later resulted in a 1 : 1 match with the loading control of the FTV650B about mid-scale (50 ohms).

Next the operate switch was pressed and the PA current idle checked at about 60 mA. Slowly a little drive was applied and the output current showed a rise to 200 mA. A bit of a fiddle with the plate tuning showed a dip and some power In the watt meter connected to the output socket. The load control gave a rise in output but reached the clockwise stop; investigation showed minimum capacity but two sections in service. One lead was snipped off leaving 250 pF across the output of the Pi. A further run up showed a better figure at mid-scale for maximum output and the rest is history. The darn thing tuned up like any HF linear and was giving about 200 watts of carrier into the watt meter. Adjusting the cathode tuning cum bandswitch control gave a very lazy increase, peaking about 2/3 scale (15 metre band).

Next some two tone was supplied to the transceiver and the output viewed on a scope. It was quie clean and showed about 200W PEP on the scale — not bad for the low tap.

The medium tap gave 1700 volts to the plates at an idle of 80 mA and this with drive gave the magic numbers at two tone application 400 watts PEP on six metres for about 500 mA at 1500 volts. The regulation of the power supplies in those so-called super linears is very poor and would cause a few linearity problems in a tetrode stage.

A check on the highest tap showed only a 50 per cent power increase but considerable extra heating of the final tubes. At 550 watts out the tubes were looking like the evening sun. On the 1700 tap with a single tone at 400 mA with the lights out the tubes were black, and that looked good for continuous service.

So there It sits on the table, a small unobtrusive box about ¼ the size of the old 3ZAZ monstrosity with no noise and the magic numbers out on six metres.

The bandwidth of operation was good for the 500 kHz of the transceiver without retuning, which I think is a product of the low impedance cathode circuitry.

I found that 750 watts input could be achieved from 25 watts of excitation. Efficiency was 52 per cent after subtracting the drive power, and the transformer taps were 234V AC and 620V AC respectively. The maximum DC input power achieved was a little over 800 watts in the cherry red, so as to speak, so it is recommended that SSB modes only be used with this configuration.

I ran under test at 400 PEP for lengthy periods with no ill effects or over-heating, and found out not just how much power it put out, but how clean it was.

The third order products on the analyser were the same as those of the transverter, approximately 30 dB down, which means the linear contributed nothing to degrade the products. Second harmonic was an expected 45 dB below. These tests were at full output. Remember to tune for maximum output and then reduce drive to keep within legality. Two tone tuning with a scope is the only way to correctly tune any linear amplifier, and this one is no exception. It is the only way to achieve correct loading conditions and clean operation. I have fitted a small pot to the transverter drive supply to accurately set for full 400 PEP performance and the results on air are very encouraging. The dip in PA current at peak output is very shallow and not readily noticed. Maximum output should occur at minimum plate current and, if you had a grid monitor, maximum grid current.

The antenna changeover relay leaves a lot to be desired. However, due to the facility of linear/barefoot operation at the flick of a switch, I am yet to find a suitable coaxial combination that would not be cumbersome and yet still do the trick.

All in all the project was successful and relatively cheap if you discount the cost of the linear amp. Any HF amp could be modified, it's only the layouts which present any problems. The SB200 and Dentron Superamp would also be suitable; however a bit more thought would have to go into converting the 4 tube FL200 using 6KD6s.

Eimac 8875 triodes are obviously the next choice, but after using and hearing the silence of the Yaesu fans, I would not ever tread the high speed blower path again.

If anyone blows up the tank circuit of their FL2100b I know someone who has a box of spares; see you on 6m. ■

AIDS TO 70 cm FM

Recently an article appeared in AR on VK3RAD, the 70cm repeater operating in Melbourne. This article may be looked upon as a follow-up to that article as an aid to amateurs wishing to make 70cm FM another of their modes of operation.

All 2 metre FM users may use their transceivers to form the heart of a 70 cm FM transceiver. There are three main avenues to follow and these are discussed in turn.

METHOD 1:

EXISTING 10 WATT 2 METRE TRANSCEIVER

By preparing a case approximately the same size as the 2 metre rig a very pleasing mobile unit can be realized. All switching and control is done via a small plug in the rear of the existing 2 metre transceiver. All DC can be switched by a small relay of conventional design but the antenna must be switched by a coaxial relay. The general arrangement is shown in Fig. 1. The 435 MHz converter can be arranged to have its output on any convenient channel preferably one not frequently in use. Of course the transmit frequency will be 1/3rd of the desired 435 MHz frequency and the transmit crystal will have to be selected accordingly.

This system will provide approximately 4 to 6 watts at 435 MHz, depending on the varactor.

METHOD 2:

EXISTING LOW POWER (HAND HELD) 2 METRE TRANSCEIVER

The same method can be applied, remembering that for 1 to 3 watts on 2 metres only 1/3rd to 1½ watts will be obtained on 70 cm. One amateur using this system uses a three transistor amplifier to increase the ¾ watt output to 20 watts at 70 cm. The home-brewer could use the 2 watt exciter described in "Amateur Building Blocks" in AR October 1975.

METHOD 3:

COMPLETE 435 MHz UNIT

This entails some design and quite a bit of thought but is well within the ability of any avid home constructor. Frequency multiplication is particularly troublesome and up to 200 MHz MOSFET multipliers are suggested. Avoid joining PC boards of the transmitter with coax. The transmitter should be built as one unit and not an "add on" bits.

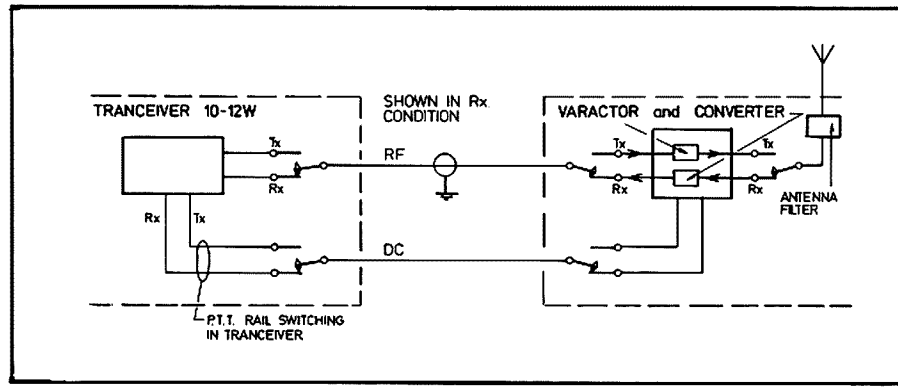


FIG. 1: Using an existing transceiver

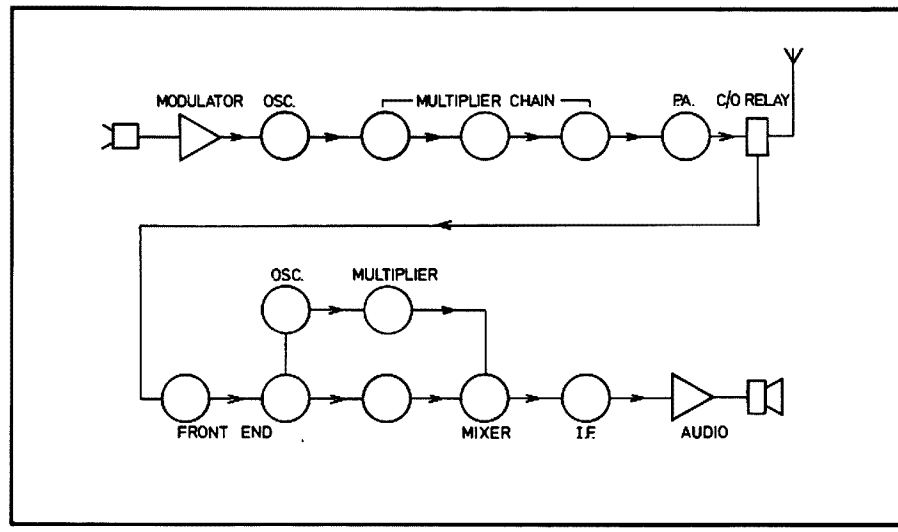


FIG. 2: 435 MHz FM Transceiver

Low noise devices for the receiver front end are of course a must. The 3N210 is a good choice. Stripline tuned circuits are most satisfactory.

The ATV converter, at present very popular in Melbourne, works very well in FM service if fitted with a source injected mixer (2N5245, TIS88, etc.) and crystal oscillator injection chain.

This article has been kept as non-technical as possible so as not to overwhelm the newcomer to UHF. Incidentally, although only solid state systems have been discussed, a "retired" valve transceiver may usefully be pressed into service. ■

BROADLY SPEAKING

Steve Bushell VK3BHK
74 King Pde., Knoxfield, 3180

About four years ago when the bottom suddenly dropped out of the F layer, I decided something better than a G5RV was needed for consistent DX.

I turned to a rotatable 20 metre dipole. This gave better results as far as directivity was concerned but it left a lot to be desired in the way of gain. After a bit of snooping, on air and off, I decided that to attain my goal of consistent DX, beaming my signal at a low angle was essential and that either a yagi or quad was called for.

Goodness only knows how many other Hams have reached the same conclusion over the past 70 years, but so what, I wasn't around then and this I reckoned was what Amateur Radio is about today; doing something a little better for oneself, rather than thrashing off and buying an XYZ umpteen element dragpole.

Well, where to start? Quad or yagi? Aesthetically I favoured a yagi and despite strong opposition from Col VK3CO and Laury VK3AW, both fanatical quadlodites, a yagi arrangement was decided upon.

It seemed fairly straight forward, but not so. By this time, DX was beginning to reappear and according to Leonardo VK3NAC, our Oracle of the F layer, not only was 20 metres going to bust right open again, but 15 and 10 were going to become the playgrounds of Novice DXers in the not too distant future.

Well, 15 and 10 were still pretty crook so I decided to concentrate on a monoband job for 20. The design was pretty straight forward drawing on what every Ham learns before he gets his ticket, and so without much ado a design rolled off the roughly cleared space on my operating desk.

Looked good, but how to feed it? Coax and balun, T-match, Delta or any one of the even more elaborate systems? My tower is over 50 metres from the RF source. 50 times $2.00 for good low loss coax wouldn't register on my hip pocket nerve. Coax was a definite NO! What then?

Dare I remember what used to be in the dim dark days pre-coax?

"Open Wire Tuned Feeders."

Cost — minimal. Line loss — minimal. Efficiency — plus. And, after all, the majority of high power transmitters still employ them.

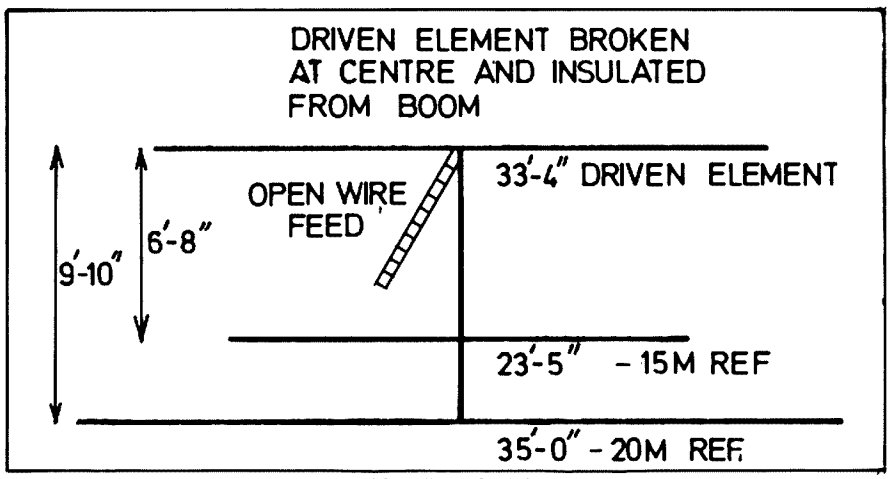


FIGURE 1: Aerial

It took about a week to get all the bits I needed together, aluminium, tube in various diameters, muffler clamps to suit, PVC insulation, nuts, bolts, and so on. Then one Saturday, after lunch, out came the hacksaw, drill, wrench and off to work. The whole job took that afternoon to complete, then up on to the pole and the last nut was tightened. Into the shack and on with the rig.

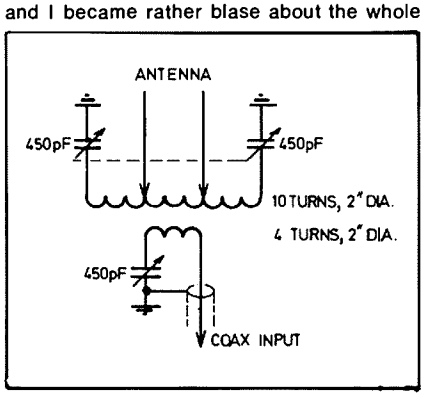
I made sure the audio was backed well off, I didn't want to hear my latest failure. Around went the aerial rotator indicator toward South America short path. This I felt would be the optimum test for my bright new home-brew two element close spaced full size 20 metre monobander because on previous wire aerials I had never even heard a South American station.

Up went the audio and after a short twist of the dial in came Rio De Janeiro at S8. Yours truly was nonplussed.

After recovering from this initial flush of success I swung the beam up over Africa and into Spain. In came EA at similar strength. Then up to France. Wherever I pointed it in came the country concerned and at extra good strength. But would it work as well both ways, receive and transmit?

It didn't take long to find the answer. Yes! Not only did it receive well but it transmitted with equal success. Many good reports were received and exchanged over the next couple of months and bulk DX was worked. VSWR was a genuine 1 : 1 from 14.00 to 14.35. Naturally, I was running open wire line into a matching unit — a completely tuned system.

Not like a coax-balun set-up where you establish a centre frequency then accept fall off either side and consequent reduction of efficiency. The months rolled by and I became rather blase about the whole



business of beaming signals. Although I was enjoying good DX when all the other wire antenna men were scratching to hear over the back fence, I felt there must be more to life than 20 metres.

Remembering what VK3NAC had predicted for 15 and 10 metres, I switched from 20 to 15 one evening to see if anything was happening. Much to my surprise, Len had been right (after all, some doubt could be expected, he had been predicting a rise in the K index for the last 18 months). Europe was coming in at S4. Not as strong as 20 metres but pretty good considering my system was tuned for 20.

Well, reckoned I, if I am running a tuned system why not tune it to 15 metres? That I did and in came Europe at S6. Not bad, but still not as good as 20 metres and the beam width was rather broad.

Next day at work I joined heads with Col VK3LO on the subject and between us we decided the driven element was acting like an extended zepp on 15 metres and that any directivity on this band was not due to the 20 metre reflector which was too far back from the driven element. After a bit of snooping on 15 and hearing VK3NAC and his QRP novice mates working 15 metre DX at the same strength as my 300 watts I decided modification to the now semi-duo-bander was needed.

Up went a 15 metre reflector 0.15 of a wavelength from the driven element and up with it came the signal strength I was looking for. In fact, that night I worked two countries I had never heard on 20. If what Len had predicted for 15 was now materializing, how then was 10 metres going?

Just to make sure the beam was OK on 10 I arranged a sked with Laury VK3AW, who was running a full wave loop on 10. After extensive checks we decided the 15 metre reflector was close enough to the driven element to give me good forward gain and a very good front to back ratio but, alack and alas, 10 was still in pretty poor shape.

So, now I had made what started out as a monobander into an extremely efficient tribander and at a great saving in legal tender. All up cost was only $45. It had very good forward gains on 20, 15 and 10, and a 1 : 1 VSWR right across each band.

Although this aerial is not really for those with a small flat, it does sound real sweet and when it's about 15 metres in the air it doesn't really look too bad — to a Ham anyway! ■

QUIETEN A MODEL 15 — ELECTRICALLY!

(Reprinted from AARTG RTTY Newsletter No. 8, May 1978)

Barry Ross VK6IF
42 Mayflower Cres., Craigie, 6025

If you were to ask most amateurs with Model 15s how to quieten one they probably say to take it as far away as possible, preferably down the bottom of the garden. But that is acoustic noise and if you know how to cure that many amateurs would like to know! A Model 15 with a governed motor also produces a lot of electrical noise too, capable of blotting out DX. This article is on how to reduce, if not eliminate, this noise.

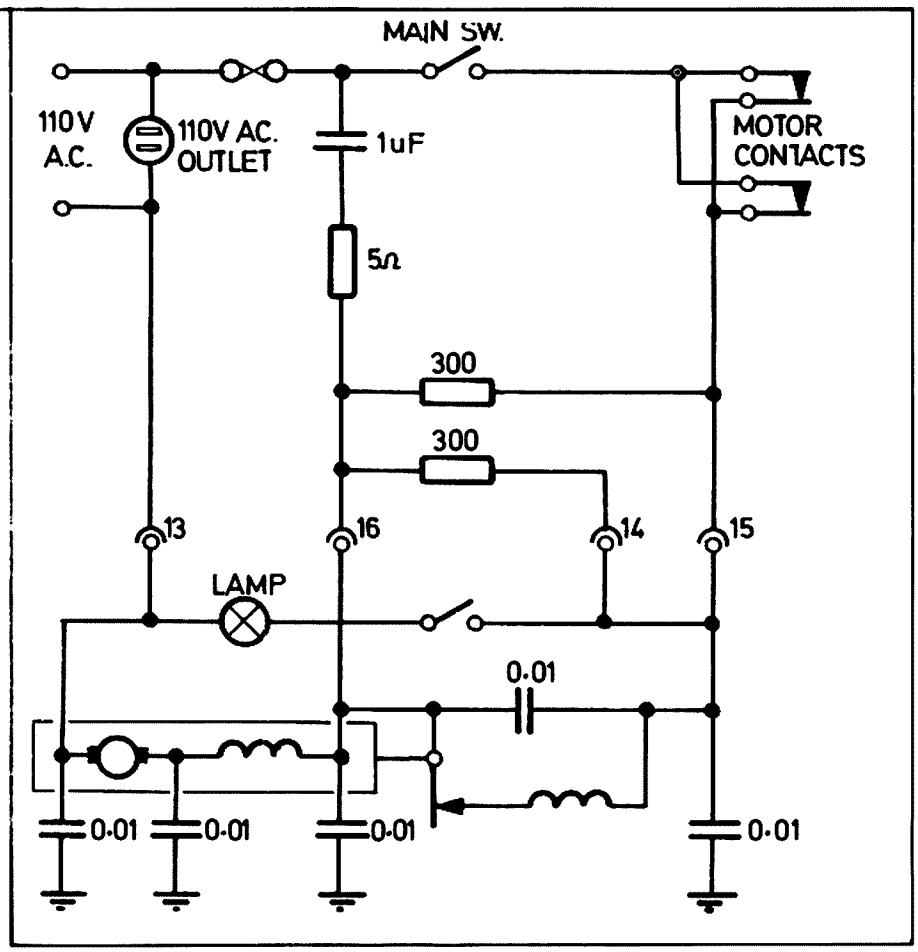


FIG. 1: Original Circuit Diagram of Teletype 15 Motor System

The source of most noise is the governor contacts which are breaking the voltage to the motor. This causes a spark and if we can remove this spark then we remove the noise. If we replace the contacts with an SCR and use the governor contacts to gate the SCR using a low voltage then we eliminate the sparks!

The type of SCR is not important providing that it is of adequate ratings which are at least 125 volts at 1 amp. I used a C106B1 and it is around this type of SCR the article is written. The gate resistor may need to be experimented with to get another type SCR to fire reliably.

It is necessary to remove the base bottom cover to gain access to the wiring and resistors leading to the motor. This can be awkward due to the weight of the Model 15 so remove the typing unit by unscrewing the 3 or 4 large flat headed screws on either side of the machine. This will allow you to turn the base upside down and remove the bottom cover.

In the middle of the base are two large resistors with 5 wires connected to them.

One of the wires going to the left side of the resistors goes to the middle motor contacts. Find this wire and remove it from the resistors and insulate it. Of the wires going to the right-hand side, one goes to the resistor/capacitor mounted on the rear deck next to the rear tagstrip. Locate this wire and also remove it from the resistors and insulate it. Those two wires were each one of a pair of wires connected to the large resistors so remove the other wires of the two pairs and join together. This should now leave only one wire connected to the resistors.

Now we have to connect the SCR. Locate the wire going to the extreme left-hand motor contact and unsolder it. To this motor contact solder the anode of the SCR and to the cathode of the SCR, solder the wire you just removed. The two large resistors are joined at one end and we are going to use them in series with a 20k resistor and a diode. The cathode of the diode is soldered to the gate of the SCR and the anode is soldered to the 20k resistor which then goes to the large resistors. Also add a 0.47 UF 250 volt capacitor from the gate to the cathode of the SCR to filter the gate line to prevent false firing.

The capacitors across the governor contacts will cause the SCR to fire continuously so disconnect them and also disconnect the light for the same reason! Make certain that the base of the Model 15 is earthed as this can also cause random firing and erratic motor control.

Well, that's the whole modification. It also works on Creed 7B, too, and stops most of the noise on that machine, too. It has worked for some time on both my machines with no trouble but, as already stated, the 20k resistor may need to be selected experimentally to get reliable firing of the SCR under load.

The clatter of the machine you will just have to live with!!! ■

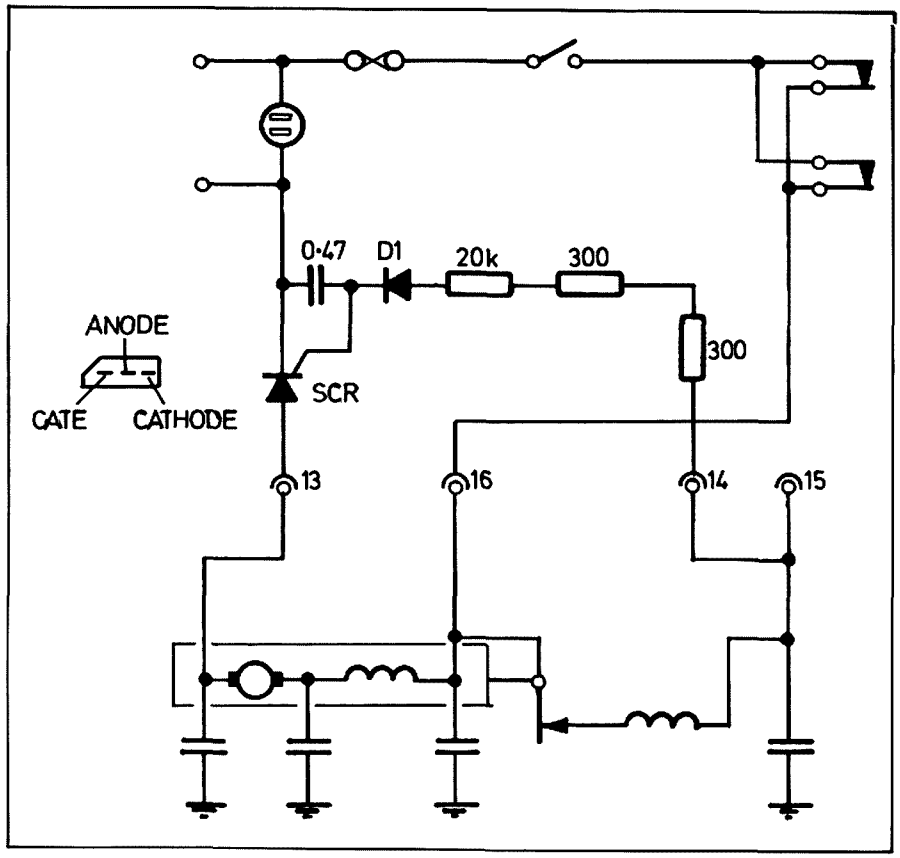


FIG. 2: Modified Circuit Diagram of Teletype 15 Motor System

TRY THIS

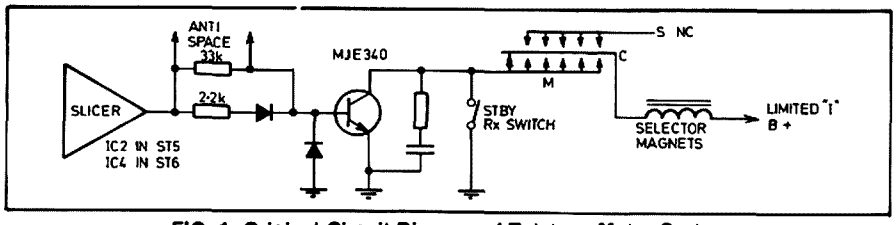
WITH THE TECHNICAL EDITORS

This circuit will interest those who have built up the "ST" series of RTTY terminals and others using the Mainline Floating Loop System. It permits use of a switch-controlled AFSKO as opposed to the "normal" voltage control, and provides hard copy of what is being sent.

It also has the advantage that the MARK/SPACE contacts in the keyboard switch are 10 volts at 5 mA, Instead of 175 volts inductive at 60 mA.

This greatly increases contact life.

Keith Ayton VK3YHC. ■



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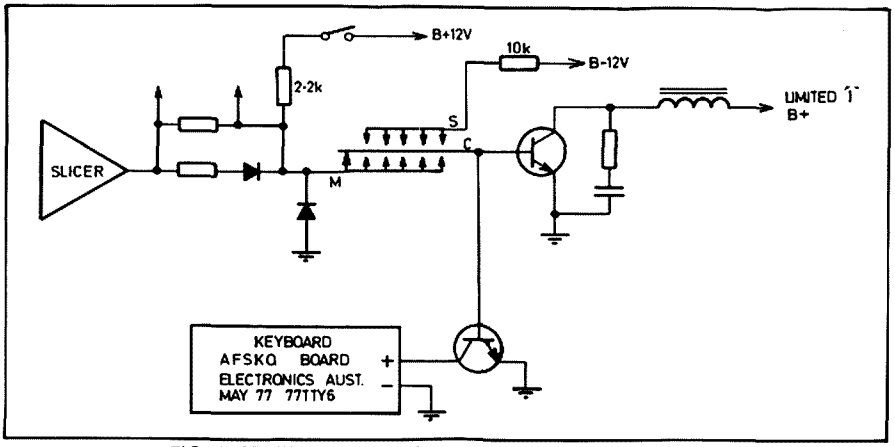


FIG. 2: Modified Circuit Diagram of Teletype Motor System

Are you checking our bands for

INTRUDERS

AND REPORTING SAME TO THE INTRUDER WATCH CO-ORDINATOR?

ROYAL NAVAL AMATEUR RADIO SOCIETY

Don Walmsley G3HZL
153 Worple Road, Isleworth, Middx., TW7HT

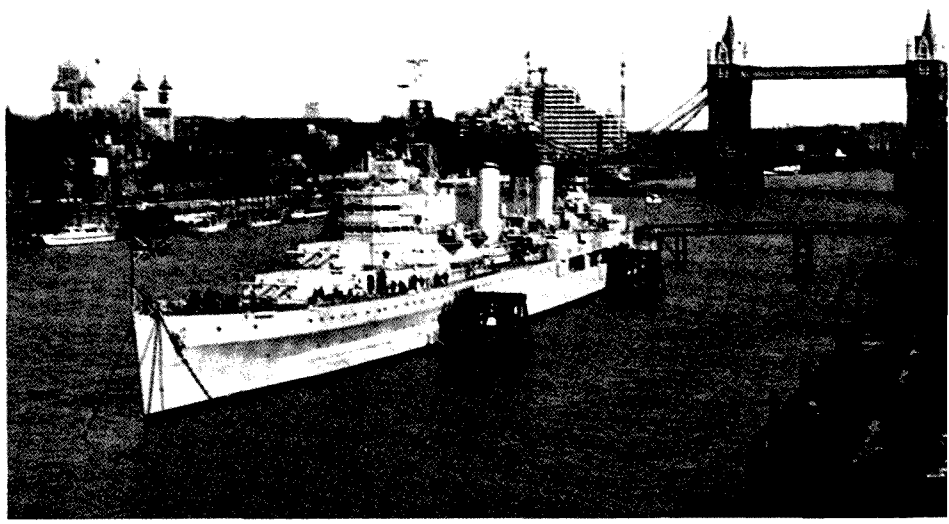
SHORT HISTORY AND DETAILS OF OUR INVOLVEMENT WITH THE MUSEUM SHIP HMS BELFAST

The Royal Naval Amateur Radio Society (RNAS) was formed in 1960, mainly along the lines of the other service amateur radio societies but to attract the naval amateurs. The senior service was a little late on the scene, although the Navy had had many radio amateurs in its ranks, both before World War Two and after; all it needed was the driving force.

That was supplied by the few that gathered at HMS Mercury, the RN Signal School, in August 1960, prime movers being George Tagg G8IX, Mike Matthews G3JFF, John Pegler G3ENI, G3LIK, G3DOT, etc. Yours truly was not there, being unfit at the time, but on the Society's inauguration in October 1960, I became number 12 on the books. There were only 58 of us in those days but with lots of hard work and many outside activities designed to attract members, we have grown until we have a strength around the 700 mark. Amongst our founder members was one Australian, VK3CDR, then Surgeon Captain, now Rear Admiral Jim Lloyd, reasonably well known, I believe' to the members of WIA.

The RNARS has been involved with many outside activities, in the early years mainly from the RSGB Amateur Radio Exhibitions held in London. These were always supported until lack of serving members and stringent cutback in public funds caused us to abandon them for the time being; one day we hope the climate improves and once again permits us to appear at these events. We also support Portsmouth Navy Days in August, run a mobile rally in June from HMS Mercury, support Jamboree on the Air from HMS Mercury and since 1973 we have operated a station on board HMS Belfast, the preserved cruiser, moored in the River Thames, between London bridge and Tower bridge. GB3RN is the call we try to use from all these locations and except for 1977 we have succeeded — our licensing authority suspended the use of GB calls throughout 1977.

The first involvement with HMS Belfast began in 1973, when it was decided to do something special for the RSGB's Diamond Jubilee. We applied to the Trust that looks after the ship for permission to set up and operate an amateur radio station aboard the ship. This was granted, and in the first week of September we descended on the ship and established a station on the Admiral's bridge. This was very much enjoyed by us and provided good publicity, so it was decided to repeat it again in 1974; the date was moved to August so that it would coincide with school holidays, but when we aproached the ship's authorities, they said that we could no longer use the Admiral's bridge. Alternative accommodation for the station was suggested, we were shown a dark, dusty room on the same deck and this suited our purpose even better; they had shown us to the old bridge wireless office, much more roomy and a thousand times more suitable. Another very successful week's operation took place and before we packed up, it was decided to call a meeting of the London membership to see if we could restore the office to something resembling its condition at the ship's last refit in 1956. Work started on this chore in the winter of that year, much scrounging taking place to acquire equipment, painting, cleaning, rewiring and installing, being brought to a reasonable state by 1976. Our committee decided that the activity period should be moved to Easter of 1975, because we were trying to do too much during the summer months and this is now the fixed date, from Good Friday for ten days each year.



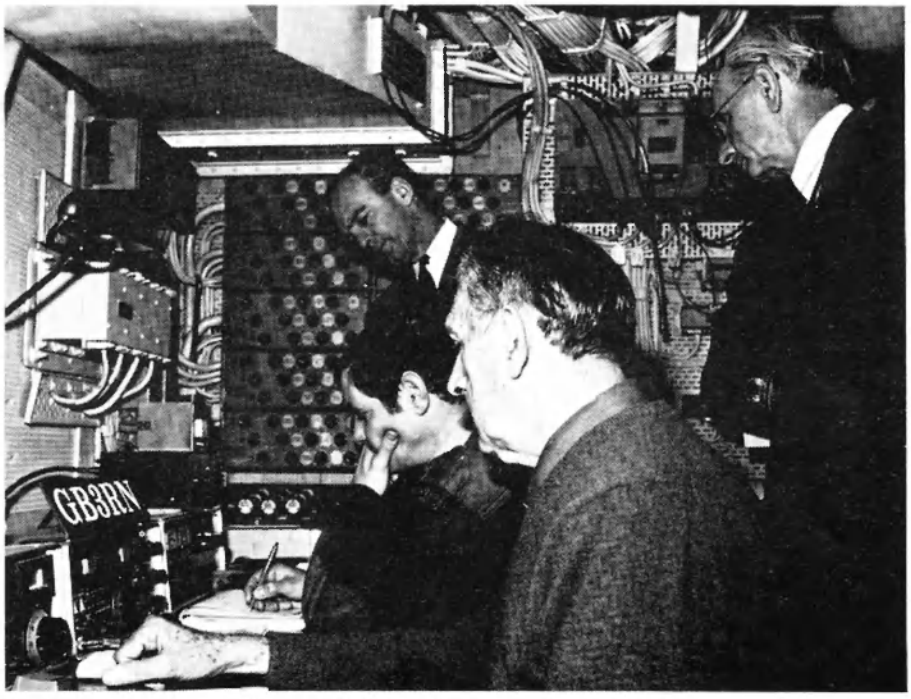
HMS Belfast by Tower Bridge, London.

During the 1976 Easter activity, the BWO was officially opened to the public by Captain Derek O'Reilly, Captain of Signal School and, although we cannot provide a full time staff, the display has been there for the public to view. The London group were issued with the call G4EOK in November 1975 and we are active with this on most week-ends of the year.

Many overseas amateurs visit the ship during their stay in the UK, and Mavis VK3KS and Ivor VK3XB have been entertained aboard.

The small group of London members are still working on restoration jobs, mainly consisting of rewiring and finding ways to route the various antennas into the shack, existing 90 ohm naval coax not being suitable for our purposes and except for the trap dipole which still enters via a voice pipe, all antennas now enter the BWO via the original feed points. Some of the old naval whips are used for reception, and the VHF antennas are an excellent match on 144 and 432. We have installed a 270 ft. end fed which works extremely well on 1.8 MHz (still looking for a VK or ZL to complete WAC on that band). Main transmissions take place on the trap dipole and a 12AVQ has been donated to us and it is hoped that this will be installed soon. This antenna should improve our ten metre performance.

Activity took place at Easter 1977 but we had to use G4EOK, G3HZL and G3XRN to cover our three operating positions, a bit disappointing not having GB3RN and



Main HF operating position of GB3RN. (Photo courtesy Petty Officer P. J. Walker — Defence Press Office).

rather a struggle to make contacts, but, hooray, in late 1977 the Home Office announced that GB calls would be available this year, so application put in early and there we were at Easter using the lovely call Great Britain 3 Royal Navy again.

The preparations for the event start in the middle of December when the first publicity letters start to be written, then down to the ones asking for volunteers and loan of gear, etc. Response this year was reasonable. On the 23rd the first volunteers start to come aboard, usually serving members who are going to stay aboard for the full ten day stint. No official accommodation aboard, but there are ten bunks that we can use in one of the old Petty Officers' messes and full use are made of these during our activity. First signals were radiated exactly at midnight local time and the DX was soon rolling in and it continued to do so throughout the week, except for Monday, when conditions were rather disturbed and we concentrated on 80 metres. Over 2000 contacts were made during the period in 103 different countries, amongst them being many VKs and ZLs, plus HC8, VP8 (Signy), PJ, HI, JW, VU, SU, HR, YN, C5ZC4, PY, JA, CN8, HP, KZ5, YV, KH6, VP9, 9L1, EL, LU, HK, ZS, ZS3, 4X4, EP, ST, YB7, HM, 8P6, VP2V, CO, CX, 5Z4, VS6, OX, HZ, J3, 9N1, KP4, 9G1, ZD7, FM, TI, VP2L, most of the countries in the USSR and plenty in Europe; no deliberate attempt was made to chase DX, we just let it come and find us. Most contacts were conducted on a chat basis, excepting for a short spell in which we handed out a few points in the CQ WPX SB contest. Many stations want to chat when they hear our location, so our apologies to those stations who got fed up waiting for us, and I guess that there were very many.

Our big day was on Friday, 31st March, when our President, Captain John Taint, RN, honoured us with a visit; the usual naval bull took place on Thursday evening (that's why we were not too active then) in readiness for the morrow. Other guests were expected, and the first to arrive was Lord George Wallace of Coslany, immediate past President of RSGB. Ten minutes after he showed up the Captain arrived, to be greeted by a motley side party. They were conducted up to BWO; I had to return to the quarterdeck to greet Dr. Fred Horner, Director of the Appleton Laboratories (G3RRS is the club at that establishment and many of the VP8s heard from the rare Antarctic islands come from there), and Dr. Dain Evans, President of RSGB. After an hour or so inspecting the station and chatting to our members, the guests plus a number of us adjourned to the ship's club bar (not on the public rounds) and had a few welcome wets. Many of the overseas amateurs who have met me on board have seen the inside of the club and they are usually made very welcome by the ship's staff. The visit of these distinguished persons went off very well and they all expressed themselves satisfied with what we had achieved in the BWO.

Sixty members participated directly in this year's activity, ranging from a 13-year-old sea cadet to Reg G3EGJ, who joined the Royal Navy in 1913. Serving members have to wear uniform during this activity, because it classes as an official duty, and we had from a Lt. RN and Lt. RM down to RO (Steve Wilkshire of the Ark Royal) taking an active part. Many members were also contacted, VP8PL on Signy, ZC4IO, Dusty VK3AYO, ZS1JJ, G3ZGC/MM, etc. All in all, a very successful and enjoyable ten days were spent aboard, some of us never seeing our homes between the 23rd March and the 2nd April. Although very enjoyable it is nice when it finishes and you can once again enjoy the comfort of your own bed, instead of sleeping in a naval bunk.

The activity should take place between the 13th and 22nd of April next, and we are hoping that conditions will be even better so allowing us to contact even more overseas stations.

Corporate membership of the RNARS is open to serving or past members of the RN, RM, WRNS, Reserves, Commonwealth Navies, RNXS, RFA service, Sea Cadet Corps or those connected with these services in a civilian capacity, or serving or past members of UK or Commonwealth Merchant Navies; yearly subscription is £2.00. Associate membership is open to serving or past members of foreign navies, including Merchant Marine or those connected with these services in a civilian capacity.

The Society also issues the Mercury award for working RNARS members; DX only needs 5 points, but the award will be endorsed for each extra 10 points gained, and there are band and mode endorsements, log data only, and £0.30 or its equivalent to G3HZL. The Hampshire County Award is also sponsored, the award is on a points basis — one point gained for each station contacted within the county boundaries, 2 points for G3BZU or any other sponsored RNARS special event station, as long as it is within Hampshire. This award is in three classes:

Class 1 — UK 50 points, EU 20 points, DX 15 points.

Class 2 — UK 30 points, EU 15 points, DX 10 points.

Class 3 — UK 20 points, EU 10 points, DX 5 points.

Log data to G2MG, cost as Mercury award. All contacts for both these awards must have taken place after the 1st October, 1960.

A Morse proficiency certificate is also issued for 100 per cent copy at 15, 20, 25, 30, 35 and 40 w.p.m. The transmissions take place on the first Tuesday of each month from G3BZU at 2000 local on 3515 (plus or minus QRM); trifle difficult for our Antipodean friends, but It is believed that our large group in ZL are planning something similar, negative late news on this one.

All enquiries regarding the Society to the Secretary, HQ Station, G3BZU, HMS Mercury, East Meon, Petersfield, Hampshire, GU32 1HE, or to the author, G3HZL, 153 Worple Road, Isleworth, Middlesex, TW7 7HT. ■

WOOMERA'S CONTRIBUTION TO THE 21st JAMBOREE-ON-THE-AIR

Derived from a report in the "Gibber-Gabber", Woomera — 26.10.78.

Submitted by Dick Ashton VK5DR

Woomera's participation in the 21st Scout and Guide Jamboree-on-the-air during October '78 was a highly successful event.

Although the number of contacts was not many, quality rather than quantity is the aim of this international activity.

Altogther nine Brownies, 12 Guides, nine Cubs and 11 Scouts, and a number of leaders and others spoke from 10.50 a.m. on Saturday to 6.30 p.m. on Sunday to 21 of many special jamboree amateur radio stations, with only a few hours off during a period when the bands went dead.

Many stations were heard, using young Scouters with CB experience as assistant operators, and their performance was of high standard.

In Woomera, the 40, 20 and 15-metre amateur bands were used, with a "listening watch" kept on 80 and 10 metres to see if contacts there were available.

The station used was that of Richard Ashton VK5DQ who for the past three years was the SA Scout HQ Commissioner for Radio and who briefly acted as Woomera Scout Leader earlier this year.

TXCR LOANED

A standby transceiver was loaned by the Woomera Amateur Radio Club in case of station equipment failure; fortunately this did not happen, but it was useful in a contact with a New Zealand station in which Woomera had to transmit on one frequency and receive on another due to so many other stations being on air.

The station was "open for business" for 22½ hours, of which about 13½ hours were spent talking to contacts at home and abroad, and the rest in looking for and waiting for stations the youngsters could understand.

Altogether three stations were contacted in New Zealand, Tasmania, Victoria, Australian Capital Territory, South Australia, Western Australia and Queensland contacts totalled 17, and also one at Umtali (Rhodesia) where the Scouts had originally intended to camp on the golf course but this was cancelled, owing to their vulnerability to terrorist attack.

Many Japanese and American stations were heard but as most were only wanting to swap contact cards and were not Jamboree stations, time was not wasted trying to contact them.

RHODESIA

A Rhodesian station was contacted after waiting half an hour while six other stations talked on non Jamboree business and when contact was finally made, band conditions deteriorated and forced a break off after only five minutes.

Interest was such that of the 41 young people who attended, a number came back as often as four times, making the actual attendance 64!

Some had taken part previously in regular Sunday morning contacts with two other Adelaide Scout radio stations, at Para Vista and Tea Tree Gully, and this activity will be continuing in preparation for next year's Jamboree-on-the-Air. ■

L. to r.: Angela Marlow, Jeffrey Delgado, Leslie Evans, Dick Ashton VK5DR, Boyd Roberts.

NOVICE NOTES

ADJUSTABLE TUNING OF "SKYBAND" 80 METRE WHIPS

Gordon J. A. Cassidy VK2NWC

The 80 metre helically-wound "Skyband" whips, 6 ft. long, available commercially in Sydney (VK2ZXL), have a bandwidth of about 50 kHz between points with SWR of 2.

It is possible to change the resonant frequency by loading the whip externally with a short piece of copper or aluminium tubing slipped over the upper part. The rough measurements I have carried out show that the resonant frequency can be set anywhere in the novice part of the band without noticeable change in the bandwidth or minimum SWR, by adjusting the distance of the loading sleeve down from the top of the whip. No measurements were made of the extra losses introduced, but these are not expected to be high.

In these tests, a piece of ⅝ inch copper light-gauge water supply tubing about 3 inches long was slipped over the top of the whip and held in position with a piece of 2 mm nylex sleeving looped through it.

Measurements were made at intervals of 20 kHz over the novice band, for several positions of the sleeve, and the SWR and reflection coefficient plotted. If the top of the sleeve is about 5 inches down from the top of the whip, the resonant frequency is unchanged, while moving it further down increases the frequency, a movement of about 15 inches being needed to move from one end of the novice band sector to the other. The minimum SWR was less than 1.1 in all positions.

It should be possible to construct a remotely tuneable version by mounting nylon pulleys at the top and bottom of the whip and moving the sleeve with nylon fishing line. ■

RIP — LETHAL SEQUEL

I dreamed death came the other night
And Heaven's gate swung wide
With kindly grace an angel came
And ushered me inside
And there to my astonishment
Stood folks I'd known on earth
Some I had judged unfit
And of very little worth
Indignant words rose on my lips
But never were set free . . .
For every face showed a stunned surprise
No one expected me!

Credit — ARNS Bulletin July 1978.

CORROSIVE CRUNCH

Photos 1 and 2 show Kevin VK2BKG's TA33 senior beam which was supported 70 ft. above the ground on a self supporting tower, which found its way to the ground one windy night.

Take special note of the mounting plate which corroded away, the plate was aluminium and the bolts were stainless steel. The tower stayed in place, only the beam came down. ■

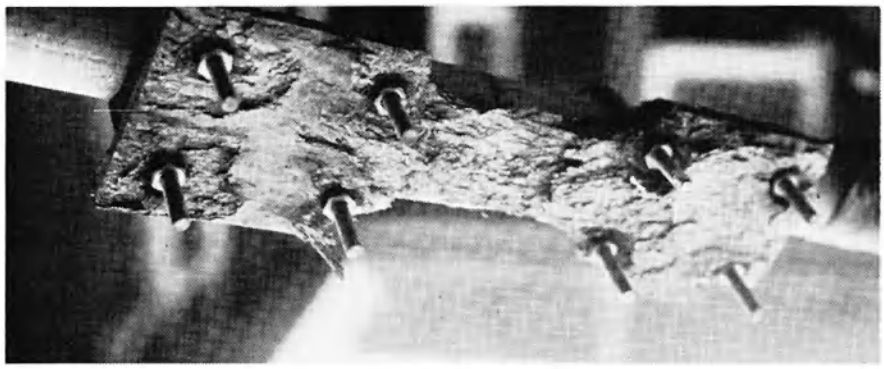


PHOTO No. 1

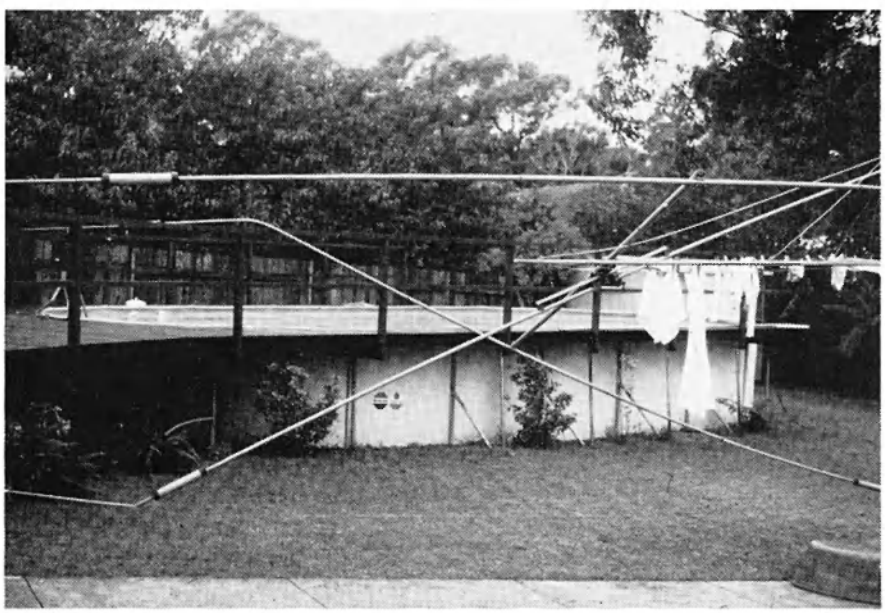


PHOTO No. 2

QSP

CHURCHILL FELLOWSHIPS

The Winston Churchill Memorial Trust will be calling for applications for Churchill Fellowships tenable in 1980. The closing date is 28-2-79. There are no prescribed qualifications for the award of a Fellowship, merit is the primary test, whether based on past achievement or demonstrated ability for future achievement. The value of an applicant's work to the community and the extent to which it will be enhanced by the applicant's overseas study project are important criteria in selecting Fellows. Fellows are awarded a return economy class overseas air ticket and an overseas living allowance to enable them to undertake their approved overseas study project. Fifty-nine Churchill Fellowships were awarded for 1979 at a total cost of $300,000. The Trust was established in 1965 from the capital sum subscribed by the Australian community in memory of Sir Winston Churchill. Funds now stand at $5.7m. Australians over 18 years of age, from any walk of life, who wish to be considered for a 1980 Churchill Fellowship should write for a copy of the brochure and application forms to the Winston Churchill Memorial Trust, PO Box 478, Canberra City, ACT 2601.

NEW PREFIX 1979

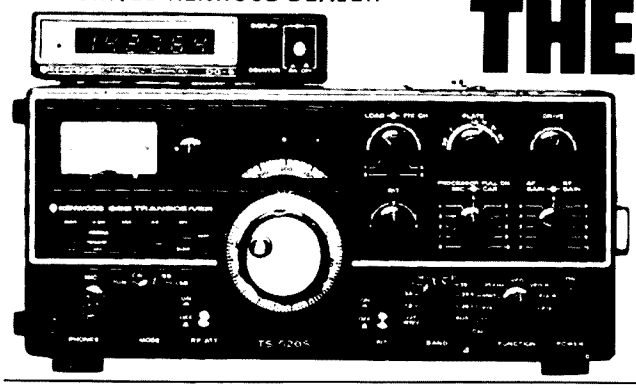
To mark the celebrations of the 1,000th year of Tynwald — the Isle of Man Parliament — the prefix GT may be used by amateur operators on the Island from 30th June to 8th July, 1979. Other UK prefix changes are, of course, GU for Guernsey and GJ for Jersey in the Channel Islands in place of the GC prefix.

REPEATER CHANNEL SPACING

"Despite considerable discussion" quotes Radio Communication of September 1978, the VHF Committee of the RSGB in relation to 2m repeaters, said "it was agreed not to introduce 12.5 kHz spacing on repeaters yet, but builders of repeaters are being advised to use equipment capable of being converted to this standard in the future." ■

APPOINTED KENWOOD DEALER

THE NEW TS 520S



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Full coverage 1.8 to 29.7 MHz * Outstanding Receiver Sensitivity and Minimum Cross Modulation * Vernier Tuning for Plate Control * Highly effective Noise Blanker * New Improved Speech Processor * RF Attenuator *Easy connection to Phone Patch * Fully compatible for optional 6-Digit Read-out * Price: TS 520S **$685**

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Si

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SYNONYMOUS for QUALITY and ADVANCED TECHNOLOGY

KVG

Listed is our well-known series of 9 MHz crystal filters for SSB, AM, FM and CW applications.

Export inquiries welcomed

Filter Type	XF-9A	XF-9B	XF-9C	XF-9D	XF-9E	XF-9M	XF-9NB
Application	SSB Transmit	SSB Receive	AM	AM	FM	CW RTTY	CW RTTY
Number of Filter Crystals	5	8	8	8	8	4	8
Bandwidth (6 dB down)	2·5 kHz	2·4 kHz	3·75 kHz	5·0 kHz	12·0 kHz	0·5 kHz	0·5 kHz
Passband Ripple	< 1 dB	< 2 dB	< 2 dB	< 2 dB	< 2 dB	< 1 dB	< 0·5 dB
Insertion Loss	< 3 dB	< 3·5 dB	< 3·5 dB	< 3·5 dB	< 3·0 dB	< 5 dB	< 6·5 dB
Input-Output Z_t Termination C_t	500 Ω 30 pF	500 Ω 30 pF	500 Ω 30 pF	500 Ω 30 pF	1200 Ω 30 pF	500 Ω 30 pF	500 Ω 30 pF
Shape Factor	(6:50 dB) 1·7 (6:80 dB) 2·2	(6:60 dB) 1·8 (6:80 dB) 2·2	(6:60 dB) 1·8 (6:80 dB) 2·2	(6:60 dB) 1·8 (6:80 dB) 2·2	(6:60 dB) 1·8 (6:80 dB) 2·3	(6:40 dB) 2·5 (6:60 dB) 4·4	(6:60 dB) 2·2 (6:80 dB) 4·0
Ultimate Attenuation	> 45 dB	> 100 dB	> 100 dB	> 100 dB	> 90 dB	> 90 dB	> 90 dB
Price	$40·65	$55·10	$59·30	$59·30	$59·30	$41·50	$73·45

In order to simplify matching, the input and output of the filters comprise tuned differential transformers with the "common" connections internally connected to the metal case.

Registration Fee: $3.00; Air Mail 31c per ½ oz. Shipping weights Filters 2 oz. ea. Crystals ½ oz. ea. All Prices in U.S. Dollars.

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XF900 Carrier	9000·0 kHz	$4·75
XF901 USB	8998·5 kHz	$4·75
XF902 LSB	9001·5 kHz	$4.75
XF903 BFO	8999·0 kHz	$4.75
F-06 Crystal Socket (HC25/u)		·50

Oscillator Crystals 50 kHz through 150 MHz available to order. Parallel resonant (30 pF) to 20 MHz, series resonant above 20 MHz. Write for quotation to your requirements (include mechanical size & frequency)

Matching FM Crystals Discriminators for XF-9E

	Freq Dev	Slope	Price
XD-9-01	– 5 kHz	– 40 mV/kHz	$27·80
XD-9-02	– 10 kHz	– 24 mV/kHz	$27·80
XD-9-03	– 12 kHz	– 50 mV/kHz	$27·80

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AMATEUR RADIO WEEK-END

The WIA Education Service, incorporating the Youth Radio Service, concluded another successful amateur radio week-end of fun and learning.

PHOTO No. 1

At the mike we have Rex Black VK2YA, founder of the YRCS in Australia, receiving a 160 metre call back. Next to Rex we have Br. Cyril Quinlan, the Co-ordinator of the amateur week-end concept, and next to him (holding the switch for the 1.8 MHz linear) is Mathew VK2NAI.

PHOTO No. 2

Stevene Rowlison at the controls of a mini-computer — one of the new popular additions to the amateur week-end activities.

PHOTO No. 3

Steve Rowlison's father having a nice time trying the do it yourself electronics training kit.

PHOTO No. 4

From right to left we have Bruce VK2NUT, Christ VK2NYA, Mathew VK2NAI, and Paul VK2NYO (holding the mike) manning the HF 160 to 10 metre station.

The cost for all accommodation and food at the Katoomba happening is $20 (or $12 if you are ten years old or younger). If you would like to get into the next week-end (beginners, students and licence holders are all welcome), please contact:—

Ken Jame VK2NWK, (02) 638 1687.
Cel Wyn Carlyle VK2NOK, (02) 827 3589.
Les Dickenson VK2NMY/YMY, (02) 47 3044, for further details.

FIELD TRIP TO HILLEND NEAR BATHURST, N.S.W.

The Amateur and Citizens Radio Club of NSW is organising an Amateur and CB radio week-end at Hillend, near Bathurst, on the week-end of the 17th February.

Any amateurs who would like to participate in demonstrating and discussing the ins and outs of the fun of amateur activities would be most welcome to attend.

A private bus is being hired to transport those leaving from Sydney if you require transport for you and your gear. The bus will be set up for all bands, so we will be able to work the world while "bus mobile".

All are welcome to attend and newcomers are especially welcome to come along. For details and reservations contact Max Lowe, 30 Frances Road, Putney, NSW 2122, or phone 807 6172, or call in on the club net on the first Saturday of each month on 3580 kHz plus/minus QRM or any Sunday at 8.30 p.m. on 28.5 MHz. ■

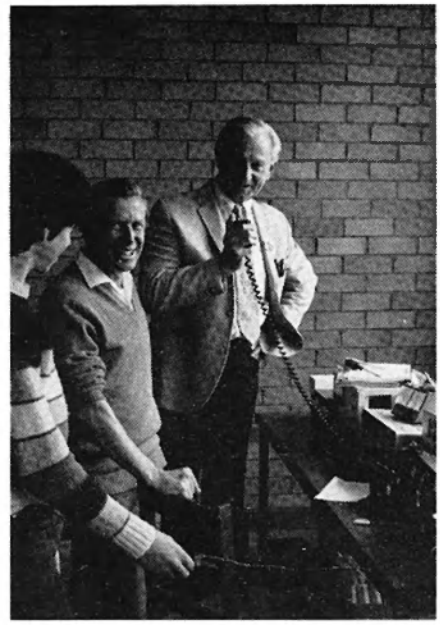


PHOTO No. 1

PHOTO No. 2

PHOTO No. 3

PHOTO No. 4

NOVICE NOTES

SOLID STATE RIGS

Whether you grieve for tube finals or not, Solid State finals are here to stay and will increase in the years ahead. The problems of making efficient transfer of the RF energy to antenna systems are more acute with solid state than with tube finals with their loading controls. Mobile operation in particular is demanding and ensuring a perfect match to the base of the antenna is imperative. Some of the problems you can have occur are: (1) High VSWR of around 3 : 1 will reduce useful power output. (2) RF voltages resulting from VSWR appear on the chassis and microphone and sets exhibit symptoms of RF feedback. Remember that broadband solid state finals have no loading controls to approximate optimum impedance of 50 ohms. Therefore we suggest that you take particular care in matching your feedline to the antenna. Mobile antennae have base impedances lower than 50 ohms and it is suggested that the impedance be checked with a bridge and resulting discrepancies be corrected with a base matching unit. Transceivers used in the shack should use a tuning unit if only to reduce tendencies for TVI. Beams, etc., may have a feedline impedance of 50 ohms, but don't depend on it as variations in assembly and proximity to nearby objects may modify this.

POWER METERS AND HARMONICS

10 watts on your power meter may not be "watt" it seems! If you have harmonic output, the harmonics may combine with the fundamental to produce erroneous readings on some power meters. Fortunately most rigs have low harmonic output and the reading is accurate but watch out for this pitfall.

From VICOM Ham News. ■

THE KILLARNEY HEIGHTS NOVICE RADIO CLUB

160 METRE LOGGINGS FOR 1978

Equipment: A Forest phone FP-1, 160 metre transceiver crystal locked on 1.825, 10 watts, AM, AWA make, fully transistorised, a McLeod ME58/11A, 160 metre transceiver crystal locked on 1.825, transmitting, variable on receive, 18.00 to 18.60 valve. Antenna: A 160 metre dipole, 125 feet.

VK1 — VK1RK.
VK2 — VK2HO, BIC, BVS, BGH, GE, IQ, BZK, LS, ACC, BAV, AAB, BDT, BWS, BRU, BSB, BJL, LH, OO, BFR, WC, OI, APQ, PA, BOJ, ARN, BGV, BPX, BYO, BZJ, BKX, DI.
VK3 — VK3ALS, IM, BEX, AOS, ACA, AAB, AEI, DW, BIE, BI, AXE, DQ, LO, EV.
VK4 — VK4DJ, RJ, MR, MD, AFH, ZQ, AAL, AHO, RH, AJM.

VK5 — VK5KL, ALB, NN, XI, MG, AS, EJ.
VK6 — VK6TQ, 6AF, 6AS.
VK7 — VK7LZ, AE.
ZL — ZL4AY, 2LA, 2AGY, 1AVA, 2BLR, 2HE, 2AA, 2BC.
VR — VR4DX.

Who said that 160 metres was not active?

When was the last time you called on 1.825? ■

R. C. Black VK2YA
N.S.W. Education Officer

TRIAL NOVICE EXAMINATION — OCTOBER 1978

INTRODUCTION

Following the custom started in 1975, Trial Novice Examinations were conducted on and about 28th October to suit the situations in various participating Clubs and courses. These tests provided the "last chance" for instructors and students to ascertain the strengths and weaknesses of Radio Theory and Regulations knowledge and Morse Code skills prior to the official Novice examinations of the Post and Telecommunications Department, held on 21st November.

With immediate marking of candidates' Trial papers, there was time for instructors to revise and drill the weak points revealed by the Trial Novice "probings".

Letters were sent to as many NSW Radio Clubs as possible, inviting them to participate in the Trial Novice operation. Response was disappointing. However Examination Centres were organised at Perth. Adelaide, Darwin, Parkes, Canberra, Gosford, Lismore, Inverell, Cambridge Park, Springwood, Buxton, Lithgow, Killarney Heights, Liverpool, Newcastle Technical College, Wagga, Westlakes, Pennant Hills, Noosa, Cranbourne.

ORGANISATION

Wherever possible Clubs were asked to nominate independent Examination Supervisors who received the examination papers and kept them in safe custody until the times for examination sessions.

Morse Code Receiving tests were put on to cassettes and distributed to Supervisors, who were required to secure the services of competent amateur operators to mark the tests and to administer Morse Sending examinations.

Candidates were able to take their question papers away from the Centres for discussion of their efforts with instructors and fellow candidates. In short, the papers became "Revision Syllabuses" in the three weeks between Trial and P/T examinations.

Examination results were returned to the Education Officer to permit the assessments and statistical information.

EXAMINER'S COMMENTS

CW Receiving

70 per cent of candidates passed in BOTH Receiving and Sending at 5 w.p.m. and reports indicate that a goodly number have used the Education Service's "Learning Morse Code" Course and the Practice Cassette system.

CW Sending

23 per cent of candidates failed or did not attempt the Sending Test.

Regulations

80 per cent of candidates passed In this subject, which was set on the P/T format of 30 multiple-choice questions. One private study candidate from Lithgow gained possible marks; the lowest mark was 4 out of 30.

Theory

The Departmental November Novice Examination in Theory would be the FIRST set to the newly-introduced P/T Novice Syllabus and to the WIA Novice Study Guide. Therefore, no previous P/T papers would offer adequate guidelines as to what our candidates might expect on 21st November. We had no means of knowing where the Departmental examiners might distribute their "probings" and what might be their "pet" topics. What emphasis they might place on certain aspects of the new Syllabus and the depth of knowledge they might require. It was considered necessary — or even urgent — to test the new Syllabus as widely as possible — even if it became necessary to change the timing and the format.

A disturbing trend was noticed with respect to the P/T Novice Examination last May. Some Novice students, having completed less than HALF of their Course, were able to attempt the P/T testing and to gain 70 per cent of possible marks on elementary topics and some reasonably intelligent guessing of the multi-choice questions. Keeping in mind that a Novice licence is, In fact, a TRANSMITTING PERMIT, there can be no justification in framing theory papers which make it possible for candidates to pass without adequate training and testing in the "transmitting" areas of the Novice Syllabus. For this reason the Trial Theory paper was divided into three sections with the requirement that candidates must pass in all three sections. Furthermore, the section C was weighted to 50 per cent of the possible marks, emphasising the EXAM WORTHINESS of questions relating to transmission, propagation, aerials, transmitters, frequency measurement, TVI, BCI, harmonics in which areas Novice candidates should be well drilled, even if they are not taught and tested on "the composition of solder" and similar unessentials.

There was a wide range of marks in this Theory area. Top mark was 84 per cent; lowest mark was 8 per cent. Average mark was 53. The results gave a reasonable approximation to a "normal distribution graph". In short, candidates who had been well taught and had made an adequate effort did quite well. Those who were ill-prepared or "took it too cheaply" or "gave it a go just to please the instructor" did not achieve satisfactory levels.

NOVICE EXAM SYLLABUS

It seems that some instructors did not know of the existence of the new P/T Novice Syllabus and the WIA Novice Study Guide. Obviously, many candidates were similarly unaware of these guidelines.

After the first few batches of material came back from Examination Centres, I made up a PROGRESS ANALYSIS and distributed to Clubs and instructors to show the trends and weaknesses revealed. Some Instructors made very good use of this information and "hammered" the weak topics — hopefully in time to meet the P/T Novice deadline. However, some candidates were so backward that It would have been impossible to "build them up" to satisfactory standard by 21st November.

Mr. Reg Stockman of Inverell has suggested that In the April Trial Novice there should be TWO Trial Theory papers set so that the first (a longer Diagnostic test covering the whole Syllabus) should be given about 4 or 5 weeks prior to the P/T Examination in May; the second should be JUST BEFORE the P/T Examination and should be in P/T format. Another suggestion is that Clubs should be allowed to choose whether to submit candidates for a simulated P/T Examination OR for a longer Diagnostic test which can then be used as a "final burst" Revision Syllabus.

However, I suggest that Club instructors would do well to follow the YRS Radio Certificate sequences, keeping in mind that Elementary (Stage 1) approximates to the "Basics" topis of the P/T Syllabus; Elementary (Stage 2) would take students through Receivers up to Superheterodyne Receivers. Also, the YRS Certificates in Radio Telephony and Wireless Telegraphy offer useful practical applications of much of the Theory topics.

An undue proportion of students failed in Sections A and B of the Theory paper. These related to topics that would have been covered in the early weeks of a Novice Course. One suspects that in some cases the Trial would have been the first time many students would have been tested during their training period.

It has been suggested that some candidates who "knew their Radio" were "thrown" by the use of question types that were other than multi-choice. I do not subscribe to this opinion. Assuming that instructors DID, in fact, conduct progress tests during the Course, it is improbable that ALL such tests were multi-choice. A candidate who MUST have four alternative answers presented to him and is incapable of deriving an answer by other means looks like a rather unpromising future member of the Amateur Service!

I point out, too, that mature students are masters of the art of deluding instructors Into assuming that they (students) have grasped the complex principles of Radio Theory. An instructor who accepts the nodding of heads as an indication of "grasping" is certainly deluding himself! ONLY complete and repetitive testing can assure him that his students have definitely understood and learned.

Some of the candidates' papers make one doubt whether they have ever seen an Amateur Radio Station; have even handled

a transmitter to tune and adjust it; have ever examined the "entrails" of a simple Superhet Receiver to locate the various stages. How many have ever used a Frequency Meter or a Wavemeter or seen a CRO display of over-modulation? In short, I think that many Novices are being let loose on the Amateur bands without adequate experience and background. How many have ever been "on the air" from an Amateur Station UNDER SUPERVISION? To achieve these desirable aims I suggest that Club members in general — those NOT undertaking the important, and unpopular, functions of instructing — might do well to contribute time and interest as members of Committees to provide the practical experience necessary to make GOOD CLUB NOVICES. In USSR, for example, there are Club Committees which provide such experience for candidates before the relevant Department issues transmitting licences. Our Australian Novices would benefit greatly from a similar set-up.

WHAT LESSONS HAVE WE LEARNED FROM THE TRIAL NOVICE EXAMINATIONS?

(A) That the whole Trial Novice exercise should be FLEXIBLE to meet the needs of Clubs and Courses, each of which has a different set of situations to determine its needs;

(B) Clubs and Courses should arrange Trial Novice examinations with sufficient time between Trials and P/T examinations to permit thorough revision of weak topics;

(C) Novice Courses should be based on COMPLETE coverage of the P/T Novice Syllabus and the WIA Novice Study Guide;

(D) Instructors should be encouraged to use the advantages of the YRS Radio Certificate system to offer step-by-step incentives to students;

(E) Clubs and Courses should be conducted with provision for students to gain equipment handling experience relevant to topics taught;

(F) Trial Theory Examinations should be available in:

(i) P/T format and

(II) other formats as may be considered more suitable for assessing candidates' knowledge of Syllabus topics;

(G) Trial Theory Examinations should be arranged on the "Three Sections" basis to obviate the chance of Inadequately prepared candidates gaining pass marks;

(H) All Instructors and Students should be encouraged to have P/T Syllabii and WIA Novice Study Guides in their possession;

(I) Radio Clubs and Courses should undertake the function of awarding prizes to their successful Trial Novice candidates;

(J) Arrangements should be made for Trial Novice Examinations AT ANY TIME as requested by Radio Clubs;

(K) Trial Novice Theory papers should give special attention to the important topics of TVI, BCI, interference in general and remedies;

(L) Instructors should conduct Morse Code instruction on the basis of NORMAL style, BUT sufficient practice should be given In the ITU mode to ensure that candidates at P/T Morse Tests will not be disconcerted by the different style of Morse used;

(M) The practice of awarding Intermediate and Junior Certificates on the present basis to Trial Novice candidates should be continued. ■

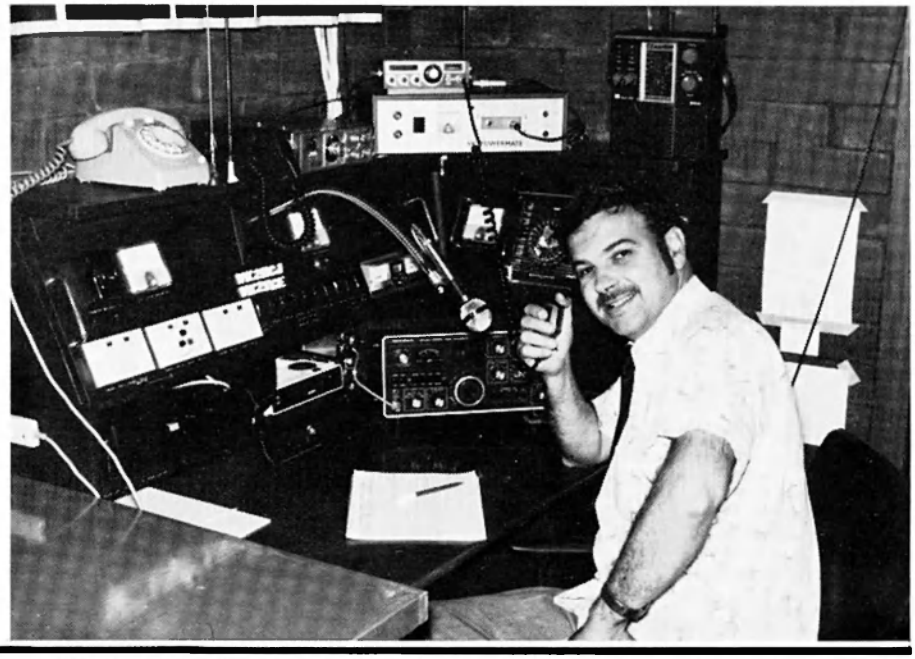
Geoff Swift VK2NCJ/YGE

"RADIO ROOM" OR "SHACK"

Here is a photo of my recently completed "Radio Room". I don't call it a "Shack" because I put too much work into it!! As can be seen the design idea was to have everything at fingertip control. It features, in console type arrangement, an AC line monitor meter, master switch, RF field strength meter, SWR and power meter, internal and external temperature meter, 24-hour world time clock, a phone patch board, 12 Illuminated rocker switches, 6 x 240V power outlets, boom mic., digital clock, cassette recorder, mic. pre-amp, VK Powermate, 2 x light dimmers and flashing LEDs for quick action in case of power or faults causing losses.

The main transmitters are a Uniden 2020 for HF and a Kyokuto 2 metre transceiver for VHF work.

To add a touch of luxury the "Radio Room is air-conditioned and fully carpeted. ■



GERALDTON AMATEUR RADIO GROUP

For many years Geraldton sported only two hams, Jack VK6EJ and Noel VK6MF. During the past year membership has increased to include seven full calls, three limited calls, and three novice calls, including a YL, Moira VK6NDM, and our State's youngest ham, Glenn VK6NGK, who is twelve years old.

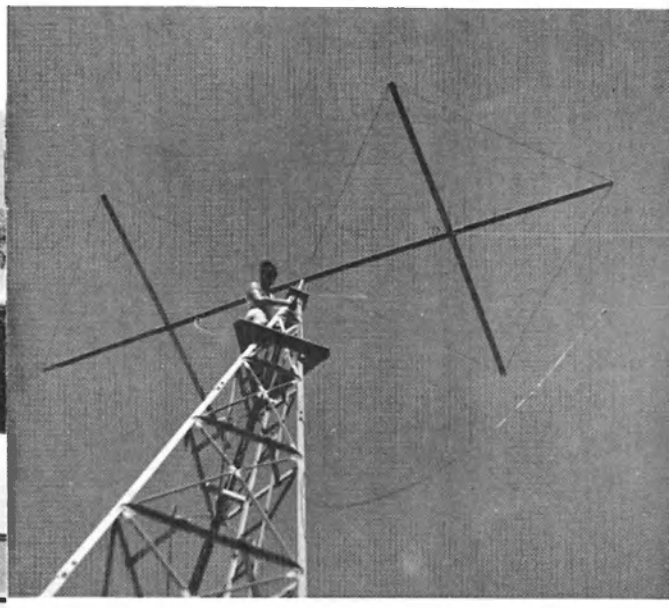
We have a very active radio group, having established a Repeater from which pre-licensing tests have been most gratifying, with frequent contacts to Perth (400 km), Bunbury (500 km) and Cape Leeuwin (600 km).

We have organised two successful fox hunts and various social activities, enthusiastically supported by hams and their families — and this within twelve months.

Jack Cowles VK6EJ. ■

(see photos over page)

VK6MF attempts to locate the fox (in a fox hole?)



VK6QA Keith. sporting a 20 Mx bow tie.

THE AMATEUR RADIO CLUB OF TONGA (ARCOT)

Harry Feldman A35HF

Just two years ago there were no hams in Tonga. When Bill Lang came from New Zealand to work at the Tonga Copra Board he brought his hobby along with him. The Tonga Telephone and Telegraph Commission (T&T) issued him a courtesy licence and he went on the air as A35WL. Not one to be satisfied to enjoy ham radio alone, Bill soon gathered a small group of interested Tongans and palangis which began meeting weekly as ARCOT.

Bill Rickertson began giving a course in radio fundamentals which Don Greer A35DE, a Peace Corps Volunteer working as a technician at T & T, later took over. After a term, when it became apparent that the facilities at the University of the South Pacific's Nuku'alofa Center were inadequate, ARCOT found a new home at 'Atenisi University. Don's course continued to arouse a great deal of interest among 'Atenisi students and the community at large and drew about 25 students. After one term at 'Atenisi, four of the class's members passed T & Ts 12 w.p.m. code test and the exam in electronics and radio law. Sione Maile A35SM, 'Etuate Kavanga A35EK, Puoono Taufa'eteau A35PT and Harry Feldman A35HF were the first ever to be licensed in Tonga by examination.

More recently two other T & T employees, Viliami Vaka'uta and Sione Kava Aloua, got the licences A35VV and A35SK. After the second term of Don's course Sam Kolokihakaufisi got the licence A35SF.

Meanwhile, Don, Sione Maile, 'Etuate, and Harry put together a shack in the back room of 'Atenisi's lab using an antique Eddystone model 750-x that T & T had lent us and a Knight T-60 that a friend in New Zealand donated. The Club station, A35FI, has been on the air since July and we have had many pleasant QSOs with our friends around the Pacific with the Eddystone, the T-60 and an inverted vee.

Early in 1978, Clark Richardson A35CR, became interested in forming a liaison between T & T and the amateur community that might result in some clarification of Tonga's 1934 Radio Law. At the same time, T & T was taken aback at the unprecedented rush for licences. They were concerned that improperly trained amateurs might interfere with other services. The series of meetings that Clark organized with Henry Malu, Acting Superintendent of T & T, culminated in Henry's approval of the Club. He was particularly interested in the potential of a group of self trained communicators for alternative communication in time of emergency. Dave Goddard A35DG was the first to communicate with the outside world during the destructive earthquake of June 1977.

In September and October of this year all the members met to approve our new constitution and to elect officers. Dave, as his last action as outgoing president, sent a copy of the constitution to the IARU as part of our application for membership. Our new president, Tavake Vi A35TV, is the very first Tongan ham. Don was elected vice-president, Villiami the secretary-treasurer, and Ric Berger A35RB, the property officer.

ARCOT has received recognition from Tonga's Legislative Assembly as the official representative of amateur radio in the Kingdom. The Crown Prince, Tupouto'a, has shown an interest in the Club and has agreed to open A35FI officially.

Our plans for the future include continuing classes next year and starting a branch of the Club on the Northern Island group of Vava'u, with the aim of organizing an emergency communication network. We are also hoping to get a USAID grant to install solar powered transceivers in the medical dispensaries in outlying villages to give them an opportunity to consult with the main clinic in Nuku'alofa.

We should be able to make great progress toward our objectives if we can only overcome one or two little problems. One of these is the 1200 miles of Pacific that lie between us and our neighbourhood Radio Shack. Thus far we've been relying mostly on parts cannibalized from old transistor radios. We'd like to express our gratitude to Ric Bergaer, N4TN, W7OZ, K6AGD, W4NBP, the North Shore ARC in New Zealand, the Flyweight DX Club, the Santa Clara County DX Club, and many others for their words of encouragement and offers of help.

N4TN is acting as QSL manager for A35s EK, FI, HF, PT, SF, SK, SM and VV. You can hear A35s EK, HF and SM operating A35FI between 7004 and 7017 kHz most days between 0800 and 1200Z. Other hams operating in Tonga are A35s CR, DE, HU, RB, TV and WL. ■

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TS520S	$89 Deposit
ICOM IC701	$169 Deposit

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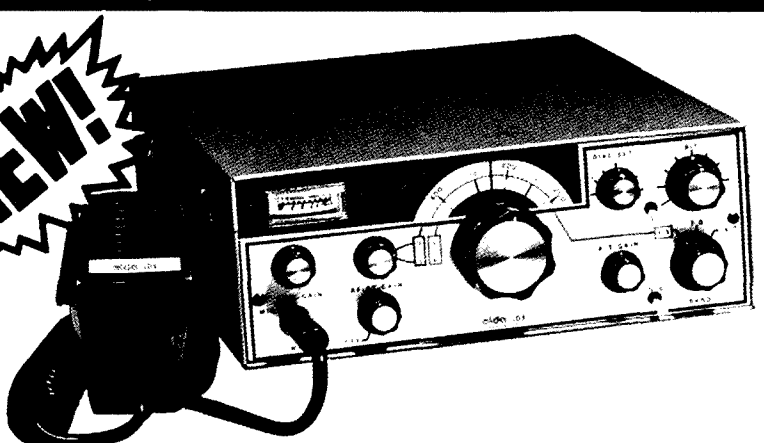

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IF Rejection:
Better than —70 dB (typical with respect to 0.5 μV input: 80 metres - 110 dB; 40 m - 80 dB; 20 m - 75 dB)

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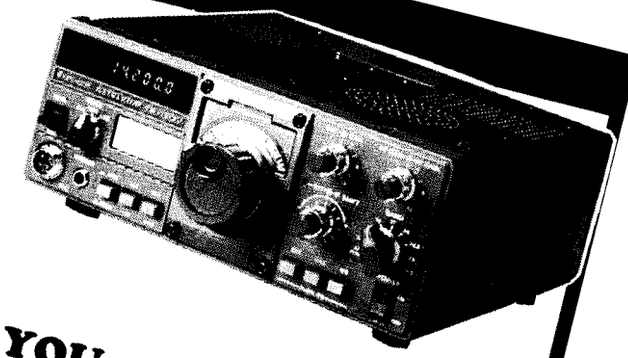

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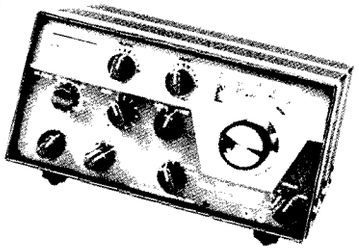

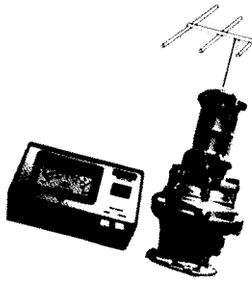

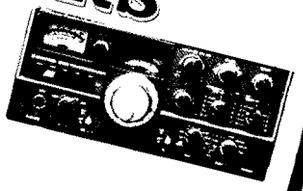

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THE WIA ROLE IN THE "SPECIAL PREPARATORY MEETING"

Michael J. Owen VK3KI

This report on the Special Preparatory Meeting (SPM) is of particular interest to Australian Amateurs. The paper submitted by Australia was based on the work of a number of Amateurs, in particular, Jack O'Shannassy VK3SP and Earl Russell VK3BER. Considerable support and assistance was afforded by officers of the Postal and Telecommunications Department. In addition, valuable suggestions and comments were afforded by a number of prominent overseas Amateurs. The Institute acknowledges their work with gratitude. The preparation of the paper was co-ordinated by Michael Owen VK3KI.

The WIA was asked to provide a Delegate with special responsibility for the Amateur Service on the Australian Delegation. David Wardlaw VK3ADW was a member of the Australian Delegation for the first two weeks of the SPM, and Michael Owen VK3KI for the remaining two weeks. The cost of their travel and accommodation was borne by the WIA.

In the second week of the SPM, the IARU held a reception for leaders of Delegations and members of Delegations who were also Amateurs. More than 150 Delegates attended this reception. Amongst these were many from Asia and Africa, including representatives of the People's Republic of China. This was the first occasion on which representatives of China attended an IARU function.

The recommendation ot the SPM affecting the Amateur Service will provide an important basis for the Service's position at the WARC.

However, and very importantly, the significance of the SPM conclusions should be kept In perspective. The SPM was confined to a consideration of technical matters — it was not a frequency allocation conference. In addition to technical matters, the WARC will be concerned with far wider considerations, including economic, political and social issues. But on the other hand, the first and essential step, the acceptance of the technical basis for the Amateur position, has been taken.

The SPM was an essential step In the ultimate resolution of the WARC, but cannot be regarded as an end in itself. The conflicting claims of different Services for radio spectrum will only be decided at the WARC. The needs and requirements of different countries and different Services for frequency are diverse and conflicting. The Amateur Service must continue to press its case strongly, though in a balanced and sensible way.

The WIA, therefore, faces a heavy and continuing commitment over the next year, both financially and in the allocation of its resources.

The response of clubs, members, non-members and industry to the Institute's appeal for funds will determine how much more the Institute can do in fulfilling its fundamental responsibility to represent Australian Amateurs during this most Important year. ■

SPECIAL PREPARATORY MEETING OF CCIR

Michael J. Owen VK3KI

Between the 23rd October and 17th November, 1978, the International Radio Consultative Committee (CCIR) held a Special Preparatory Meeting (SPM).

ITU Special Preparatory Meeting, First Plenary, CCIR 23.10.78 — WIA Federal President is seated with the Australian delegation working for WIA members and other Australian amateurs.

The task of the SPM, as defined by the Administrative Council of the International Telecommunications Union was to prepare a report based on texts approved by the XIVth Plenary Assembly of the CCIR, as well as on new contributions submitted to the SPM by Administrations and other participants. The report of the SPM was to be comprehensive and self-contained, and was to be presented in a form consistent with the various agenda items of the World Administrative Radio Conference 1979, and was to consist of technical information and conclusions considered by the SPM to be of importance to the work of the WARC. The report Is being distributed as a document of the 1979 WARC and is not available to the public. It was not the task of the SPM to make specific proposals for revised or new allocations.

750 people (not including ITU representatives) participated in the Conference from 85 countries, 30 recognised operating agencies, 15 international organisations (including the International Amateur Radio Union), 10 scientific and industrial organisations, and three United Nations specialised agencies. Prior to the start of the SPM, some 400 documents were sent to the Delegates participating in the meeting.

Dr. J. A. Saxton of the United Kingdom was appointed Chairman of the SPM by the XIVth Plenary Assembly of the CCIR. The technical topics around which the work of the SPM was organised were as follows:—

A. Terminology and classification and designation of emissions. Chairman, Dr. M. Joachim (Czechoslovakia).

B. Terrestrial services up to 40 GHz, technical data for allocation and regulations. Chairman, Mr. C. Terzani (Italy).

C. Space services and space/terrestrial sharing up to 40 GHz, technical data for allocation and regulations. Chairman, Mr. E. Craig (Australia).

D. Monitoring and identification. Chairman, Mr. H. Kaji (Japan).

E. Services above 40 GHz, and optimum use of the spectrum. Chairman, Mr. H. Willenberg (Federal Republic of Germany).

F. Propagation. Chairman, Dr. F. Horner (United Kingdom).

G. Resolutions and Recommendations related to CCIR work. Chairman, Mr. T. de Haas (United States).

H. Drafting. Chairman, Mr. M. Thue (France).

368 new contributions were submitted by Administrations and four of these concerned new questions relating to the Amateur Service and the Amateur Satellite Service. Australia, Canada and the United States submitted new papers dealing with preferred bands for the Amateur Service and the United States also submitted a paper dealing with the Amateur Satellite Service.

The Australian contribution paid particular attention to the bands below 30 MHz. It was directed to Investigating an optimum basis for the efficient allocation of spectrum to ensure the operational effectiveness of the Service. It examined the family of frequencies allocated to the Aeronautical Mobile (R) Service, the Broadcasting Service and the Maritime Mobile Service. It pointed out that the particular needs of these Services were met by the allocation of a suitable family of frequencies. It further pointed out that the allocation of harmonically related bands was formally recognised at the 1927 ITU Washington Conference. However, it argued that the need for harmonically related allocations no longer exist. It also argued that the wide spacing between successive bands had caused unacceptable crowding of these bands. Annexed to the Australian contribution was a computer study that illustrated the increase in communication capability over three particular paths if bands at 10, 18 and 24 MHz were allocated to the Amateur Service in addition to the existing allocations. The study took into account varying propagation and seasonal conditions. It illustrated that the provision of a new band at 10 MHz would provide a major improvement.

The Australian contribution also contended that sharing with radiolocation in the VHF and higher bands was feasible and would provide access to wider and more useful bands, though it was desirable to preserve some exclusive allocations for particular Amateur experimentation throughout the spectrum.

The contribution of Canada referred to the extent of use of Amateur bands and also illustrated the improvement in reliability in communication on three east-west paths by the addition of a new band at 10 MHz and argued, as did the US paper, for an enlargement of the family of frequencies available for the Amateur Service in HF bands.

The Amateur Service and the Amateur Satellite Service were considered in Committees B and C. Initially the Conference was divided into a large number of sub-working groups and working groups which reported to the main Committees. The documents circulated to Delegates before the SPM were considered and subject papers produced, which were eventually considered by a Plenary Meeting. Each paper went through a three-stage process before finally appearing as a "pink" document. These documents, as approved by the SPM, will constitute the report of the SPM.

The IARU participated in the SPM as a full delegation, and actively took part in discussions involving the Amateur Service. The IARU Delegation included Merle Glunt W3OKN, Roy Stevens G2BVN, and David Sumner K1ZZ.

David Wardlaw VK3ADW and Michael Owen VK3KI served on the Australian Delegation with special responsibilities for Amateur Radio matters. In addition, there were more than 50 Radio Amateurs who formed part of national Delegations.

What were the important conclusions of the SPM affecting the Amateur Service? In the context of allocations of frequencies up to 30 MHz, the SPM referred to the fact that frequency dependent factors determine the effectiveness of radio communications in the Amateur Service, and also pointed out that Amateur station operators continue to contribute to the knowledge of radio propagation phenomena, as well as the development and demonstration of spectrum conservation techniques throughout the radio frequency spectrum. The SPM concluded that frequencies in the MF band are useful to allow investigation into, and use of, propagation peculiar to this band, particularly during a sunspot minimum when the MUF is below 3 MHz. The SPM also concluded that the communication capability of the Amateur Service would be significantly enhanced by a better distribution of the frequencies available to it below 30 MHz. A suitable family of frequencies with narrower spacing between successive bands than is at present the case would have some technical advantage. The SPM also concluded, significantly, that it is not necessary to preserve a harmonic relationship between all of these bands. The SPM included in its report the computer study annexed to the Australian contribution, and the table annexed to the Canadian contribution.

The SPM also gave consideration to the allocation of frequencies above 30 MHz and in this part of its report the SPM referred to the definition of the Amateur Service in the Radio Regulations and also noted that "the number of Amateur stations, world-wide, is now more than 1,000,000 and is growing at an annual rate approaching 20 per cent". It suggested that above 30 MHz, frequency bands common to the three Regions are desirable. It also concluded that access to bands distributed throughout the spectrum is desirable to enable the Amateur to become experienced with those problems which are peculiar to different parts of the spectrum, such as the various modes of propagation, the problems of signal generation and detection, and antenna design. It again pointed out that Amateur bands no longer are required to be harmonically related. It also pointed out that it is desirable that bands allocated to the Amateur Service are sufficiently wide to permit experiments with wide band techniques. It also concluded that the Amateur Service could share frequency bands with the Radiolocation Service, permitting broader band operation than would be possible with narrower exclusive allocations. The report of the SPM further said: "Such sharing would not require the Radiolocation Service to provide protection to the Amateur Service which would not be feasible, but even with this constraint, useful exploitation is possible by the Amateur Service.

Exclusive allocations, where possible, would help to meet particular needs of the Amateur Service." The SUM annexed a summary of the characteristics of the preferred bands above 30 MHz.

Whilst the SPM was able to reach a conclusion as to the feasibility of the Amateur Service sharing with Radiolocation in bands above 30 MHz, the SPM decided that there was no data on which to base a technical conclusion of the sharing possibilities between the Amateur and other Services below 30 MHz.

The one question that had previously been under consideration in CCIR affecting the Amateur Satellite Service was the question of the technical feasibility of frequency sharing by that Service. The SPM referred to the existing CCIR reports on this topic and concluded it is technically feasible to use existing world-wide Amateur Services frequencies in the earth-to-space direction in the Amateur Satellite Service under the same limitations that now exist for their terrestrial use in the Amateur Service. It also concluded that it would be technically permissible to utilize in the space-to-earth direction those frequencies which are allocated exclusively to the Amateur Service on a world-wide basis. The SPM further concluded: "Additionally, subject to the provision of 6362(1567A) of the Radio Regulations and also appropriate PFD limitations, it would appear to be feasible to use frequencies in the bands 1215-1300, 2300-2450, 5650-5670 and 10475-10500 MHz in the space-to-earth direction."

Two other references to the Amateur Service that will be contained in the report of the SPM are of interest and indicate a real awareness of the particular nature of the Amateur Service. In the context of the chapter dealing with questions involving propagation, the observation is made that "it is assumed that there is little interest in circuits which provide effective communication for small percentages of the time, except possible by the Amateur Service, in which the use of relatively poor circuits presents an interesting challenge". In the context of frequency tolerances, the SPM reported "no tolerance values have been established for meteorological aids, nor for the Amateur Service. This matter can best be handled by national Regulations."

Writing to the IARU Region 1 Division WARC 1979 No. 10 (December, 1978), Roy Stevens said "After the SPM had concluded, it is possible to say that the meeting assumed an importance greater than was originally envisaged. Many Delegates at the SPM will also be present at the WARC and decisions taken at the SPM will have a considerable influence on the work of the WARC." ■

TECHNICAL CORRESPONDENCE

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The Editor,

Dear Sir,

Congratulations on another annual December bumper issue of excellent quality. I refer now to my article on "TVI Filters — The High Pass Type", which appeared in that issue. Whilst I agree that your comments at the end of my article are correct in a general way, the anonymous authors' filters were also designed for the same impedance lines, namely 300 and 75 ohm, and if designed for Australian conditions should have also been designed to have no attenuation above 45 MHz.

One point that perhaps I did not make clear was that the selection of component values was done by building a number of prototypes around the nominal values obtained by calculation, to achieve maximum attenuation below 45 MHz with minimum attenuation above 45 MHz. Some filters had excessive insertion loss and were disgarded as totally unsatisfactory. Some filters had good attenuation below 45 MHz but also had 3 to 5 dB of attenuation throughout the passband. The final filters which were described in the article had at worst 1 dB of attenuation over about 50 units made. It took many hours to obtain the optimum component values to give maximum attenuation, deepest notch and minimum insertion loss.

A large number of high pass filters are available on the market for about $2.50 and are usually made to the circuit in Fig. 1A of the December 1978 article. These filters have a wide production spread with various degrees of insertion loss and are designed with the American market in mind where the lowest TV channel in use commences from 54 MHz, therefore in most Instances Channel 0 in Australia gets a bit of a pasting if signals are at all weak.

I mentioned that one popular colour TV set did not respond to the use of high pass filters in the aerial circuit in the article. The TV set concerned is a Pye using a particular tuner. The tuner is reputed to be a Taiwanese Oak tuner, other sets using either of the two alternative types of tuner appear to respond favourably to routine TVI cures.

After considerable experimentation it was found that the AGC line to the grounded base RF stage of the tuner was inadequately filtered for RF, and HF signals very easily got into the tuner via this path. The cure in this case was to place a 15k ohm resistor with the AGC terminal on the outside of the tuner, and then readjust the AGC control in the TV set for minimum interference. Cases of intolerable interference became cureable. Some of these sets also had the coaxial balun omitted from the 300/75 ohm changeover network. It was also found that the aerial system must be in first class condition otherwise intereference is still likely to occur.

Hope these points assist those troubled with apparently unsolvable interference.

73. Rodney Champness VK3UG. ■

Electrical Engineering Department,
Swinburne College of Technology,
Hawthorn, Vic. 3122.
5th January, 1979.

The Editor,

Dear Sir,

I found the article on "Optical Communication for the Amateur" by Chris Long in your January 1979 issue most interesting.

As someone who has had a small amount of professional experience and a great deal of Interest in this subject for almost twelve years now, I would like to offer some comments to highlight a few characteristics which could have received a little more emphasis in Chris Long's article. I would also like to mention some widely available, relatively more comprehensive, readable and more recent reference books in this field.

The more recent optical communication systems are solid state systems. They are simpler and hence more easily constructed, smaller, and therefore more portable, more efficient from an energy consumption viewpoint, and perhaps more Importantly have wider bandwidth and better signal to noise ratio than the vacuum tube systems described at length by Chris Long.

Assuming that a signal to noise ratio of 20 dB is acceptable for copying voice communications and that the input signal to noise ratio seldom exceeds 50 dB, it is evident that 30 to 40 dB of signal degradation with respect to noise is all that can be tolerated in the transmission system before signal copying becomes rather difficult. A light drizzler or a moderate fog is all that is needed to introduce over 100 dB of signal attenuation over distances as short as 100 metres. It is only when there is very clear atmospheric conditions over the entire path length that less than 30 to 40 dB signal degradation with respect to noise can be achieved.

Although Bell Telephone Laboratories, The Australian Telecommunications Research Laboratories, NEC Research Laboratories in Japan and others have had successful solid state optical links operational over ten or more years ago, the unreliability of such links due to attenuation wipe out by rain and fog has forced them to divert research effort into guided optical transmission through optical fibres.

Atmospheric or unguided optical communications systems nowadays almost always use solid state GaAs (or some other semi-conductor) light emitting diodes for transmitting. GaAs avalanche mode photodetector diodes are used for receiving.

The light intensity transmitted is almost directly proportional to the current through the transmitting diode and the current generated in the receiving diode is almost directly proportional to the light falling on the receiving diode.

The physical theory of receiving and transmitting devices is explained at considerable depth in such text books as —

Yariv, A.: "Introduction to Optical Electronics", Holt, Rinehart and Winson Inc., NY, 1971.

Moss, T. S., Burrell, G.J., and Ellis, B.: "Semiconductor Optoelectronics", Butterworths, London, 1973.

Circuits to drive the transmitting diodes have been published in simple books such as —

Mims, F. M.: "Light Emitting Diodes, LED, Circuits and Projects", Howard Sams, Indianapolis, USA, 1972.

Markus, J.: "Electronic Circuits Manual", McGraw Hill, NY, 1971.

Circuits to amplify the received signals are given in most standard books on electronic circuits as well as in specialised well written books such as —

Texas Instruments Staff: "Optoelectronics: Theory and Practice", McGraw Hill, NY, 1977.

Mims, F. M.: "Light-Beam Communications", Howard Sams, Indianapolis, USA, 1975.

As a part of Electronic Design project work, Electronic Engineering third year students at Swinburne College of Technology in Hawthorn have designed, constructed and tested circuits which are small enough to fit into Single Lens Reflex camera bodies which have had photodiodes mounted on the optical axis at the focal plane at the back of the camera.

Parts for transmit and receive circuits, including suitable photodiodes, have cost less than $50. Two medium aperture 35 mm SLRs with defective shutters have cost less than $40. The test link at Swinburne at its best so far has had a 40 dB S/N ratio for a 10 kHz bandwidth over the length of a 50 foot corridor in the Electrical Engineering Department. With design improvements I believe it should be possible to achieve a video bandwidth at about 40 dB S/N over about 1 km.

It is worth noting that the total light output and the beam light energy flux density are less han 1 per cent of those from common four D cell hand-held torch lights.

Because of the unreliability of such systems due to attenuation by atmospheric precipitates, it is unlikely to be used by commercial or governmental bodies to any significant extent in the foreseeable future, even though the technology has in fact been available for quite some time.

Because of the very high directionality of beams, line of sight infra-red links could be used for normal TV communication between two amateur stations with only a very small likelihood of interference to or detection by anyone else engaged in much the same type of activity.

All those who use large bill boards and flashing lights to broadcast information across many kilometres from tall buildings are already using the optical band for communication purposes.

People with hearing and speech handicaps use the optical communication channel as the most important channel of communication. Lip readers often violate privacy laws using the optical communication channel.

It would therefore be interesting to see how telecommunications authorities formulate rules to govern optical communication. Until any serious conflicts of interest can be predicted reasonably accurately, telecommunications authorities are not likely to prevent amateurs and others from conducting research into optical communication.

Yours faithfully,
Dayal Abeyasekere,
M.Sc., Ph.D., M.I.E. Aust. ■

AFTERTHOUGHTS

ADDITIONAL MODIFICATION TO THE FT100B — November 1978, p. 15.

The link across the two diodes in Fig. 1 should be omitted. ■

A SIMPLE AND ECONOMICAL SSB 80 METRE RECEIVER

Due to a technical fault, the PCB on page 24 of December AR did not reproduce properly. We have printed it again for those who may have run into trouble. ■

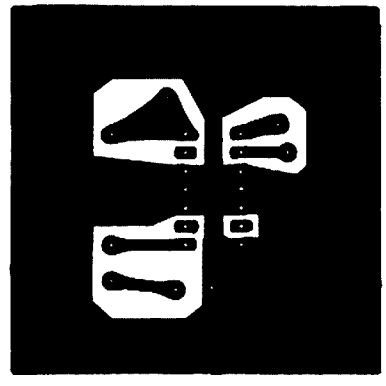

FIG. 2: Audio Board

AN ACTIVE DX RECEIVING ANTENNA November 1978, p. 15.

Here is some additional information for constructors of this circuit.

The transistor Q1 in Fig. 2 may be a 2N3819 or similar RF FET with good gain.

In Fig. 2 Q2 in the breadboard constructed by the author was a 2N3638. Any PNP RF amplifier should be suitable, particularly those with good high signal capability and low noise figure. Other suitable types include 2N4122, 2N4917, etc.

The author wishes to apologise most sincerely to those people who wrote requesting this information and were incorrectly given a list of NPN transistors, such as 2N3563, 2N3866, etc. Apparently the author suffered an attack of temporary imbecility.

The RFCs should be 1 mH or so. A single pi wound coil RFC of 1 mH has been available through various common component retailers. The reactance should be more than 500 ohms over the whole frequency range of interest.

When the circuit in Fig. 3 is set up, R must be adjusted so that Q2 draws a useful collector current. Voltages taken from one unit are as follows: Source of Q1 (the junction of the 820 and 8.2k ohm resistors connects to this), plus 2.5V. Source of Q3, plus 2.5V. Collector of Q2, plus 6.5V. All voltages were measured from ground with a 20k ohm per volt voltmeter. The voltage across R was 0.6V. R consisted of a 200 ohm potentiometer in series with a 100 ohm resistor. The supply voltage was varied from 10 to 15V — only a small effect on any of the above voltages was noted.

A tantalum capacitor of 4.7 uF or so may be necessary across the supply rail to prevent oscillation.

Note that if the gain is considered inadequate it may be increased by bypassing the 820 ohm resistor with a 0.1 uF capacitor. An RFC may also be placed in series with the 8.2k ohm resistor to increase the gain further.

The circuit is most successful with antennae less than 0.05 to 0.1 wavelength long at the highest frequency of use. A CB whip is too long except for frequencies less than say 10 MHz. An L network would be better for matching a CB whip.

Antennae 0.1 wavelength and longer will provide sufficient match to 50 ohm coax for the amplifier to be of marginal use. The presence of strong broadcast stations will also make the use of a longer antenna unwise as strong cross-modulated "birdies" will appear at the low end of the HF spectrum.

Beware of shunt capacitance — either due to layout or that inherent in some components. This will cause the gain to fall off rapidly at the higher frequencies. ■

QSP

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- Wedding Ring
- Suffering. ■

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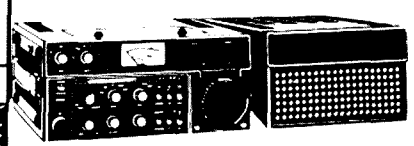

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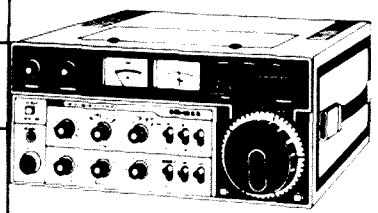

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350B	Transceiver	$759.00
350D	Transceiver	$859.00
	ACCESSORIES:	
VX-4	(700CX/750CW/HF700S)	$57.00
DD76	Digital Readout	$275.00
444	Desk Microphone	$77.00
MKIV	Linear Amplifier (incl. P/S 2Kw)	$1200.00
WH200A	RF Watt Meter	$135.00
PSU3	(700CX/750CW/HF700S) 230V	$275.00
PSU5	(100MX/B.8 VDC 20 amp) 230V	$275.00
ST-1	Ant. Tuner	$235.00
ST-2	Ant. Tuner	$310.00
	ANTENNAE:	
TB 4 HA	4 Element Triband 12db gain	$370.00
TB 3 HA	2 Element Triband 9db gain	$330.00
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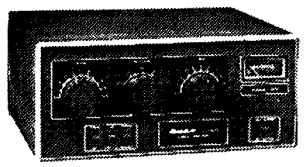
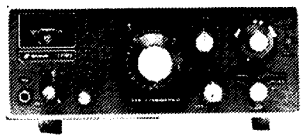
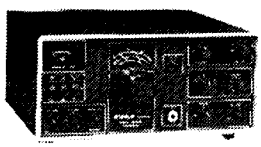
40-10V	10-40m Economy	$135.00
75MK	Resonator Kit 1040v	$78.00
75AK	Resonator Kit 4010v	$78.00
MODEL 742	Mobile Ant. 3 band 20.40.80	$135.00
MODEL 45	Mobile Ant. 5 band 10.20.40.80	$145.00







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TRANSMITTER SPECIFICATIONS

Power Output Rating
Minimum 100 W. P.E.P. single sideband and CW. All Bands @ 13.6 VDC nominal to 50 ohm resistive load.

Unwanted Sideband Suppression
Greater than 60 dB

Carrier Suppression
Greater than 50 db.

STANDARD FEATURES:

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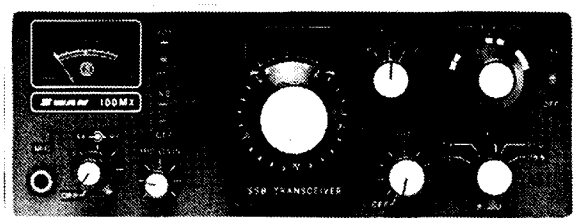

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SPECIFICATIONS

Frequency Range — Standard
80 meters (3.5 — 4.0 MHz)
40 meters (7.0 — 7.5 MHz)
20 meters (14.0 — 14.5 MHz)
15 meters (21.0 — 21.5 MHz)
10 meters (28.5 — 29.0 MHz)

Extended Frequency Coverage
500 KHz segments of 10 meter band 28.0-28.5, 29.0-29.5, 29.5-30.0. By replacing standard crystal with optional crystal for desired segment. No realignment required.

Modes of Operation
USB, LSB, CW

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9 mHz quartz crystal filter, 2.7 KHz bandwidth, 1.7:1 Shape factor

Calibrator
Built-in 25 KHz calibrator

VOX
Built-in standard

Noise Blanker
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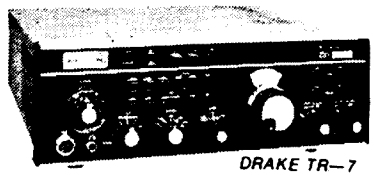

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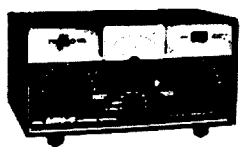

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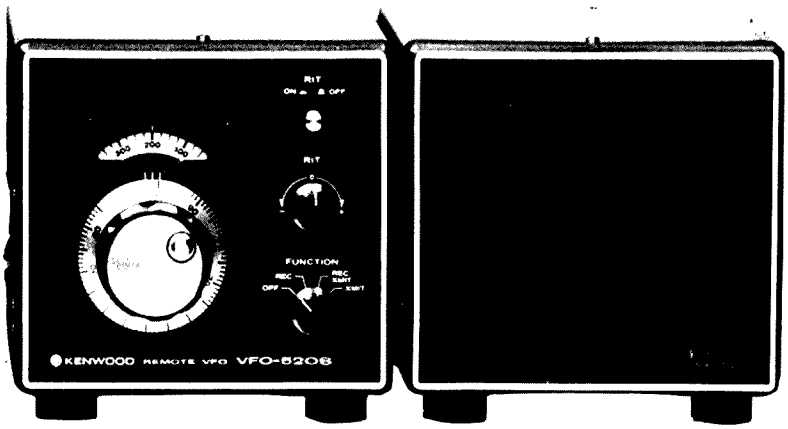
SPECIFICATIONS

● Frequency Range: 1.8 to 2.0 MHz, 3.5 to 4.0 MHz, 7.0 to 7.3 MHz, 14.0 to 14.35 MHz, 21.0 to 21.45 MHz, 28.0 to 28.5 MHz, 28.5 to 29.1 MHz, 29.1 to 29.7 MHz, WWV — 15.0 MHz (receive only). ● Mode: SSB (USB, LSB), CW ● Antenna Impedance: 50 to 75 ohms ● RF Input Power: SSB, 200 Watts PEP; CW, 160 Watts DC ● Carrier Suppression: Better than 40 dB ● Sideband Suppression: Better than 50 dB ● Spurious Radiation: Better than —40 dB ● AF Response: 400 to 2,600 Hz ● Receiving Sensitivity: 0.25 uV for 10 dB (S + N)/N ● Receiving Selectivity: SSB, 2.4 kHz/—6 dB, 4.4 kHz/—60 dB; *CW, 0.5 kHz/— 6 dB, 1.5 kHz/—60 dB (*with optional CW filter) ● Image Ratio: Better than 50 dB ● IF Rejection: Better than 50 dB ● Dimension: 333W x 153H x 335 D mm ● Weight: 16.0 kg.



VFO-520S SPECIFICATIONS

● Frequency Range: 5.5-4.9 MHz ● Dimensions: 166W x 150H x 190D mm ● Weight: 3 kg.

SP-520 SPECIFICATIONS

● Speaker Diameter: 120 mm ● Frequency Response: 100-5,000 Hz ● Dimensions: 160W x 150H x 190D mm ● Weight: 1.4 kg.

OPTIONAL ACCESSORIES

●YG-3395C . . . 500 Hz CW Filter ● DG-5 . . . Digital Display.

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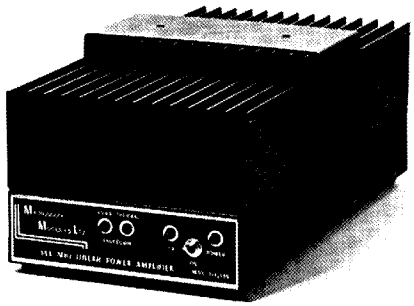

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SPECIFICATIONS

Power Output: 80 watts minimum RMS output, 100 watts RMS typical.

Power Input: 10 watts nominal for 80 watts output.

Frequency Bandwith: 144-148 MHz @ —0.5 dB.

Power Requirements: 12.5V nominal @ 12 amps maximum for 80 watts output. 13.8V maximum.

RF Input Connector: 50 ohm BNC.

RF Output Connector: SO 239.

Weight: 4 kg (8 lb. 13 oz.).

Overall Size: 315 x 142 x 105 mm (12⅜ x 5⅝ x 4⅛ in.).

Price Amateur Nett $265

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SPECIFICATIONS

Input Frequency Range: 28-30 MHz.
IF Output Frquency: 144-146 MHz.
Frequency Bandwidth: 2 MHz @ ± 0.5 dB.
Overall Gain: 15 dB min.
Overall Noise Fig.: 1.8 dB.
Size: 110 x 60 x 31 mm.
Weight: 250 g.
Oscillator Frequency: 116 MHz.
Max. Frequency Error at 28 MHz: ± 1 kHz.
RF Connectors: 50 ohm BNC.
DC Power Requirements: 11-13.8V @ 50 mA.

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AMATEUR SATELLITES

Bob Arnold VK3ZBB

There has been a considerable fall-off in activity through satellites during the past few months possibly caused by some of the difficulties in communication such as high noise levels, fading and, for Oscar 8, the Doppler effect. This trend has become apparent since daylight saving commenced in the Eastern States; perhaps the generally late hour of satellite acquisition has something to do with the lack of activity.

OSCAR 7

AO7 is now in a serious condition. It is still responding to telecommand but when left alone it tends to switch to Mode D, which is the recharge Mode, without either transponder or beacon in operation. The inference of this is that nothing will be heard of AO7 unless a command station switches it on. It would appear that two of the ten Ni-Cad cells have shorted out and if one of these goes open circuit that will be the end of AO7.

Due to the low voltage, which is now between nine and ten volts, the Mode B telemetry is sending meaningless figures but the Mode A telemetry is still operating.

AO7 is now over four years old, and has given us good service, particularly on Mode B. With a little care it may be possible for the satellite to last the four years eight months life of AO6.

OSCAR 8

AO8 is in good condition and operating satisfactorily on both Modes A and J. Wednesday is the special experiment day and on these occasions it is possible to find AO8 in both Modes for some orbits. This can be observed from the telemetry — in Mode A, channel 6 normally indicates a Code 601 but when Mode J is also working a figure of 620 will be observed. In order to conserve AO8, operate on the minimum power to acquire the satellite and never make the down-link signal significantly stronger than the beacon.

RUSSIAN SATELLITES

I am sorry that the information given in the January edition of AR, particularly so far as the predictions were concerned, was way out, but as I indicated then, those notes were written only a few days after the satellite was launched when little was known of its parameters. Even today, a number of questions remain unanswered, but it would seem that we do have the orbit times under control and the predictions given in this issue should be a little more accurate.

The daily progression of the reference orbit is 4 minutes 42.6 seconds and 2.724 degrees to the West. These figures are a little greater than those previously published and give a rather unusual set of acquisition times, quite different from those applicable to the AMSAT satellites.

It is now confirmed that there are two satellites, the second one running fifteen minutes later than the first and 4 degrees further West. I will "stick my neck out" and give a few estimated acquisition times for RS.1 during February —

On Sunday, 4th February, Orbit 1206 should be heard 0128Z on Ascending Node 31. This will be a north-south orbit crossing the equator immediately above Australia at 226 degrees West.

On Saturday, 10th February (Sunday morning local time), the first orbit to be heard will be 1288 at 2201Z with an AN 350. Again, a north-south pass. At 1040Z Sunday we should hear a south-north pass.

On Saturday, 17th February (Sunday morning local time), the first pass to be heard will be 1372 at 2234Z on AN 10 N-S, and again we shall hear it on Sunday at 1110Z on AN 190 S-N.

From the information given above, you should be able to calculate the time and position of orbits subsequent to those given and also for other days of the week. The orbit Is two hours approximately and the Westerly progression 30 degrees.

It is now confirmed that if the input power to the satellite is excessive it will automatically switch off, and it appears this is a quite common occurrence as only on rare occasions has the transponder been working. We have heard the beacon on many days but have only enjoyed working through the satellite three or four times when communication has been first class. Therefore, keep your power down to under 10 watts ERP and don't let Australia be the cause of switch off.

There is no sure way in knowing the status of the Russian satellites; all one can do is to listen to as many orbits as possible and hope the transponder is switched on. If you hear a U or a K being sent after each bit of telemetry you can be assured that it is not on, but if a W or O is heard it probably is switched on. I hope I may have some more Information on the interpretation of telemetry data for our next edition. ■

ORBIT PREDICTIONS — MARCH 1979

March	AO7 Orbit	AO7 Time Z	AO7 Long.	AO8 Orbit	AO8 Time Z	AO8 Long.	RS1 Orbit	RS1 Time Z	RS1 Long.
1	19623	0105	78	5026	0032	51	1505	0026	70
2	19635	0005	63	5040	0037	52	1517	0031	72
3	19648	0059	76	5054	0042	53	1529	0035	75
4	19661	0153	90	5068	0047	55	1541	0040	78
5	19673	0053	75	5082	0053	56	1553	0045	81
6	19686	0147	88	5096	0058	57	1565	0050	83
7	19698	0046	73	5110	0103	59	1577	0054	86
8	19711	0141	87	5124	0108	60	1589	0059	89
9	19723	0040	72	5138	0113	61	1601	0104	92
10	19736	0134	85	5152	0119	62	1613	0108	94
11	19748	0034	70	5166	0124	64	1625	0113	97
12	19761	0128	84	5180	0129	65	1637	0118	100
13	19773	0027	68	5194	0134	66	1649	0123	103
14	19786	0121	82	5208	0139	68	1661	0127	105
15	19798	0021	67	5221	0001	43	1673	0132	108
16	19811	0115	80	5235	0007	45	1665	0137	111
17	19823	0014	65	5249	0012	46	1697	0141	114
18	19836	0109	79	5263	0017	47	1709	0146	116
19	19848	0008	64	5277	0022	49	1721	0151	119
20	19861	0102	77	5291	0027	50	1733	0156	122
21	19873	0002	62	5305	0033	51	1744	0000	94
22	19886	0056	76	5319	0038	52	1756	0005	97
23	19899	0150	89	5333	0043	54	1768	0009	100
24	19911	0050	74	5347	0048	55	1780	0014	102
25	19924	0144	88	5361	0053	56	1792	0019	105
26	19936	0143	73	5375	0058	56	1804	0023	108
27	19949	0137	86	5389	0104	59	1816	0028	111
28	19961	0037	71	5403	0109	60	1828	0033	113
29	19974	0131	85	5417	0114	62	1840	0038	116
30	19986	0030	70	5431	0119	63	1852	0042	119
31	19999	0125	83	5445	0124	64	1864	0047	122

PROJECT ASERT — PROGRESS REPORT

Bob Arnold VK3ZBB
Ken McCracken VK2CAX

In the September 1978 edition of "Amateur Radio" a report appeared indicating the Federal Executive's support for a scientific investigation of the propagation of VHF radio waves. This study has been named Project ASERT (Amateur Service Experiment in Radio Transmission) and a working group has been formed to initiate and co-ordinate the study. This Committee consists of Bob Arnold VK3ZBB as Co-ordinator, Ken McCracken VK2CAX Scientific Leader, Peter Wolfenden VK3ZPA representing Federal Executive, with Les Janes VK3BKF and Greg Brown VK3YGB as hardware leaders.

The Committee decided to conduct this study in two phases, phase 1 being limited to monitoring a small number of transmission paths during the summer of 1978-79, and phase 2, a more detailed study of more paths, and involving additional receiving stations for a period of at least

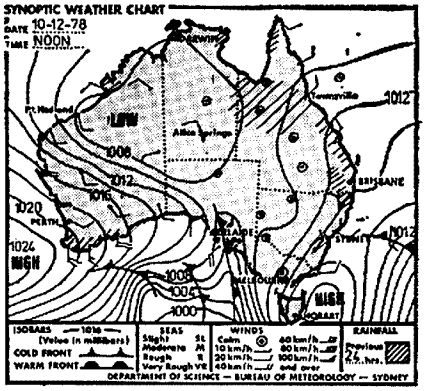


FIGURE 2

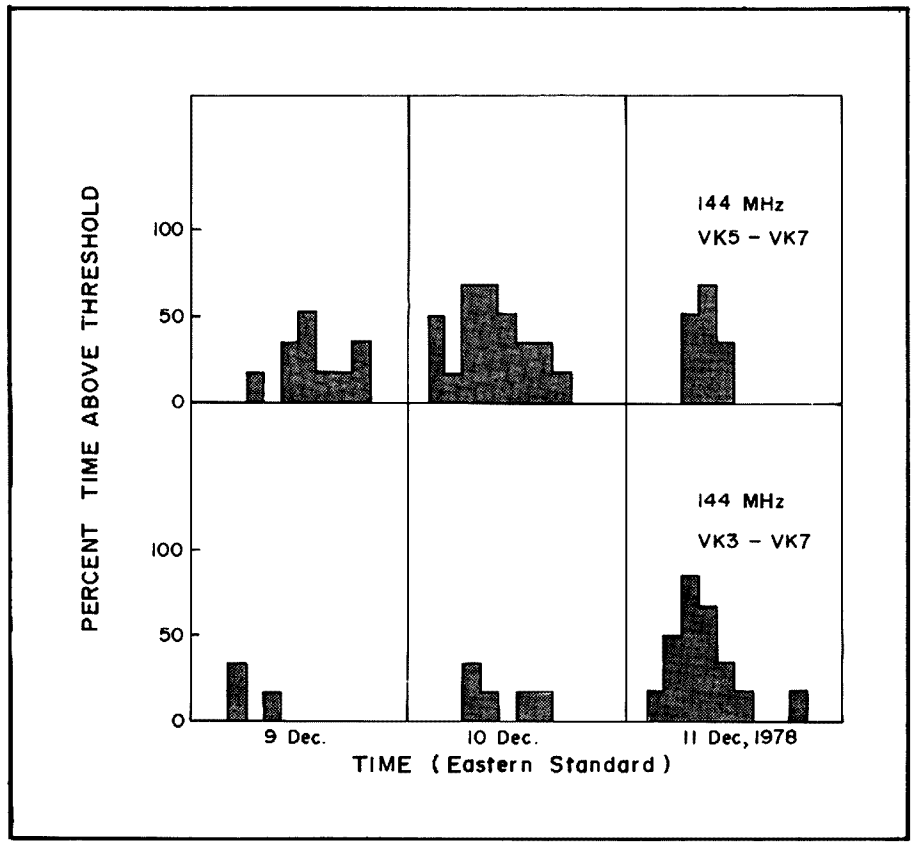


FIGURE 1

twelve months from June 1979. Phase 2 is expected to cover the period of high sunspot activity now projected for early 1980. Phase 1 is now well under way and signals on the following routes are being recorded on a 24 hour basis: (a) Brian Yeoman VK7ZBY in Launceston is monitoring the VK3 and VK5 144 MHz beacons located in Melbourne and Adelaide respectively. (b) David Minchin VK5KK, at Wasleys, near Adelaide, is monitoring the ZL beacon on 52.5 MHz at Palmerston North and is ably assisted by Col Hurst VK5HI and Eric Jamieson VK5LP. (c) Ken McCracken (Sydney) is monitoring the VK5 beacon (52 MHz), and (d) a receiving system constructed by the ASERT Group and located at the QTH of Bruce Roberts VK3ZMR commenced monitoring the VK5 beacon (144 MHz) on New Year's Day. The VK3 station has been designed to obtain experience with receiving equipment and specialised recording devices in preparation for phase 2. It is anticipated that this installation will be moved to a new and permanent QTH in Melbourne at the end of February.

The Committee is grateful for the interest shown by the amateurs mentioned above and for the co-operation that has been forthcoming from the Brisbane VHF Group and Selwyn Cathcart ZL2BJO of Massey University, New Zealand. It is anticipated that the assistance of these stations will be co-opted for Phase 2.

The Committee is currently deliberating on the standards which should be adopted for antennas, receivers and recording equipment and these will be determined in the near future to enable consistent standards to be maintained at all receiving stations.

THE FIRST RESULTS

Brian Yeoman VK7ZBY was the first ASERT station to become operational. His equipment is housed in the control tower at Launceston airport and uses a printing calculator as a data recorder.

Figure 1 displays data obtained from the Launceston receiver during the period 9-11 December 1978. It shows the fraction of each hour for which the beacon signal exceeded the recording threshold, which was set at 0.25 microvolt. The synoptic weather chart for 10 December is given in Figure 2.

It can be seen that there were substantial 144 MHz openings over both paths throughout the period, presumably associated with the pressure high over Tasmania at the time (Figure 2). The VK5 to VK7 opening was longest on 10 December, while the VK3 to VK7 opening was longest on the following day, consistent with the eastward motion of the pressure high. Throughout the period, it can be seen that the openings tended to occur in the mornings.

THE FUTURE

It is very desirable that the investigation be extended to other Australasian paths, and to the TEP route to Asia, particularly on 144 MHz. Amateurs or groups of amateurs who wish to contribute to this investigation through the establishment and operation of receiving stations should contact the ASERT Co-ordinator, care of this magazine. ■

ARMY WIRELESS SETS OF WORLD WAR II

Compiled by Rodney Champness VK3UG Photos by Ken Reynolds VK3YCY

9. The No. 19 Mk. II is really two transceivers in the one case. It has a small super regenerative receiver and transmitter working on nominally 240 MHz which was used for intercommunications between nearby units, and the main transceiver which covers 2 to 8 MHz. In adiition it has an intercom amplifier for communications within the vehicle It is mounted. Until a few years ago these sets were still being used In army tanks. Probably they needed to be carried In a tank as they weigh 42 kilograms with power supply and base attached. The power supply is a 12 volt DC genemotor and the set's current drain on CW transmit is 12 amps and on receive 7.5 amps — a big user of power. The final PA valve is an 807 and could be expected to put out about 15 watts on CW.

The set is quite complicated and not easy to work, but must be rugged to withstand the pounding it would have got in a tank. They were moderately popular with amateurs in the USA but I don't know personally of any amateurs who used them — although some pirate types did a few years back. The No. 19 when coupled with

the RF amplifier No. 2 could run up to 60 watts output on CW and 30 watts AM. Quite a potent signal, and a very heavy drain on a 12 volt battery.

10. The AR8 receiver is the companion to the AT5 transmitter. It is a 6 band VLF, MF and HF receiver, covering from 140 kHz to 20 MHz with a small gap in the tuning range between 740 and 765 kHz. The IF frequency is 755 kHz. The receiver has two RF assemblies, one tuning from 140 kHz to 2 MHz and the other from 2 MHz to 20 MHz, and as a result of this, the receiver can be preset to two frequencies which are selectable by flicking one switch. In addition to its ordinary function as a communications receiver, it has direction finding facilities in the 140 kHz to 2 MHz range. This set was extremely popular and was used in aircraft, on land and in ships, altogether a versatile set. The set obtained power from 12 to 24 volt genemotors or from the Type S 240 volt AC power supply, which also powered the AT5 transmitter. The AR8 is not an easy set to service, and to work on many parts the various RF assemblies must be completely stripped out of the set — certainly not a job to be undertaken on the battlefield.

The AR8 also proved to be a very popular set with amateurs and many of these sets are still used by short wave listeners. Many modifications appeared in the various magazines to provide bandspread and so forth on amateur bands. One of the most popular mods was to change the audio so that a speaker could be driven instead of headphones. The going price for these units in good order operating off AC power is still in the vicinity of $50, so they must still be good 30 to 35 years after they were made. ■

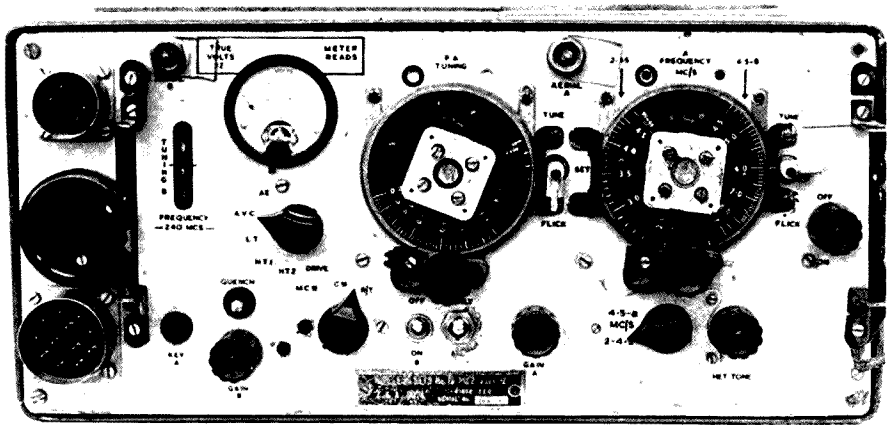


PHOTO No. 9

PHOTO No. 10

QSP

RFI AND POLICE SPEED TRAPS

In Radio ZS of June 78 there is a very interesting item concerning the vulnerability of police speed measuring devices to RF interference.

The equipment in question is of both the radar type and the amphometer type.

After tests a speeding ticket was withdrawn as it was found in the tests that the various types of speed measuring equipment were affected by RF from a mobile transmitter in the car whose speed was being measured. The tests showed a wide variation in readings and resulted in the ticket being withdrawn.

The equipment used in ZS may be different to that used locally but if a similar susceptability to RFI exists then there could be some interesting local cases.

RADAR THREAT TO 70 CM BAND

According to Ham Radio for August 1978 a potential radar interference threat to the 420-450 MHz band is being studied by both AMSAT and the ARRL.

The radar threat is from the US Air Force "PAVE PAWS" long range radar to be installed firstly at Cape Cod Massachusetts and later in California.

This very long range radar has an Average ERP of 1 Billion watts approximately. This would result in a moon reflection of a 10-20 microvolt signal and have significant effects on both humans and equipment within quite a large radius of the antenna. ■

Have you checked your Call-Sign on the Address Label?

Are you checking our bands for

INTRUDERS

AND REPORTING SAME TO THE INTRUDER WATCH CO-ORDINATOR?

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

The Editor,

Dear Sir,

The push-button tuneable AM car radio evolved over many years as a device which combines convenience (push-button selection, instantly reprogrammable), flexibility (continuous tuning), and above all, safety for the car driver. The present generation of mobile transceivers for 2-metre FM fails to meet all these requirements, being either inconvenient and therefore dangerous because of the time taken to select a new channel (synthesiser rigs), or inflexible because of a limited number of fixed channels which can (sometimes) be reprogrammed at home.

I offer the following specifications for the 2m mobile rig I would like to buy — manufacturers please take note:

(a) 12 channels selectable by rotary switch (as on the IC22S).

(b) One of the above switch positions to revert to synthesiser operation in 25 kHz steps with the usual setting knobs.

(c) Digital display showing the frequency in use (on all 12 switch positions).

(d) Fixed channels to be programmable with non-volatile CMOS memory (as in recent electronic calculators) simply by setting the channel selector switch and the synthesiser frequency, and then pressing a "store" button. Simplex or repeater up/down operation to be included in this programming so that these switches need only be used manually in the 12th synthesiser position of the channel selector switch, and of course for programming.

(e) Magnitude of repeater shift (normally 600 kHz) to be reprogrammable in a similar way.

(f) Continuous scanning of all 12 channels to be available.

(g) Transmitter output power to be 25W/5W, thus combining reasonable battery economy with an ability to get out of some of our VHF "holes" in hilly terrain.

There is no reason with present technology why such a rig should not be available today.

Yours faithfully,
Guy Fletcher VK2BBF. ■

The Editor,

Dear Sir,

This letter is to inform you and your Licensed Amateur Radio Operators that the 2 metre repeater operated by the Darling Downs Radio Club at Toowoomba VK4RDD, will change frequency on 2nd December, 1978, from Channel 44 repeater to Repeater Channel 74 (input 147.7 MHz, output 147.1 MHz). The change has been approved by the Post and Telecommunications Department.

The reason for the change is to eliminate interference problems caused by the allocaion of the same repeater channel (44) in adjacent areas, viz. Bundaberg, Toowoomba and Lismore where operators in some locations can access two and sometimes three repeaters at the same time.

The Club meets at the Toowoomba Education Centre, Baker Street, Toowoomba, at 7.30 p.m. on the last Friday of every month except December. Visitors are welcome.

A club net on the repeater, channel 74 is held every Thursday night at 6.00 p.m. local time.

The Secretary's address is 38 Wentworth Street, Toowoomba.

Yours faithfully,
G. J. Pennycuick VK4AGP,
Secretary/Treasurer. ■

The Editor,

Dear Sir,

The Auction Sale conducted for the Institute by the NSW Division on Saturday, 28th October, was very successful both in terms of the volume of goods for sale and the money raised.

Despite the poor weather conditions an estimated 600 plus attended.

All the items for the Auction had been donated by the Dick Smith Group. Items included a wide range of shop soiled lines, samples, etc., all of which were sold on the day.

$3,500 was raised and goes to the Institute to be used nationally in assisting the education of future members of the Amateur Radio Service.

Our thanks to your publication for the excellent publicity given in recent issues, which no doubt contributed to the attendance and success.

My own thanks also to the many helpers who assisted on the day and to Terry VK2TQ, who did an excellent job as the Auctioneer.

73 Tim Mills VK2ZTM,
VK2 Division Secretary. ■

The Editor,

Dear Sir,

In reply to the question asked by Mr. Champness VK3UG, in "Novice Notes", AR September 1978, "Are They the First?", not quite. Graeme and I received our Novice Amateur Station licences, numbers SC10 and SC11 (VK8NGR and VK8NSU) on 7 September 1976, having been successful in the first Novice Amateur exam. held in March 1976.

The station receiver was a Lafayette KT-340 and 80 Mx transmitter "OM" brew, 10 watts, built entirely (power supply too) from an old TV. The antenna was a shortened vertical; 16 feet of dowelling helically wound with about 130 feet of wire, mounted on the galvanised iron roof (the ground plane).

On 6 October 1976 Graeme obtained his full ticket, becoming VK8GG, and I graduated to VK8SU a couple of months later. Possibly VK8NGR is the shortest lived novice (one month)! A few people have asked what happened to him.

The station rapidly expanded; an FT101E made operating a lot easier (for both ends of QSOs) though we still both enjoy using the home brew. We have just returned from a holiday in the U.K. where we operated during our travels. The most pleasing contact for myself was with DL3CU in Essen on 80m using a home made solid state 10W Tx. DL3CU was using his 2m antenna and I was using a UHF TV antenna (aided by a splendid little transmatch, ARRL Handbook 1977: A Transmatch for ORP Rigs).

Sue VK8SU — the shack now.

It is interesting to note that when we Darwin Novices (also Terry, VK8NTA; Doug, VK8NJD/ZJD; Ed, VK8NER/ZER and Jeff, VK2NCN/8) started out with our 10W transmitters, a number of full call operators were inspired to see what they could do with 10 watts. ■

3.1.79

The Editor,

Dear Sir,

I refer to the "QSP" on page 36 of AR for January. Once again I draw your attention to the tact that the WIA in Australia has its own official DXCC organisation ably administered by Brian Austin VK5CA.

Therefore, it is unnecessary, and far too costly to forward OSL cards to the ARRL in U.S.A. for DXCC credits. Why not support our very own DXCC Department!

A quick check of the last published DXCC list, in AR, shows at least a dozen VKs with over 300 countries confirmed, none of whom appear in the "QST" list for reasons outlined above.

Obviously the writer of this "QSP" has not done his homework and it is not the first time this unfair criticism of the Australian DXer has been published in AR!

Would it be possible to have more frequent DXCC listings published please?

Sincerely,
Fred Lubach VK4RF ■

20.12.78

The Editor,
Dear Sir,

A footnote from you does not excuse the printing of the article about the "Wooley Bum Certificate of Achievement Award" in December AR.

I, for one, have reservations about accepting a "Wooley Bum" number, until truthful answers are given to the following questions:—

Who is "David Ramsbotom"?
Why does he use an alias?
Does he often pirate on 27.355?
Has he ever pirated on 28.570?
Have any "Wooley Bum" members pirated on 2 metres?

Has "David Ramsbotom" ever been prosecuted by P&T?

The name of the club is of an extremely low standard, as is the layout of the certificate, e.g., the dog urinating on the seal. I'm sure on these two points I do not stand alone.

If answers are given truthfully and all is revealed about the somewhat dubious character and activities of the club, my reservations may be removed. Until then . . .

VK3N... — Name and address supplied, but withheld at writer's request.

EDITOR'S NOTE: Perhaps "David Ramsbotom", whoever he may be, would care to write to me with answers to the above — (VK3UV). ■

The Editor,
Dear Sir,

On the 21st of January, 1979, with my friends I will be flying from Australia to Lord Howe Island, VK2. For a period of approximately nine days our party will be active on 10m, 15m and 80m.

The stations callsigns are VK2NUN/Portl Russell, VK6NDZ/Portl Bill, VK3NKO/Portl Merv.

Our QSL information is c/o VK2NUN, Box 404, Casino, N.S.W., Australia 2470.

Thanking you,

Russell Ian Ashdown VK2NUN.

Editor's Note: Received 29.12.78 which was too late for January AR. ■

The Editor,

Dear Sir,

In 'Amateur Radio' Magazine you ask readers to "support our advertisers" but country members have no other option. Our sole contact with equipment suppliers is through your pages, equipment must be purchased through mail order and are usually paid for in advance with the order.

Now when one examines these advertisements and compares prices one comes up with some interesting figures. For example a TH6DXX ranges in price from $300 to $399 a 33% difference. (AR Nov. 78). In the same issue a Yaesu FT-101E $899 to $975 (or POA you can guess the greater) also a Kenwood TS520S from $685 to $789 (or POA again) and the humble 18 AVT from $125 to $155.

These are just a few examples and I also add that one advertiser had the same TS520S for two different prices on the one page.

Well, if the firm with the cheapest price is making a comfortable and reasonable profit then all the others are making a huge rip-off. Just how can they justify these prices? And to boot most of these people are fellow licenced amateurs.

What can be done? (1) More letters to the Editor, just to show that there are other concerned amateurs is one way. (2) I urge fellow amateurs to shop around and always buy the cheapest available. (3) The WIA should represent its members, as a consumer group, and put pressure on retailers of amateur gear to keep their profit margins at a sensible level.

(4) Further to (3) above the WIA being a registered Company with all members share-holders should establish a Subsidiary Company for the purpose of importing and retailing amateur gear to its members only. A full time manager may need to be appointed. I feel this would be a real service to country members and certainly would encourage higher membership of the WIA.

Well, I've had my gripe now, I would like to know the thoughts of other amateurs and some more constructive ideas.

Alan Parr VK4AJA ■

9.12.78

The Editor,

Dear Sir,

I refer to page 37 of December, 1978, Issue reporting the formation of the "Wooley Bum" Club and the introduction of its so-called "achievement award".

Those of us who hold the Amateur Service in esteem, based on its long and worthwhile record of public benefit and its fostering of "the amateur spirit", must feel dismayed at the invasion of our Service by "ex 27 MHz 'Bootleg' operators", who blatantly flaunt their illegitimate ancestry in our Institute journal and break down the standards which we have come to regard as inherent in the Amateur Radio situation.

We have already suffered and lost the invasion of our 27 MHz amateur band to the illegal, ruthless and thoroughly forces of pirate radio, big business and political expediency. Now we can see the thin edge of the wedge in phase two — the invasion of the Amateur Service by a group determined to inject the sub-standard mental processes of the dregs of the CB movement.

To find that your — OUR — Amateur Radio publication gives support and publicity to this latest conspiracy is disturbing — disgusting — in the extreme.

I have supported the upgrading of CB users to Amateur status and, in fact, have performed in the instructional area to introduce ex-CB Novice operators since the inception of the Novice scheme. However, under no circumstances do I condone the new development, whereby such groups as that encouraged by your editorial policy will infiltrate the Amateur Radio movement and bring to it their "ocker" attitudes and sinister policies.

I expect that the WIA at Federal level will get up from the floor and resist vigorously similar attempts by this second wave of invaders. STRONG and vigorous leadership is needed in this new situation. I shall be pleasantly surprised if it emerges on the basis of past performance during the CB pirate invasions. Meanwhile, I shall put my Membership Renewal Notice aside and wait until adequate action occurs to warrant my continued support of an institute for which I have had a long-established affection and which I have supported for many years.

Rex C. Black VK2YA. ■

4.12.78

The Editor,

Dear Sir,

Recently having sat for the November AOCP Telegraphy Examination, I am concerned about the apparent confusion regarding the morse code being sent. I understand that, a few years ago, the WIA requested hand sent morse code to be abolished and ITU machine morse be used, and for good reason.

Apparently, due to a more recent request from the WIA not to use ITU machine morse for the 5 WPM novice examinations, the Post and Telegraphs Department has decided to use hand sent morse (by hand sent I mean just that, not even a bug or any other aid) for all Telegraphy Examinations they conduct, both commercial and amateur. I am sure that this was not the original intention.

What I believe we require is ITU machine morse for AOCP and commercial exams and for novice exams ITU machine characters at 8 - 10 WPM with the spacing between characters and words increased to bring the text back to the 5 WPM requirement.

At the present, all we have is confusion.

Can we please get back to a nation-wide standard, knowing that if we practice and learn a particular style of morse code, that is what the Posts and Telegraphs Department will be using at the examinations.

Peter S. Collins VK3ZVO.

EDITOR'S NOTE:— The P. & T. told WIA that ITU standard was to be used and would be machine sent however, some technical problems arose preventing this and hand sent morse still remains. We agree that novice morse should be 10 WPM characters with longer spaces between words. This was brought before P. & T. some time ago and has not yet been resolved. Many complaints have been received from members, and the matter will continue to be pursued by the WIA. ■

26.10.78

The Editor,

Dear Sir,

I would like to make some comments and suggestions re the "VK-ZL-Oceania DX Contest".

Before proceeding further I would advise readers to study the rules of the 1978 contest as found in AR, August 1978, page 48. It will be noted that a considerable number of mistakes appeared in the rules. The closing date for VK-ZL stations was given as **ONE YEAR** later than it should have been. Rule 10 parts (c) and (d) were listed as part (b) in three places.

1) **PERIOD:** Currently the contest starts at 1000 hrs. UTC Saturday and finishes at 1000 hrs. Sunday. Why not start the contest at 0000 hrs. UTC Saturday and finish at 0000 hrs. Monday. All other major DX contests start at 0000 hrs. Saturday and run for 48 hrs.

The current time period is very restrictive when examined in detail, very few people get the chance to operate throughout the whole 24 hrs. due to commitments to work and families. Out of 24 hrs. the 'average' operator, if there is such a being, would be lucky to get in 8 hrs. time on air.

By increasing the period from 24 to 48 hrs. everyone gets a far more reasonable chance to compete and a far more even spread of conditions than in one critical 24 hr. period. To even things out there could be two different sections, a 24 hr. and a 48 hr.

2) **CYPHERS:** The rules for the 1978 contest stated that the serial number following the signal report "may begin with any number between 001 and 100 for the first contact . . . "WHY? What possible point can there be in starting at any number other than 001 if serial numbers are to be used? I can see little justification for the use of serial numbers in a contest anyway apart from the concept of using the contest as a traffic handling exercise. For far too many operators serial numbers tend to become no more than an ego trip and obviously the very high contest number when received makes the station just starting feel at a great disadvantage.

3) **CLARIFICATION OF RULE 9 (e):** As this rule currently stands I consider it open to different interpretation by various operators. e.g. W6AA/1 is counted as a W1 for scoring purposes. This is clear enough but what do you count the prefix of say JK1AAA/5 as? The answer cannot be JK5 as currently no such prefix exists, only JA5 or JH5. The operator however cannot be expected to know this sort of information particularly with the mass of strange prefixes in areas such as the U.S.A. where even the locals are staggered by it all.

4) **LOGS:** Anyone who has tried to write up a contest log with 1,000 plus QSOs will know only too well what a chore this is! Most operators use a rough contest log then transfer it to the station log after the contest is over. The next step is to write up the contest log for sending to the organiser for checking. This means that most entrants end up writing the details up to three times. Not only is this a terrible bore but also a ridiculous waste of time and effort, just to prove in a fashion that your entry is honest. Why should the 99.9% of honest operators have to do this to indicate that they aren't cheats? After all, there are plenty of chances for the dishonest operator to cheat if he wants to.

I can see no valid reason why the GCR (General Certification Rule) as used for Award applications couldn't be used with contests. Any two other Amateurs of higher licence class could then certify a summary sheet showing the essential details of the contest entry after viewing the operator's station log. This would save untold hours of writing and in addition save considerable amounts of postage in forwarding entries overseas where airmail is the only sure (but awfully expensive) way of ensuring the entry arrives in time.

Admittedly, the remote area operator may be at a disadvantage using this system, but no more so than currently with awards. Surely the vast majority of honest operators deserve the chance to benefit from this system.

Making the business of entering a contest easier can only help make the contest an even more successful one than it is now where vast numbers who take part fail to enter a log because of the enormous work involved.

Geoff Wilson VK3AMK. ■

AROUND THE TRADE

VICOM APPOINTED JOSTYKIT DISTRIBUTOR

Vicom International Pty. Limited has been appointed Pacific area distributor for JOSTYKIT of Denmark.

JOSTYKIT is a leading manufacturer of high quality kits throughout Europe and is renowned for the attention given to aesthetic design and presentation. The kits include comprehensive instruction booklets giving precise directions for assembly and testing together with circuit diagrams, drawings of components and soldering techniques.

Attractive Scandinavian-style extruded aluminium cases and knobs are available for most of the kits. A spokesman for VICOM said that there had been a huge demand for the kits which give a much more professional look when completed and give the customer a higher degree of satisfaction.

Qualified electronic engineers are employed by JOSTYKIT to work on improving existing kits and on new developments.

About 40 different kits are now available and the range will be extended to about 100 kits covering audio, laboratory, amateur radio and other interests. ■

BRITAIN EQUIPS PAPUA NEW GUINEA RADIO CENTRES

A British electronics company ,which has recently provided broadcasting studios in Vienna, France and Kuwait, has obtained a new order for three more broadcast centres from the National Broadcast Corporation of Papua New Guinea. The company had previously had a contract for four other studios in Papua New Guinea.

The company is Neve Electronics of Royston, Herfordshire (southern England). The contract (obtained through Neve Electronics' Australian agents, Magna-Techtronics) covers design, procurement, installation and commissioning of complete radio broadcast centres.

Installation of the equipment has been at Port Moresby, Manus, Karema, and Goroka, and the stations are scheduled to be fully operational by the end of this year. The new order is for studios at Wabag, Vanimo and Daru, which should be on the air by May next year.

Each Neve broadcasting centre consists of two studios with technical apparatus room. The equipment for each includes soud-mixing consoles with talk-back and monitoring facilities, while the ap-

paratus room houses programme switching and associated equipment.

(Neve Electronics International, Cambridge House, Royston, Hertfordshire; Australian Agent: Magna-Techtronics, 14 White St., Artarmon N.S.W.) ■

YOU and DX

Mike Bazley VK6HD
6 James Road, Kalamunda W.A. 6076

Why is it that AR does not publish a DX column? A question I asked myself and got, what I suppose was a reasonable reply — no one has offered to write one. So here goes! I do not suggest that I am the best that is available, but I appear to be the only one obtainable!

How does one tackle the numerous problems facing a DX column writer? The main one, of course, is being up to date. With copy required well in advance, often a DXpedition will have come and gone without any advance publicity being given. **If you believe you would like a DX column then your help is required.** Any advance information on any DX activity would be most welcome.

Secondly, what is DX? To some it may be the thrill of working a large building in New York (you haven't worked 4U1UN yet?). To others there is the pleasure of a QSO with anyone outside this island continent and to others there is the kick from working QRP.

Thirdly, how does one tie in the differing propagation conditions between East and West coasts?

This writer does not suggest he has the answers to these problems but in the ensuing months I hope to present something that may be acceptable. Any column is only as good as its readers, comments good or bad, information, photographs are all welcomed and appreciated.

Yes, I do call myself a DXer.

Yes, I do chase DX on all the HF bands.

Well, 1978 has gone and for some it has been a good year. Clipperton finally showed, there was activity from South Sandwich, Iraq and Somalia. Here's hoping that 1979 will bring Bouvet, Burma and China. You never know.

Rumour has it that a group of VKs or ZLs are going to activate Spratly during 1979. How about some more information on this one?

Bouvet should have shown by December 24th. I hope all those who needed it made it.

For the CW bulls, LU3ZY is active from South Sandwich on the odd occasions, usually around 14025 kHz.

At the time of writing (late December) there was still no word from the ARRL whether and when DESECHEO will count. Could this be one that got away?

Don't forget to keep your ears open for 601FG if you missed out last time. This one should be re-activated in early 1979.

Rumour has it that there could be activity from Peter Island. (71 South, 90 East) sometime in February.

Finally, don't forget those long path openings on 10 and 15 metres especially during February and March. Ten metres has produced some pleasant DX surprises just before the band closes up for the evening.

Happy hunting.
QTHs you may have missed:
D68AD via G3RWU,
GU5CIA via N6MA,
YI1BGD P.O. Box 5864, Baghdad,
601FG via I2MQP.

STOP PRESS

BOUVET ISLAND
Ship fouled propellor and was towed back to Cape Town. Rumour has it that it should return to Bouvet at end of January and operations will commence by 3Y1VC and 3Y5DO until mid-February. Frequencies to watch are SSB 14300, 21300, 28600; CW 14030, 21030, 28020.

EDITOR'S NOTE: We welcome Mike's offer as DX contributor and trust that our readers will give him as much assistance as possible by forwarding your DX comments direct to him. ■

QSP

SPECIAL CALL SIGN
To mark the 150th anniversary of the University of Cape Town, founded in 1829, the SARL will be setting up a special station at the University, with the call sign ZS1UCT, from 17th February to 4th March, 1979. Operations will be all modes on the 10 to 40m bands and an award will be issued — details available from SARL Awards Manager, Box 5100, Cape Town 8000, RSA. ■

Masaaki Saito JA8IEV/JDI operates from Minami-Tori-Shima. QSLs via JA8JL.

LEFT: LUDEK OK1HAS.

ABOVE: DAS OK 1DDL.

INTERIM MOPOKE CLUB RULES

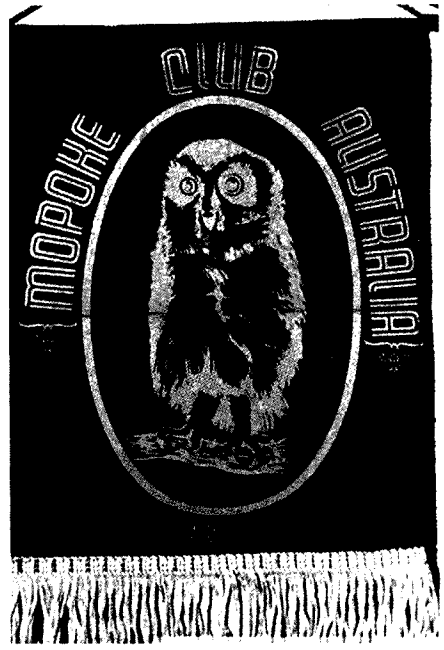
(Amended 15/11/1978)

1. The purpose of the Club Awards is to:
   (a) Further the use of the bands in the "wee small hours".
   (b) Ensure continuing conviviality among club members.
   (c) Provide some impetus and reward for aspiring nightowls.
2. The significance of the Club name is that the 'Mopoke' is a name applied to various indigenous nocturnal birds, in particular the 'Boobook' owl, who features on the bannerette.
3. Qualification for initial and continuing active membership is:
   (a) A total of thirty hours of operation between 0100 and 0600 local time.
   Contacts which have commenced prior to 0600LT continue to be valid up to 0700LT.
   Where contact is between stations in differing time zones, the most advantageous local time shall apply.
   (b) The thirty hours must include at least two separate four hour periods of continuous operation.
   (c) Contact (within 0100-0600) of one hour continuous with a committee member.
4. The first applicant from each country (DXCC list) excepting P29 and ZL may substitute proven contact with at least five individual committee members, with the 0100-0600 time and one hour duration limitations waived, for requirement under 3(c).
   (b) In the case of P29 and ZL, the 0100-0600 limitation still applies.
   (c) Thereafter however, subsequent applicants from each country already having a charter member must follow the normal qualification rules.
5. Once the Club has been 'chartered' in a different country, it may, if it so desires operate at a semi autonomous unit. (It may not change rules without the approval of committee members).
   (b) It is hoped that good interaction would still occur, and to that end, when the time is correct, auxilliary Mopoke net(s) are envisaged, not necessarily limited to 0100-0600LT.
6. Any band, and any mode legally permissable.
7. Net operation is permissable, in fact encouraged.
8. In general, contacts are not limited to club members.
9. Membership is open to any country.
10. For continuing active membership (and hence voting rights) the requirement is a total of four hours operation per month within 0100-0600.
11. All time requirements are of course subject to health and other acceptable limitations as determined by the committee from time to time.
12. While charter members are limited to ten in Australia, the initial member from each different country (DXCC list) will become a charter member of the club as a whole, therefore the number of charter members will expand from time to time as new countries join and establish their own chapters.
13. SWL's are also cordially invited to seek membership.
   (b) In their case please substitute "Logged Contact". For "Contact".
   (c) In this case please log 'Time In' and 'Time Out' of station(s) intercepted.
   (d) SWL Mopokes will have their club number prefixed by 'L' to differentiate between types of members, and also to individually reward their efforts.
14. It is envisaged that in the very near future special Mopoke QSL cards will be printed and made available.
15. When applying for membership, neither QSL cards nor detailed logs are required ,simply a list of contacts claimed showing date, duration in local time, band and mode employed.
16. Three contacts at random from the list supplied by the applicant will be checked in writing by a committee member.
17. The committee initially to consist of the ten charter members in Australia, plus overseas charter members as they join.
   (b) Thereafter, the committee to be elected annually by a simple majority of club members eligible to vote.
18. All decisions affecting the Club to be made by a majority of committee members active at that time.
19. Twenty percent of Club members in writing shall be a sufficient number for a matter to be put to a general vote, the outcome of which shall be binding upon the Club, the number of votes required being a simple majority of all members eligible to vote.
20. Club nets, competitions, awards and constitutional amendments to be decided upon by a simple majority vote of those eligible.
21. The interim net active now is 3565 KHz at and from 1400GMT (Fridays date) Saturday morning local time.
22. Contacts (for qualification) count as from 0100 local time July First 1978.
23. Allocation of membership number and initial award(s) may be effected by any one committee member after consultation with as many of the committee members as may be readily contactable. (Mail/Phone/Club Net).
24. The decisions of the committee shall be final and binding upon all club members unless challenged and overturned by a general vote.
25. A committee decision must be challenged within one month in writing if such a challenge is intended.
26. The basic award shall consist of a bannerette and certificate, with an optional extra of a Mopoke statuette or key chain also envisaged for the future.
27. Subsequent awards and/or endorsements to be endorsed by general vote of those eligible club members.
28. An inactive member may restore voting rights by compliance for one month with the requirements for active membership.
29. The Club can be run as a non profit organisation, except that funds may be accrued for routine overheads and for such purposes as decided by a general vote from time to time.
30. Any funds at all times to remain the property of the Club and to remain under the control of the committee.
31. A formal constitution to be adopted if possible at the First Annual General Meeting.

NOTE: Cost (including packaging and posting) of membership, certificate and bannerette $5 Australian. (May alter as time goes by to keep up with costs).

Information from R. J. Whitehead VK3NHA. ■

Mopoke Club Bannerette.



QSP

EARLY DAYS

Recently an O.T. sorted out his old QSL cards and decided to pass on the information of his CW (VK only) contacts for 2 full years, 1930/31. This was a time when amateurs were on 25 watt max. power. A listing of several points showed by these cards only 1 in 7 "hams" was C. Cont., about 85 per cent self excited rigs. 20 per cent of the QSOs were over the 25W limit. The top 5 of these averaged 80W. 66 per cent; 2 out of 3 hams, used or had an end-fed Zepp (tuned feeders). The rest were: Centre feed Zepp, Single wire feed, Marconi and 600 ohm open wire feed. Receivers 2 valve 40 per cent, 3 valve (0-V-2) 30 per cent, Supers and 3 and 4 valve sets with a SG RF stage 30 per cent.

Tx: 30 per cent were 10W or lower, 50 per cent between 10W and 25W. Over 15W the 210 and TB04/10, also TC04/10. Till December 1931, 2 amateurs claimed 61 countries worked.
— "T.P.T.O."

EDITOR'S NOTE: Contributions from Old Timers on their activities in the years approx. 1925-1935 would be most welcome, as there is much information hidden away in log books etc. which will otherwise not be brought to light. (VK3UV) ■

VHF-UHF
AN EXPANDING WORLD

Eric Jamieson, VK5LP
Forreston. 5233

AMATEUR BAND BEACONS

Freq.	Call Sign Location
50.025	6Y5RC — Jamaica
50.050	WA1ENX — Maine
50.080	TI2NA — Costa Rica
50.087	WA6MHZ — San Diego
50.085	WA6JRA — Los Angeles
50.088	VE1SIX — New Brunswick
50.092	W7KMA — Oregon
50.098	KG6JIH — Guam
50.100	ZK1AA — Cook Island*
50.101	FO8DR — Tahiti*
50.104	KH6EQI — Pearl Harbour
50.110	HL9WI — Seoul*
50.110	KG6JDX — Guam
50.110	JD1YAA — Marcus Island
50.110	KX6HK — Marshall Island*
50.500	5B4CY — Cyprus
51.999	YJ8PV — New Caledonia
52.110	HL9WI — Seoul*
52.200	VK8VF — Darwin
52.300	VK6RTV — Perth — 145.000
52.350	VK6RTU — Kalgoorlie
52.400	VK7RNT — Launceston
52.440	VK4RTL — Townsville
52.450	VK2WI — Sydney.
52.500	3D2AA — Fiji
52.500	ZL2VHP — Palmerston North
52.500	JA2IQY — Nagoya
52.800	VK6RTW — Albany
53.000	VK5VF — Mt. Lofty
53.100	VK0MA — Mawson
144 101	VK2WI — Sydney
144.400	VK4RTT — Mt. Moarbullan
144 475	VK1RTA — Canberra
144 500	VK6RTW — Albany
144.700	VK3RTG — Vermont
144.800	VK5VF — Mt. Lofty
144.900	VK7RTX — Ulverstone
145.000	VK6RTV — Perth
145.100	ZL1VHF — Auckland
145.150	ZL1VHW — Waikato
145.200	ZL2VHF — Wellington
145 250	ZL2VHP — Palmerston North
145.300	ZL3VHF — Christchurch
145 400	ZL4VHF — Dunedin
432.400	VK4RBB — Brisbane
432 450	VK3RPX — Ballarat
432.475	VK7RTW — Ulverstone

Additionally, the following may be operating:

50.013	WB6KAP — California
50.100	5W1AB — Samoa

*Not really sure whether these beacons are actually on the air, but they have been known to operate and with the DX prospects being so good they may now be operating. †HL9WI did operate on this frequency as well at one time.

There have been some favourable comments on the present method of listing the beacons, so it will be continued for the time being. I make no apologies for including overseas beacons, many have already been heard in VK and the remainder could be also before long. While on this point "Break-In" for October 1978 carried a table of monthly smoothed sunspot numbers using the modified Ohl (Russian) method for Cycle 21. A few excerpts are Feb. 1978 64.4, July 78 89.5, Oct. 78 99.7, Jan. 1979 110.8, July 79 131.1, Dec. 79 148.1, Feb. 1980 153.4, May 80 153.6 (peak), Dec. 80 141.2, June 1981 126.2, Dec. 81 120.6, etc. The Feb. 1978 prediction was 64.4 but the level actually reached was 90, with nearly two years to go! So it looks as though there could be almost unlimited DX possibilities, with any VHF services suffering interference, whilst point to point HF communications will face considerable disruption.

WHAT'S HAPPENED SINCE 26-9-78?

WHERE? SIX METRES, OF COURSE

As David VK5KK has more opportunities of operating on the air than I do, I have asked him to give an outline of what has transpired on the VHF bands, six metres in particular, during the period 26-9-78 to about the end of 1978. I present the *information* in David's own style.

"One of those solar flare things again on 29-9-78. KH6EQI 5 x 9+ at 0845Z to 0930Z. Auroral propagation 0700 to 1430Z. Noted Darrell VK3AQR on 144 MHz at 0840Z. VK3AZY/P with IC502 plus 20 watts to 3 element car mounted yagi at 5 x 6! on 52.05, same time VK7ZAH 5 x 5 and heard VK7DA (both on 144.1 MHz). All attempts at higher frequencies unsuccessful. JAs 1 to 6 from 1215Z. Worst signal report 5 x 7. 30-9: JAs 1 to 6, 1000Z averaging 5 x 6 for 1 hour, plus VK4s to 1330Z.

"1-10: One JA1, 5 x 9! JAs heard every day on 50 MHz from 1-10 to 11-10 plus JAs daytime on 52 MHz on 3, 5, 6, 9, 10 from 0330 to 0600Z (P.S. Our 16 foot rotating section with 6 on top fell over on 2-10!) 12-10: Large JA opening from 1215 to 1330Z (1 to 6 areas). Antennae down to 14-10 when stacked 8/8 erected. 15-10: Large JA opening 1222Z onwards (1 to 3) plus KH6EOI 5 x 5 0900Z. 16-10: Worked KH6EQI and KH6HI 0950Z and 1012Z. First heard calling VK2YDY before contact made, dropped out 1120Z, signals both ways 5 x 9. Note the beacon is 80 watts to 6 element. Large JA opening 1212 to 1330Z. (Note: KH6 stations worked 2 MHz split frequency.)

"From 17-10 to 3-11 at least one JA worked on 52 MHz each day, best days 17, 20, 22, 24, 25, 26, 27, 28 and 3-11. KHEOI heard 25-10 5 x 5 at 1330Z by VK5AVQ. Some JAs appearing at 1000Z which is early for this longitude. (They should be earlier in the Eastern States.) Average time 0200 to 0600Z. From 3-11 to 9-11 no 52 MHz activity but nearly every day something turned up on 50 MHz. On 2-11 KH6EOI to 5 x 3 at 0730Z.

"Large JA opening 12-11 1130 to 1210Z plus KA2 and KA6. This one was watched by the rising 30 to 50 MHz monitoring method and worked in like clockwork with the daytime opening. 14-11: JAs on 50 MHz. 16-11: Enormous JA opening from 0230 to 0815Z, only a period of 2 hours in the middle was quiet. Many signals to 5 x 9. (This is a major reason my present log book has only lasted 5 months!) ZK1AVZ 5 x 8 at 0955Z.

"17-11: JAs 0300 to 0345Z (1, 7, 8 and 9). 18-11, 19-11 and 20-11: JAs on 50 MHz. 20-11: Large JA opening from 0410 to 0540Z with all areas at least 5 x 5 (yes, 0 to 9 inclusive!) 21-11 and 22-11: JAs from 0600 to 0830. By now sporadic E (Es) is becoming more common but not good. Areas VK1 to 8. 23-11: JAs 0300 to 0330Z then from 1155 to 1350Z, a great opening, with 1 to 7 areas with signals to 5 x 9+. 23 to 25-11: JAs on 50 MHz, nothing on 52 MHz again. They disappear until early December. Local DX reasonable with ZL several times.

"5-12: JAs 0300Z, ZL3AAD and ZL3AFZ 5 x 7 0825 to 0900Z. 6-12: JAs at 0300Z. At 1630Z VK5ZJG heard KH6EQI 5 x 7 for 20 minutes, and ZL2VHP (beacon) at same time. Recorded at VK5KK *on* chart recorder same time as confirmation, receiver on 50.102.5 MHz to give 1.5 kHz tone. 7-12: JAs on 50 MHz 0330Z. 8-12: JAs from 0350 to 0440Z to 5 x 9 with VK5CK in the shack on the back-up equipment (FT620 and 5 el. yagi) with me on TS600 and 16 elements from me at the same time. The ultimate in ORM! P29ZNL at 0712Z 5 x 9. KH6EQI at 1610Z for 28 minutes on chart recorder. Next few days good local conditions.

"15-12: 3D2CM 52.050 MHz 0153Z at 5 x 3. Dick runs 30 watts to 3 element. He confirmed it is is the first time six metres has been worked to VK since the call area changed from VR2 to 3D2. VK2BYX only other station heard working afterwards, though several foolishly calling on top of him after hearing Phil VK2YDY working him, but not being able to hear the 3D2 themselves. No matter WHO you are you have to hear them to work them! Rumours spread that some other VK2s worked 3D2CM at the time but nothing other than that. It is definitely known that at least two heard him on CW but did not read the call to realise who it was until told later. At the same time KH6EQI heard 5 x 1 with deep OSB. JAs from 0410 to 0740Z to 5 x 7 for about 50 minutes.

"16, 17, 18-12: weak JAs on 50 MHz around 0300Z. 19-12:KH6IAA, Al from Hilo worked at 5 x 5 first on 52.110 and finally confirmed on 52.050 at 0330Z. In between times he worked several VK2s. KH6EQI from 0230 to 0415Z. This time the beacon was around when the JAs came through at 0346Z to 0445Z when I travelled to town. They were still there when I returned at 0840 and worked a few more! 20-12: KH6EQI plus VKs 2215 to 2253Z. KHIAA heard on 50 MHz. From 0235 to 0415Z (note close tie-in to previous day) KH6EOI. JAs 0400 to 0430Z. P29ZWW 5 x 5 at 0845Z. 21-12: ZL3QK, JH, AAD and AO up to 5 x 9 from 0019 to 0100Z. JAs 0400 to 0440Z. (No KH6EQI, ha, ha.)

"23-12: ZL1AVZ, ZL1BPW and ZL1OI/M and ZL1AVZ/M. The last two were using IC502s and ¼ wave whips with signals to 5 x 5, mobile, 0030 to 0130Z. One mobile drowned out a well known VK3 on back-scatter. JAs at 0400Z also working ZLs, which was good to observe. 27-12: JAs 0300 to 0410Z to 5 x 9. JH7VYN said my signal was hitting the stop on the S metre of his FT620B. I swapped over to my FT620 and 5 element and he said the signal was still 5 x 9+ +. Looking at the needle this end Kou's 10 watts was murdering my S meter! Such conditions stayed like this for 6 minutes before returning to 5 x 9. All areas.

"31-12: ZL2ARW/P 5 x 9 at 0909Z. 1-1-79: JAs 0525 to 0540Z but they got to 51.250 MHz and died back. (Drat!) Worked VK8GB 0541Z on 52 MHz, Graham was just back from three weeks holiday. 2-1: JAs again on 50 MHz for more than 3 hours on and off, but not reaching 52 MHz. This is something which has happened TOO often! Total number of JA contacts for 1978 stands at 621 and have now qualified for the SMIRK 100 Award. Where were the FK8 and YJ8 areas?

"NOTES: Who needs 400 watts PEP? In 1978 most JAs were using 10 watts, also KG6DX. All possible JA call areas worked including JD1 (by VK5RO), and most KAs. All prefixes, JA, JD, JE, JF, JG, JH, JI, JK, JL, JR and JJ. Two complete systems are used on 2 metres: (a) TS600 + 400 watts to 2 x 8 elements 18 metres high and (b) FT620 + 100 watts to 5 element 10m high. Antennae are 23m apart and this means it is possible to listen on 50 MHz or to beacons on 52 MHz on either while talking on the other provided both beams are not pointed at each other. Comparisons can be made to determine to what extent signals are high or low angle. It can be revealing and good to find out whether sporadic E is at all responsible for extensions. It has been almost 100 per cent reliable. Also two 38 to 55 MHz monitor receivers are used to watch MUF and paths. These are connected to separate antennae. From this it can be determined by midday whether conditions will prevail to the north *in* the afternoon. By monitoring 49.75 (Asian TV) on one receiver squelched, and using the other lower to watch the various peaks at the correct times. Night time TEP is very easy to watch and follow up.

"Logging various stations and DF gives an idea of where to look, e.g. during and after the 3D2 contact on 15-12-78 notable was the telemetry station on 48.25 MHz, suspected to be from FK8 or further out. That is one to watch when there is F layer out that way. You might work FO8DR or ZK1AA! Also for KH6 there are a few land mobiles in the 40 MHz region. From the city of all the police serials (Los Angeles) watch 39.82 MHz.

"I am sure that if VK6s can now hear KH6EQI then VK4 is not far away from a repeat of March/April 1958. This equinox coming will be the one! To the north anything from a dozen countries appear, and one simply notes where the signal strengths taper off. (Even on Es it is interesting the number of jungle green bushwalkers with Armalites you can hear!) All this can be upset by solar flares, but here we have a 4 element yagi that can be pointed vertical to monitor ionospheric noise. Depending on the severity auroral propagation can occur although the last three major flares did not give auroras as high as Adelaide.

"Summing up: It is true that for a lot of the DX you have to be on the band at the right time, but *I think* with a little bit of useful listening you can determine when something could come through. After a while you can pick patterns that generally only have a short term application but are still useful, e.g. watch a distant beacon and you will be surprised just how often it will be heard. Take for instance WA6JRA and TI2NA to VK5. VK5ZBU has heard both once or twice around 1300Z to 1500Z. Signals extremely weak but there. VK5RO has also heard WA6JRA in this time slot. All this occurred from early December to just after the good DX on 20-12. I leave a chart recorder on a frequency *on six and* two metres at night and when I am not around as part of Project ASERT. Though 2 is sedate, 6 is quite interesting. In future ARs results will be published on the various findings

of the ASERTS groups in each State. Some people will be surprised to say the least! Please note: Having two 6 metre stations is not greedy, but necessary when you have two call signs in the one shack!

TWO METRES AND ABOVE

David VK5KK continues: "29-9-78: 1308Z VK7ZAH 144.1 5 x 5 on aurora. VK7DA heard.

22-11: VK6 opening. 144 MHz and 432 MHz both 5 x 9 and VK5NY and VK5KK hearing VK6WG 5 x 2 on 1296.12 MHz. Call signs on lower freq. VK6WG and VK6XY.

"20-12: Sporadic E opening on 2 metres to VK2. VK2ZTH 5 x 9+ 0650Z and VK2YDV 5 x 3 at 0654Z both on 144.1 MHz. VK2WI heard for seven minutes, the complete length of the opening. VK2YHG heard via VK2 channel 8 repeater in Sydney. No use wasting time when this opening occurred. Repeaters and FM nets are vulnerable to pranks. As far as my working is concerned 2 metres consists of SSB/CW only so it's the quick, and the others miss out. Constant monitoring of 2 metres is the only answer and taking note of 88 to 108 MHz FM, and Channel 2 TV (ABN2) fills in. Repeaters are good beacons and as in the last opening to VK1 and VK2 on 31-12-76 it all helped in this case.

"24-12: VK3 on 144 MHz. SSB must be extinct in some parts of VK3 when you can hear repeaters hallway across Victoria and no one on 144 MHz, SSB, or seemingly prepared to come on! 28-12: 28-12: VK3AXV and less than a handful of others seem to be the only activity over the border on 144.

28-12: VK6 on 144, 432, 1296 and 2304 MHz. No real limit on signals and frequency! Stations on VK6WG, VK6KZ/P, VK6SQ/P, VK6ZED/P, VK6BE, VK6XY and VK6JY. NEW WORLD RECORD SET ON 1296 MHz THIS DAY (see separate box). 30-12: and 31-12: Continuation of propagation set on 29-12 plus into VK3. 1-1-79: VK3AXV on 144.1 and VK6 meacon on 144.5 still through.

"5-1: Good signals from VK3AXV and VK3BEH 144.1. VK5RO also had contacts with VK3AUU, VK3AYO, VK3BPH and VK3ANQ, all on 144 MHz. 9-1: Strong signals from nothern SA from VK5DJ, VK5NW and VK5NJ, Neville, who has only recently come on the air and was good copy from his IC202. Col VK5RO worked across land into Mildura on 144 signals to 5 x 7, working VK3ZST, VK3BER and VK3AUG. Repeated the effort again on the morning of 10-1."

Thank you, David, for that comprehensive report on activity from VK5, which indicates that despite being sandwiched in the middle of the Continent, we are still getting a very fair share of what is happening. As David's information shows however, we would be doing a lot more if we could operate on 50 MHz, more than half the six metre openings have been missed as a result of the band opening only as far as 50 MHz and not extending to 52 MHz. And unless something is done about it we will be missing out on a lot of very fine contacts later on into W, VE and other call areas because of this 2 MHz separation.

The comprehensive nature of David's report will allow those who live in other areas of Australia to compare with their own notes, and see what opens when and where, and how often.

MORE ON SIX METRES

Pleasing to note Graham VK2ZZV is doing something very useful during his holidays and going out to YJ8 country and installing a beacon there with the call sign YJ8PV and operating on 51.999 MHz, and which it is hoped will be able to continue to operate on a 24 hour basis. 10 watts output. The beacon at time of writing has been heard in most States so far, after commencing operation on 6-1-79. VK5KK and others worked YJ8KM 0127Z 5 x 7 same day. On 8-1 YJ8ZV worked 5 x 9, also by VK5RO. Beacon in for 3 hours to 0300Z 5 x 1 to 9. On 9-1 received a report KG6DX had worked a VE7 on 50 MHz!

JAs seem to have favoured the southern States during the past two months. Note Hal VK4DO had worked 1357 to 13-11-78, but not a great number since. Many openings into VK7 too, but VK3 seems to be missing out a bit, or else no one is on. John VK4ZBJ confirms the Ch. 0 translator is just south of Innisfail, about 200 miles north of Townsville and runs 500 watts. Great place to put a Ch. 0 TV station, right in the heart of sporadic E and TEP territory!

Vladivostock TV on 49.75 a good pointer to likely JA signals on 50 MHz — well worth monitoring when in shack doing nothing. 10-12: Aub VK6XY said boys in Carnarvon working through the Ch. 8 repealer at Busselton, 150 miles south of Perth, so a north south path does exist there at times. Did hear the same day about a 10 GHz contact in VK2 over distance of 180 km, but so far no one has written! 16-12: FK8AA worked by VK3OT, VK3AMK and VK3AKK. 15-12: VK5KK to 3D2CM 5 x 3, only active 3D2 on six at present. Runs 30 watts to 3 element, distance to V5 over 2700 miles. 27-12: FK8AB and FK8AX to VK2ZBD and others. For OSLs to FK8 write care of Box 779, Noumea. 9-1: ZL3QK to VK5KK and VK5AVO.

The last letter from Graham VK8GB was dated 24-11 shortly before he went on holidays. Note that for the period 17-10 to 23-11 only one contact on 144.110, this to JA6SZC at 1220Z on 21-10, which rather indicates as expected a drop off in 2 m ire activity during the Es season. JAs on 6 metres however, were worked on 17-10, 21, 24, 25, 27, 28, 29 and 30-10. And on November 2, 4, 9, 10, 11, 12, 13, 16, 18 and 23rd. Considerable contacts were made 11-11, 13-11, 18-11 and 23-11. Graham comments he and Brian VK8VV have had a pretty solid session with JAs for many months and have been taking it a bit quieter! The current thunderstorm activity in Darwin also has a restricting influence! With so much information this time, some pruning has had to be done to all letters received.

Tony VK6BV worked here on 20-12 from his new QTH at Northam from the temporary shack. He worked 26 JAs on 18-11, two on 19-11 and 14 on 20-11. Sullers from heavy power line noise from north at times.

Gery VK2ZGF wrote to say the contacts by VK2BXT and VK2YDY with KH6EOI in October were preceded by contacts by Gery and at least two other N.S.W. stations with KH6EOI on 22-4-78, which would thus appear to have been the first into VK2 from that area for porbably 20 years. Thanks for writing Gery, it sets the record straight.

FROM OVERSEAS

Ray K5ZMS of SMIRK sends a short note to say much British and French TV has been monitored on the East coast of U.S.A., and that ZB2BL had worked PY2XB for another European to South American contact.

It is with regret I record the passing of Sam Harris, W8UKS/W1FZJ/W1BU, on 6th November, 1978. Sam Harris was one of the truly greats of Amateur Radio. He built antennae by the hundreds, after joining the ranks of VHF activity in the 1940s. He compiled VHF notes for both OST and CQ for several years. He was a prime mover in the first EME contacts, and his first column in OST for September 1960 featured information regarding the almost unbelievable contact via EME on 1296 MHz, a milestone in time. He was associated with radio astronomy equipment. He thus became a legend in his own time. He is survived by his wife W1HOY, son W1HIV and daughter.

VIA THE REPEATERS

Ian VK5IK has written from Eudunda for the first time outlining the great coverage which is possible at times via various repeaters. I do not normally include much information about repeaters, as I feel as a rule 2 metres in either SSB, CW or FM simplex. However, in this case the very wide coverage is interesting, but further emphasises the point made by David VK5KK that with so much repeater activity, where are the SSB stations from the same areas? Surely one mode of contact must lead to another — where are all the 3s?

"Good 2 metre opening to the east on the evening of 1st and morning of 2nd January 1979. VK3RWZ audible most of evening. VK3BYL audible on direct path into VK3RWZ and also on Ch. 40. From 1230Z VK3RAM Ch. 4 and VK3RGL Ch. 8 plus VK3RBA Ch. 3 heard and accessed. An hour later very strong signals from VK3RGL Ch. 8 and VK3RMA Ch. 8, than from 2200Z VK3RNE Ch. 8, and VK3RGL and VK3RMA were still strong. VK3RWZ and VK1RGI Ch. 7 were extremely strong, and worked VK1DA and VK1ZAH through VK1RGI. VK3TN was heard on the direct path into VK3RWZ. VK3RSH strong on Ch. 6, but all quiet by mid-day (0130Z) on 2-1. Heard from David VK3YNB that the VK3RML Ch. 2 Melbourne repeater had been disabled by vandalism". Thank you for writing, Ian.

TWO METRES ACROSS THE TASMAN SEA

Great excitement prevailed on the east coast of Australia from Sunday 7-1 through to at least Wednesday 10-1 when many stations in VK2 and VK4 were able to work into New Zealand on 2 metres. First news came to me from Rod VK2BQJ in Sydney, one of my old sparring partners, via a telephone call that he first became aware of the opening about 1400Z on Sunday 7-1, when he observed New Zealand repeaters peaking to 5 x 9+. Rod worked 12 stations at that time, with ZL1TAB, ZL1AVZ on SSB. Others were worked either via New Zealand repeaters or direct on FM. One problem is that ZL repeaters work 700 kHz down in frequency with 12.5 kHz deviation. Unless you have two pieces of equipment you have some problems working through their repeaters!

VK2YCJ was reported as having worked up to 80 ZLs via repeaters. Appears there are few stations with high power SSB, which seemed at that time to be essential for good contacts. Still continuing through to Tuesday 9-1 a.m. local time.

A further message received on Wednesday 10-1 indicates conditions still prevailing, with signals stronger than ever, massive signals from the repeaters, and stations being worked across the Tasman using ¼ wave whips, etc.

Phone call from Martin VK4ZIL on the Gold Coast, 60 miles south of Brisbane, indicated they had been in on the conditions as well. At tha time of phoning he had worked ZL1THG who was running 10 watts at 4 x 1. Also worked ZL2TPY. First heard via the Gold Coast repeater on Ch. 2 at 0730Z. Martin also reported hearing a ZL3. Both beacons on 145.100 and 145.150 had been heard. Martin mentioned it appeared signals were somewhat stronger in Brisbane, where some stations had apparently been worked on 144.1 SSB.

432 MHz ACROSS THE TASMAN

A further message from Rod VK2BQJ indicated he had been successful in bridging the space between Australia and New Zealand for the first two way contact on 432 MHz with ZL1TAB on Tuesday 9-1-79 at 0851Z with signals 5 x 5 both ways. Contact had been maintained for about 1½ hours. On 10/1 a one way contact had been made when Rod heard ZL2TAL but he was unable to copy Rod.

Congratulations to you, Rod, for your effort, you can now move into the records for a 432 MHz contact from VK2 over the greatest distance, for the first VK to another country contact on 432 MHz. You cannot, however, at this stage anyway, claim the Australian and World record for 432 MHz as the contact between VK6XY and VK3ZOV set on 22-2-78 still stands!

COMMENT

If nothing else comes out of these outstanding contacts on 144 and 432 MHz, it must surely confirm what I have been hammering in this column on and off for years, that I could never understand why more attempts were not made to work VK-ZL-VK on those two bands. If one can believe what has been written in "Break-In" there are plenty of two metre stations in ZL but they seem to have resolutely refused to look toward VK. And probably as many in VK2 have refused to look east too. I even heard it said once that New Zealand amateurs only constructed their beams to rotate north and south! That may have been an unkind statement, but one could have been excused for thinking so.

The next move, therefore, is for a general upgrading of antennae on both sides of the Tasman, some more linears after the IC202s, and some more time looking at the weather patterns, hence more contacts. Who will be the first to work all ZL areas on 432 MHz?

ALICE SPRINGS REPEATER

The Central Australian Repeater VK8RCA is now operational on Channel 8, running 19 watts output from a coaxial dipole antenna. It is presently located at the High School, with a good coverage north and south. Ultimately it is hoped to get it up on the ranges around the town for improved coverage. This news comes from Peter VK8CA, and it is good news, too. At last we will have a 2 metre signal emanating from the Northern Territory, so improving the chances of someone working that

State on 144 MHz. Obvious method would be to first hear the repeater, then switch to simplex FM or tor best results SSB or CW on 144. Incidentally, Bill VK6GU built the cavities for the repeater, and Peter VK8CA and Geoff VK8GF were involved in the general construction. Antenna is presently 50 feet high.

I'VE BEEN INVESTIGATED

That's right, an officer of P & T requested permission to come to my shack early in December 1978 to search my log book to see if I had been operating with illegal contacts on 50 MHz! Apparently P & T had read in an overseas publication where I had a contact with JE1HYR on 16th April 1978 on 50.053 MHz! Disappointingly for the Department, I did work JE1HYR and several other JAs that day, but all on 52.108 MHz, which is shown in the log book and without any alterations either. The investigating officer was very pleasant, and I have no axes to grind over the interview, particularly as I was in the clear and told him so before he travelled the 40 km to my shack.

I asked for a copy of the alleged report and was advised it would need to be obtained from Central Office in Melbourne. Typically, so far it has not arrived. But I have followed up the matter myself and with the aid of a good friend in Melbourne have obtained a copy of what is probably causing the interest at P & T level. It comes from the June 1978 issue of the Japanese CQ magazine which has printed a whole table of stations and frequencies for the 50 and 52 MHz bands.

On 16th April 1978 there was a tremendous opening to Japan and stations from VK2, 3, 4, 5, 6 and 8 were contacting Japanese stations and the table gives a selection of those stations. Whilst the rest of Australia were working on 52 MHz to Japan, I and two other VKs were supposed to be *working them on* 50 MHz! Strange *indeed. The* listed contact before mine with JE1HYR was by VK6ZEL to JE1HYR on 52 MHz, then JE1HYR apparently changed to 50 MHz to work me, so the listing says, then presumably went back to 52 MHz. OSL cards received as a result of those contacts on that day including some from SWLs show I was operating on 52 MHz.

For those of you who have worked Japanese stations and received their QSLs will note that many stations send a pre-printed card with 50 MHz already on it, even though contacts are made on 52 MHz. Others will call the band 50 MHz in line with their allocation. Some will say 52 MHz band, others will give a spicific 52 MHz frequency. That's exactly what this large listing of stations has done, there are 50 MHz, and 52 MHz band contacts, also specific frequencies listed on 50 MHz for U.S.A. or other similar areas, also specific frequencies on 52 MHz to Australian stations.

The actual investigation doesn't worry me, particularly as my nose was clean! What I am concerned about is that P & T, in these days of alleged staff shortages and financial worries, can find time to have an officer in another State investigate a triviality, something so vaguely based as a chart in an overseas publication, whilst seemingly ignoring the proliferation of out of band operation by non-licensed operators using CB type equipment. I have no bones to pick with responsible CB operators, but those who operate up to 27.7 MHz, in the 28 MHz band and on 146 MHz are getting away with it because "they are unlicensed, difficult to trace, and so many of them!" So the normally law abiding amateurs, because they are licensed, addresses known, can be made the subject of witch hunts.

And supposing say half a dozen amteurs did operate 50 MHz for a brief period. Did they create QRM like the thousands of other illegal operators previously mentioned? I don't condone out of band operation, and still say amateurs should stay within their prescribed bands whilst we continue to fight the stubborness and red tape of P & T. We can only operate today on our exclusive band of 52 to 54 MHz on a non-interference basis, there are no sound reasons for P & T not to move with the times and permit amateurs to operate on 50 MHz in a like manner. Even some concessions to either allow a brief contact to be made on 50 MHz with an overseas station or permit an Australian station to go down to 50 MHz and invite an overseas station to come up to 52 MHz would help to overcome witch hunts. I am sure P & T would find amateurs in general would continue to operate within the regulations if even temporary concessions could be made in regard to 50 MHz operation during the peak of the present sunspot cycle. If temporary permission say for the next three years was made to so operate whilst an in-depth study was made of the whole position would suffice to keep harmony for now.

What about it P & T? Let the amateurs operate on 50 MHz on a non-interference basis in the following way: (1) To call an OVERSEAS station on 50 MHz with a view to making a contact on 52 MHz and (2) allowing a contact to be made on 50 MHz with an OVERSEAS station. Either option to be available to the Australian amateur. And we need the concession now, not in two or three years time when conditions will be on the wane.

In the meantime, I urge Australian amateurs to confine themselves to 52 MHz knowing that many overseas countries know we are there and may look for us. Whether you take the chance to go down and call an overseas station up to 52 MHz is up to you, I can't stop that, but you will now know P & T will be looking for you as you are easier prey than illegal operators on other frequencies, and the number of citations made by P & T on paper will look good for those who assess the results of investigators.

Just to finish on a more pleasant note, you will be interested to know John VK5ZBU heard KH6EQI on 50.104 MHz at 0450Z on 11-1 at S1, whilst at the same time the beacon YJ8PV was 579 for about half an hour. And no VKs were heard operating on 50 MHz either!

"Closing with the thought for the month: "People who jump to conclusions often frighten the best ones away".

73, The Voice in the Hills.

Australia-New Zealand Two Metre Opening — January 1979

The opening commenced in the early afternoon of Sunday 7th of January and continued till Thursday, 11th January. During the course of the opening an almost stationary high pressure with widely spaced isobaric lines whose centre was in the centre of the Tasman and stretched over the East Coast of Australia, the North Island of New Zealand and up into the South Pacific as far as the New Hebrides. During this period, both Australia and New Zealand were experiencing above normal temperatures.

One of the first stations to discover the opening was John VK2AYC who, whan he attempted to make contact, was treated with disbelief.

During the early stages of the opening, VK stations close to the coast were at an advantage over stations further inland. The opening appeared to be from Ulladulla in the south to Coffs Harbour in the north, and over the entire top half of the New Zealand North Island. As the days of the opening progressed, the area of the opening spread to include Brisbane on this side of the Tasman and the whole of the North Island plus Blenheim and Nelson in the South Island.

Among the more successful stations ware Jamie VK2YCJ operating portable on the cliff tops near Newcastle (228 contacts) and John VK2BTQ at Ulladulla (200 plus contacts).

Operation was all modes FM simplex, FM repeater into the ZL repeaters and SSB, some ZLs succeeded in operating into the Australian repeaters mainly 3 and 6. The Mt. Glorious repeater in Brisbane much to the delight of the VK4s.

The most successful ZL appeared to be ZL1TAB with his long yagi on a 37 foot boom. Not only was he in the forefront of the 2 metre ZL operators but was also successful in conjunction with Rod VK2BQJ in having a 1½ hour contact with sideband on 432.1 MHz.

Although this is not an Australian record, it does break the current ZL record of 630 km set in 1971. The approximate distance for this contact was 1395 miles (2230.4 km).

Despite the non-compatibility of the repeater systems (600 kHz against 700 kHz and opposite input/output frequencies) and different simplex channels, it did not take the boys long to improvise. Our simplex channels 40, 50, 51, were soon alive with VK/ZL OSOs.

Signals varied between S5 and S9+. The opening was at times quite selective with stations only a few miles apart being unable to hear stations at the other end in a particular location but able to copy another station 40 or 50 miles away. A report was received that Graham VK2ZZV, operating as YJ8ZV, was heard working ZLs from Port Vila in the New Hebrides, this is yet to be confirmed. Geoff VK2BGF at Taree worked a ZL both using hand helds on simplex with R5 all the way.

At the same time as the opening across the Tasman, the conditions in both N.S.W. and in N.Z. for long range repeater operation was at a peak.

Although this is not the only known opening, this is probably the longest duration that is known of in recent times.

Phil Card VK2ZBX.

See Over — Chart and Photo.

1296MHz Record Contact

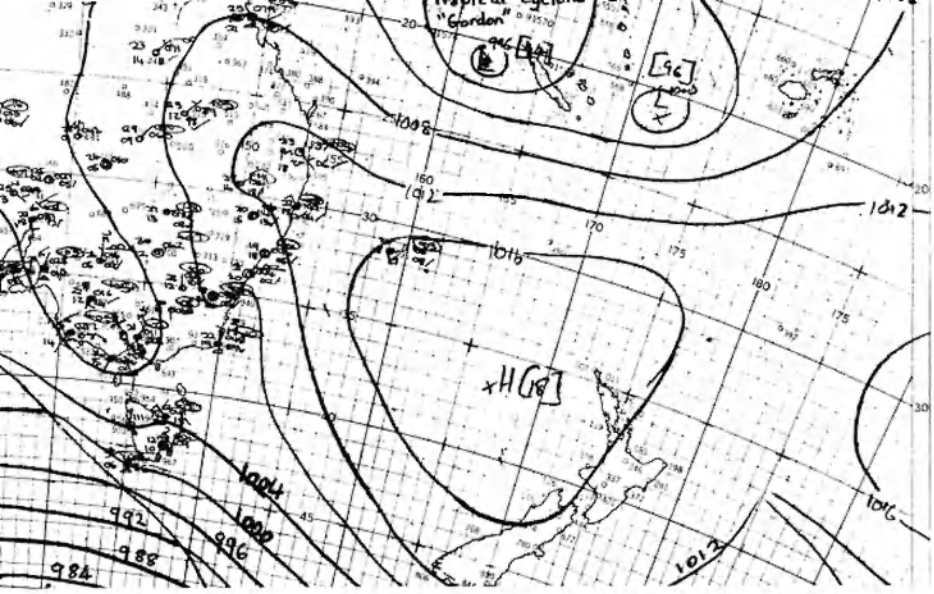
On 29-12-78 a world record contact was made on 1296.3 MHz between Wal VK6KZ/P and Chris VK5MC at 1230Z over a distance of 2109 km or 1310 miles. Signals 559 both ways.

VK6KZ/P was located at Walpole, west of Albany, at a Lat. south of 35 degress 1.24, Long. 116 deg. 53.24. Receiving set-up: 2 x BFR91 pre-amp to Microwave Modules transverter to FT101E at 28 MHz IF. Three foot horizontally polarized car mounted dish. Transmitter: FT101E to MM transverter to 432 MHz, 10 watt output to varactor tripisr, output 3W.

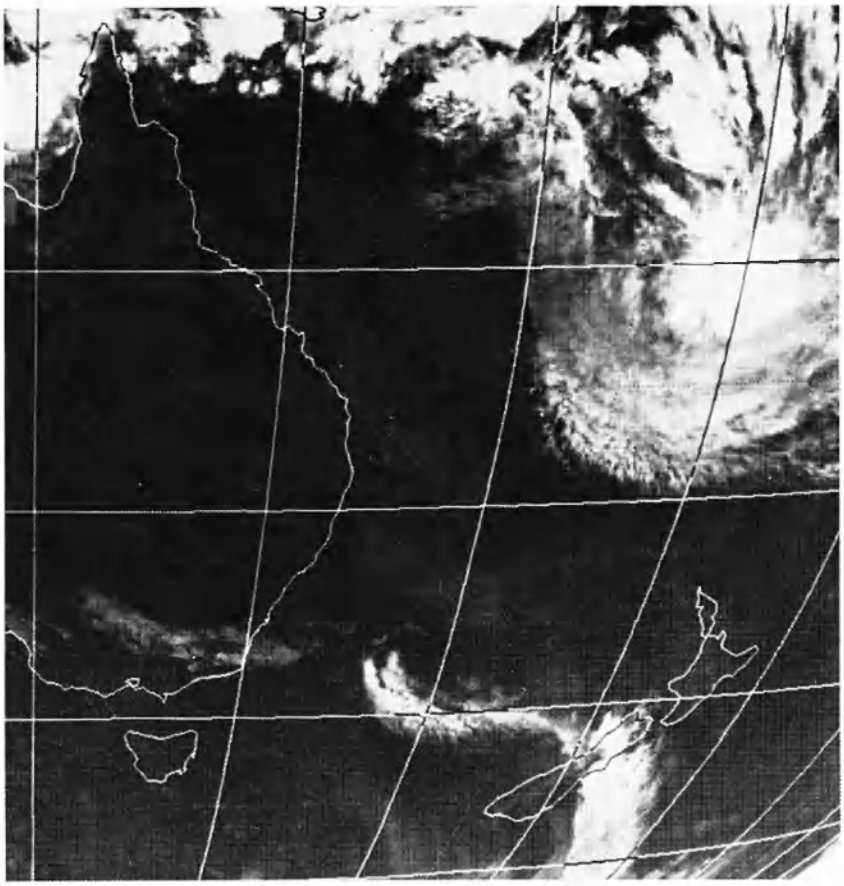
VK5MC was located at Hatherleigh near Millicent, Lat. south 37 degrees 28.55, Long. 140 degrees 15.05. Receiving converter to Drake R4C receiver. Antenna 28 foot dish intended for EME. Transmitter: 432 MHz driver to 3CX100A5 tripler, about 10 watts output.

Also on 29-12-78 at 1320Z David VK5KK at Wasleys worked Wal VK6KZ/P on 1296.093 MHz with signals 569. Distance 2024 km or 1256 miles. David used an MRF902 pre-amp to a Microwave Modules 144 MHz IF conveter to a low noise 144/28 MHz converter to Drake 2B receiver. Antenna a one metre dish with circular horn feed 11 metres high, coax loss measured at 2.5 dB, ERP about 35 watts. Transmitter: Homebrew 432 MHz equipment (28 MHz IF) to varactor tripler with 1.1 watts output.

It should be noted both these contacts are over a longer distance than the previous record of 1170 miles. Power levels used were typically low, once again demonstrating the fantastic path which exists across the southern coastline of Australia. Some five VK5s and three VK6s have participated in 1296 MHz two way contacts. Until now no ons had added any distance to the previous record.



Synoptic Chart 2100Z, 8th and 9th January 1979, showing stationary high pressure area which caused VHF/UHF opening.



Satellite intra-red photo showing high cloud associated with fronts and cyclone on 7th January 1979, 2100Z.

Chart and satellite photo supplied by courtesy of Bureau of Meteorology, P.O. Box 1289K, Melbourne 3001.

TRANS-EQUATORIAL PROPAGATION

Tests have been carried out between Southern Africa and the Mediterranean Region of Europe on both 50 MHz and 144 MHz.

The results have been encouraging particularly on 144 MHz where several contacts have taken place.

Transmitter powers of 100 watts to 250 watts have been used with antennae of from 9 to 48 elements.

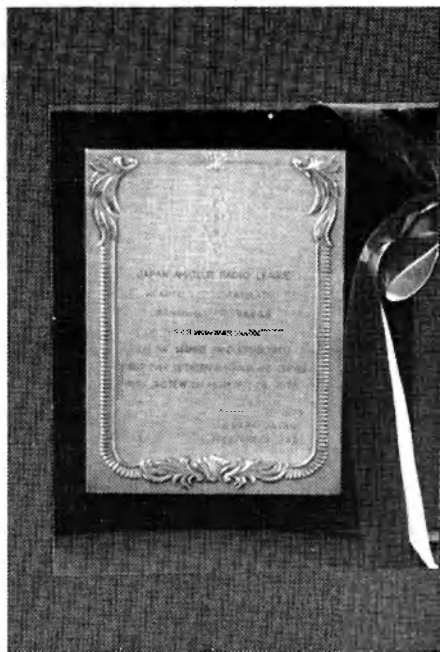
Tests are continuing particularly during the equinoxes and contacts between ZEZJV in Rhodesia and 5B4WR in Cyprus and SV1AB, SV1CS and SV1DH in Greece have taken place.

Six metre tests are hampered by the non-availability of 50 MHz in Europe. Some preliminary moves have been made to obtain a segment and listening tests are being carried out.

This information has been extracted from a very interesting article in Short Wave Magazine for August 1978. ■

Serge F8SH with the 50 MHz array used in TEP and Trans-Atlantic tests. From Lannion, France.

JARL plaque presented to VK8GB — see Cover photo.



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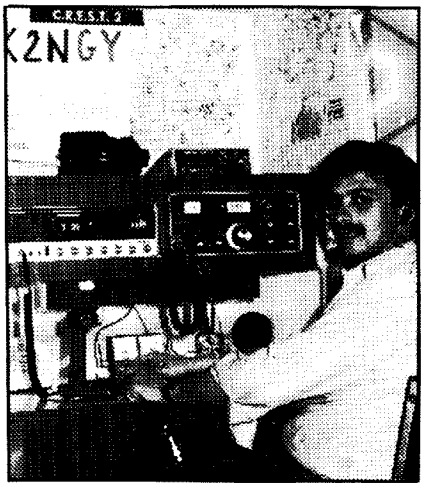

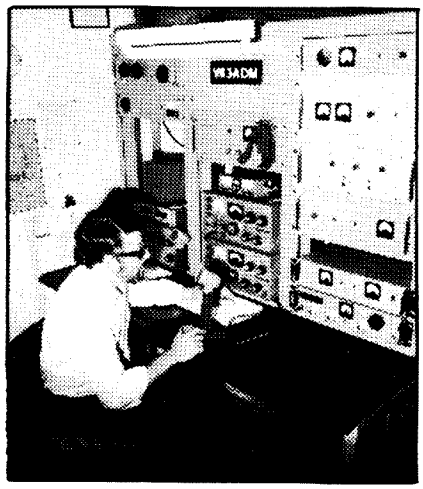

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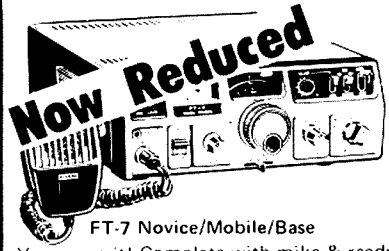

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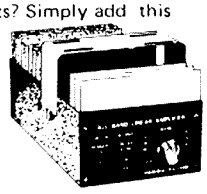

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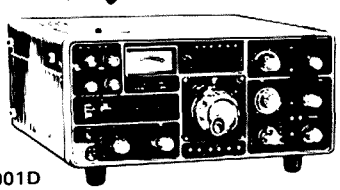

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TELEPHONE (047) 51-1394 A.H. (047) 54-1392

Sorry to have to announce an Increase in our KENWOOD accessories prices, which took effect already in December last year. Due to the long lead time for advertisement texts we could not include those in our last two ads. However we can still sell the TS-520-S and TS-820-S transceivers at the old prices and really consider then now by far the best values for your money.

All HY-GAIN antenna models mentioned below are available ex-stock. In the last 3 months of 1978 we have imported $100,000 worth of HY-GAIN antennas and in this way can obtain price breaks and pass the benefit on to our customers, to whom at least we do not have to explain and justify a price drop of from $399 to $299 for the TH6DXX! We also continue to supply ALMINOX anti corrosion chemical with our antennas.

HY-GAIN ANTENNAS:

18-AVT/WB 10-80M vertical 23' tall	$125
TH6-DXX 10-15-20M senior 6 el. Yagi 24' boom	$300
TH3-MK3 10-15-20M senior 3 el. Yagi 14' boom	$240
TH3-JR 10-15-20M junior 3 el. Yagi 12' boom	$175
204-BA 20M 4 el. Tiger Array 26' boom	$230
HY-QUAD 10-15-20M full size Cubical Quad	$260
2M 5 el Yagi with balun 6'3" boom	$25
2M 8 el Yagi with balun 12'6" boom	$30
2M 14 el Yagi with balun 15'6" boom	$40
BN-86 Balun for HY-GAIN beam buyers only	$20
BU-5 Balun suitable for 10M beams	$14

ANTENNAS SUITABLE FOR 10M:

11M 5 el. Yagi 17' boom	$70
11M G.P. with 3 radials	$20
CLR-2 11M ⅝ wave vertical w/3 radials 19'10"	$40
CLR 11M ⅝ wave vertical w/4 radials 22'9½"	$50

ACCESSORIES & COAX CONNECTORS:

SWR-50A Twin meter 3.5-150MHz 1KW SWR/Pwr meter	$26
Bumper Mount with ⅜" 24 thread antenna mount	$7
Gutter Mount with ⅜" 24 thread antenna mount	$4.50
5M length RG-58U with PL-259 one end	$3
M-ring body mount	$3
GLP Right angle RG-58U to SO-239 w/lock nut & weatherproof cap	$3.50
MLS Right angle RG-58U to PL-259	90c
PL-259 standard & solderless, RG-8U & RG-58U	75c
In-line splice RG-8U & RG-58U	75c
SO-239 chassis connector 2 & 4 hole mounting	75c
Right angles & T-connectors	$1.50
Double male & Double female connectors	80c
Mic. sockets, chassis & in-line, 3 & 4 pin	85c
3 circuit microphone jacks	85c
Crystals for QUARTZ-16 2M transceiver:	
Channel 51 T/R 146.55 — pair	$5
Channel 64 T/R 147.20 — pair	$5

ROTATORS & CABLES:

KEN KR-400 rotator with 28V AC control box	$125
CDR HAM III rotator with 28V AC control box	$175
No. 14 hard drawn copper wire — per meter	10c
¾" H.D. foam coax extra low loss — per foot	$1
Type RG-8U foam coax cable — per yard	80c
Type RG-58U coax cable — per yard	30c
8 core rotator cable — per yard	65c

KENWOOD PRODUCTS:

TS-520S 10-160M SSB/CW transceiver 240V AC	$700
TS-820S 10-160M SSB/CW w/Digital readout	$1100
TL-922 10-160M Linear Amplifier	$1200
TS-700SP 2M all-mode transceiver	$850
TR-7400A 2M transceiver	$500
TR-7500 2M transceiver	$350
DG-5 Digital display for TS-520S	$250
TV-506 6M transverter	$250
TV-502 2M transverter	$300
AT-200 Antenna matchbox	$175
DS-1A DC-DC converter	$75
DK-520 adaptor for DG-5 to TS-520 use	$20
LF-30A low pass anti-TVI filter	$30
VFO-820 external VFO for TS-820S	$185
VFO-520S external VFO for TS-520S	$160
SP-820 external speaker for TS-820S	$60
SP-520 external speaker for TS-520S	$30
YG-88C CW filter for TS-820S	$55
YG-3395C CW filter for TS-520S	$55
MC-10 hand held microphone	$20
MC-50 desk microphone	$45
HC-2 Ham clock	$35
SM-220 Station monitor	POA
BS-5 (TS-520S) & BS-8 (TS-820S) pan adaptors for SM-220	$65
TS-120V 12V DC mobile transceiver with NB, VOX, IF Shift & digital readout, 30W PEP	$600

NOVICE SPECIALS: Still available at these low prices

Transceivers for 10M coverage, AM/USB, 15W PEP:

(a) SIDEBAND SE-502 240V AC/12V DC w/inbuilt SWR/RF meter 28.3-28.6 MHz $150

(b) UNIVERSE 224M 12V DC 24 ch. 28.480-28.595 in 5 KHz steps Clarifier operates on both transmit & receive $125

Set of Crystals for Amateur license holders for converting 23 ch. 27MHz CB units to 28MHz, suitable SIDEBAND, UNIVERSE, KRACO, HY-GAIN etc. SSB/AM units:

Sets of 8 crystals converts to 28.480-28.595MHz .. $40

SUNDRIES:

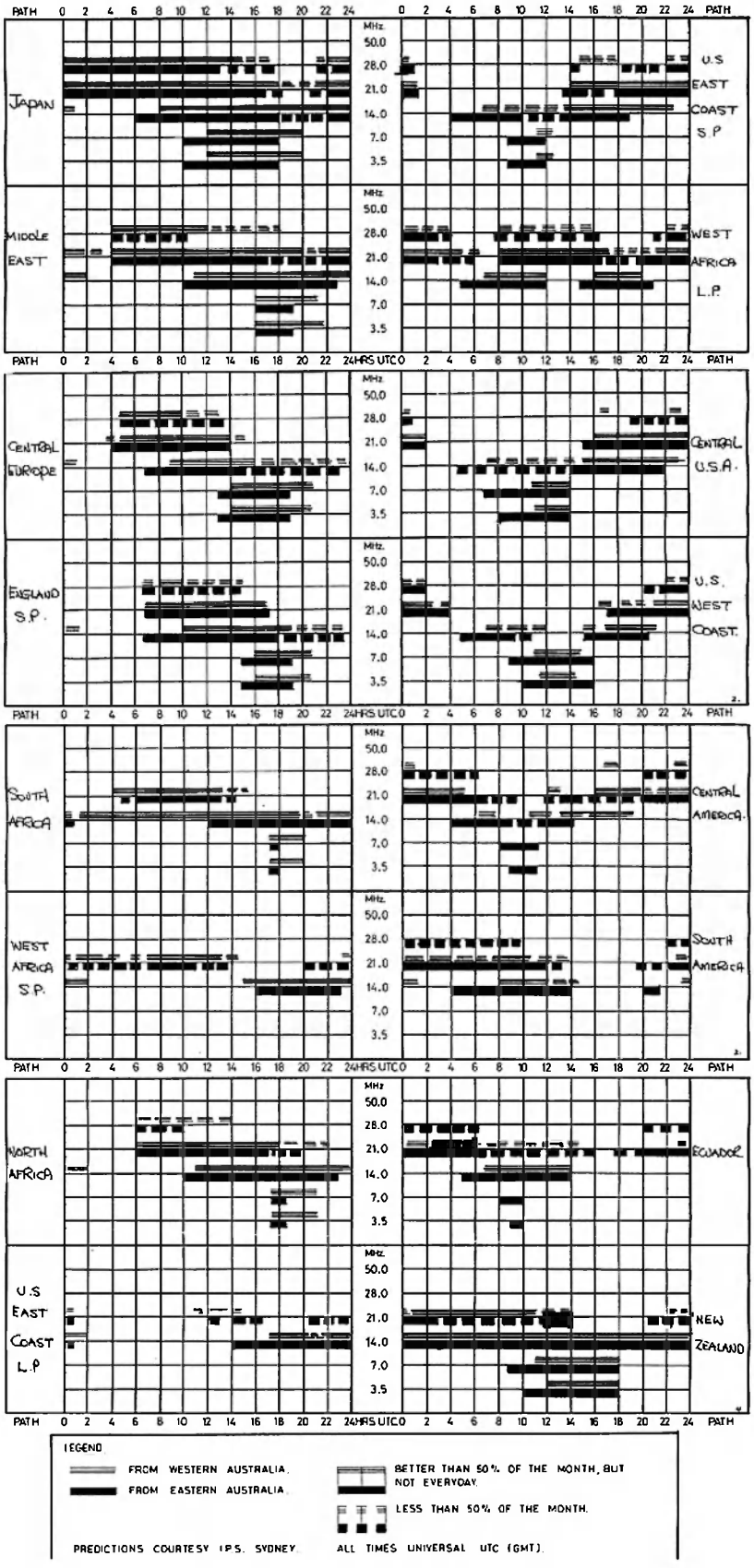
FRG-7 .5-30MHz General coverage receiver	$350
FT-7 10-80M 12V DC transceiver	$525
ICOM IC-202 2M SSB portable transceiver	$175

All prices quoted are net, ex Springwood NSW, cash with order, subject to change without prior notice. All risk insurance is free: freight by air, road, rail or post at cost. All orders cleared on a 24 hour basis after receipt with payment.

Arie Bles (VK2AVA) Proprietor **Roy Lopez (VK2BRL) Manager**

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



MAGPUBS

Members interested in overseas publications should please note constant changes in prices which are of course also affected by exchange rates. Overseas magazines are always posted direct to you from suppliers, so please allow about 3 months for transit delays.

1 yr.	$A.
OST	13.90
CQ	8.00
Ham Radio	15.50
Radio Communications*	14.25
CQ-TV*	4.50
Break-In	11.00
VHF Communications	7.20 (Air Mail $10.40)

*Please ask for membership form beforehand.

- **BACK ISSUES** of VHF Communications are normally available from stock except 1969 issues which are out of print. Single copies are $1.10 each to 1974, $1.40 each from 1975, $1.70 for 1977 and $1.80 for 1978 (average weight of each is 90g); VHF Communications binders to take 12 issues are $2.75 each and weigh 250g.
- **BACK ISSUES** of other magazines are not available but sometimes can be obtained against special order.
- **BACK ISSUES** of Amateur Radio are available to members. Some issues are out of print however. Issues March to May 1972 at 30c each, June '73 to Dec. '74 at 40c each, Jan-Oct. '74 at 50c each, Nov. 74-Aug. '75 at 70c each, Sept. '75 onwards at 90c each. Calculate average weight as 120g per issue.
- **AMATEUR RADIO** is available on overseas subscription at $10.80 for 1979. It is also available at this rate for libraries and organisations such as Government Departments, Schools, etc. All these are post paid by surface mail.

  For overseas subscriptions, please enquire about extra cost for air mail. As an indication of rates — extra for Air Mail to PNG is $10.00 for a full year.
- Recruiting leaflets "8000" are supplied free of charge.
- **OTHER ITEMS** are also normally available from stock. These include —
  - Membership Badges (specify full or associate, lapel or stick-pin) $2.00*
  - Overseas DX & USA Call Books, NZART Call Books, and many, many other interesting items — please send for lists.

  *Post Paid.

Except for magazine subscriptions all other items are normally available from **YOUR DIVISION**. To save on postages and packing, it is better to enquire there first if you live in capital cities.

Always please add extra for postage and packing except on current magazine subscriptions or where prices are stated as including postage.

MAGPUBS

A WIA MEMBERSHIP SERVICE
P.O. BOX 150, TOORAK, VIC. 3142

AWARDS COLUMN

Brian Austin, VK5CA

P.O. Box 7A, Crafers SA, 5152

CURRENT MEMBERSHIP OF THE AUSTRALIAN DXCC AS AT 31.12.78:

PHONE

VK6RU	327/359	6TW	121/123
5MS	324/356	4NO	120/124
4KS	324/341	4AAU	120/121
6MK	315/342	6IH	120/120
3AHO	304/326	4LZ	119/123
6LK	304/310	3IP	118/122
4UC	301/306	4UA	118/120
2APK	300/313	3BBA	117/121
4FJ	297/324	3BHN	116/116
4PX	297/304	6DR	115/118
5AB	295/318	2AZY	115/117
4RF	289/293	5EF	114/119
7DK	286/292	1AOP	113/118
2AAK	274/281	2YO	116/110
3ACD	273/281	2ZA	109/112
2AHH	265/280	3WT	109/109
2SG	265/271	2EB	108/110
3TL	264/277	3BCY	108/110
3JF	263/268	6NCZ	107/107
3AMK	258/265	3DF	106/109
4DO	257/274	3WU	105/105
4AK	256/258	3AYF	104/106
4VC	255/264	3LC	103/107
4CZ	255/258	5ZB	103/107
3VK	252/256	2SK	103/104
5LC	230/254	3GI	103/104
5WV	248/253	3PR	103/103
4VU	233/234	3WV	103/103
3HL	228/240	8KP	102/106
5RX	226/226	9WD	102/106
8CW	220/224	3NM	102/102
3ALM	217/221	4AWR	102/102
3SM	203/210	6BV	102/102
3TG	198/206	3XD	101/104
4XJ	192/200	4ZK/9	101/104
5BB	188/193	3SO	100/104
5QI	188/190	5QB	100/103
2AML	179/181	6WY	100/103
6KK	174/178	3HE	100/102
7LZ	173/184	4JS	100/102
7CI	153/156	3DU	100/100
3ZD	152/156	3AGB	100/100
4PJ	150/153	3AUL	100/100
1VP	148/152	4YG	100/100
6HE	148/150	3AKZ	99/105
2APW	148/148	2AXI	99/103
3SX	143/148	2GV	99/102
3JM	139/143	3AOO	99/102
2AGO	137/142	2KK	98/101
4SD	131/134	3CR	98/101
7JV	127/130	3WW	98/101
4QA	126/130	2NM	97/100
3QV	125/127	2AMU	95/103
3ZY	121/125		

CW

VK2EO	317/346	3AXK	200/218
2QL	310/339	4SD	187/206
3AHQ	308/331	4UC	172/178
3YL	302/325	5BO	163/181
4FJ	297/329	3AX	149/162
2APK	291/304	4XJ	147157
3XB	280/300	2QK	142/146
4RF	271/288	2SG	139/147
3NC	268/297	2AHH	137/150
6RU	267/296	4KS	130/138
4KX	261/266	3SR	127/133
3YD	258/281	3LV	122/126
3TL	248/260	3HL	116/121
3RJ	245/265	5XK	144/122
3KS	243/254	4PX	104/112
5RX	223/236	4LV	103/106
3JF	208/219	2GR	101/105
7LZ	203/229	8HA	97/101
4DO	202/224		

OPEN

VK6RU	327/359	3AXQ	130/134
4KS	325/349	2AXK	129/136
4SD	318/339	3LV	127 131
6MK	315/342	4EZ	127/131
2VN	311/336	6JK	135/136
2APK	311/329	6TW	125/127
4FJ	309/341	2AFA	124/127
3AHO	304/326	4LZ	120/124
4PX	304/315	1AOP	117/122
4UC	304/310	8KP	118/121
3YL	303/326	5EF	114/119
4RF	302/319	4DV	111/115
2SG	301/311	9TB	110 114
5RX	288/301	3ABA	108/115
3XB	286/306	3YS	107/121
3JF	281/293	6FI	107/107
3TL	280/293	5FY	105/112
2AHH	273/292	5EJ	105/108
3ACD	273/282	4UG	105/106
3NC	269/298	3PR	105/105
4DO	265/289	3AUT	105/105
4KX	265 270	6MA	105/105
3JA	262/289	3SO	104 108
4AK	259/261	3XD	104/107
3AMK	258/265	4YG	104/104
3HL	253/268	2AFG	103/103
3KS	243/254	3NAC	102/102
7LZ	233/259	9AP	102/102
4XJ	223/234	9BA	101/104
5QI	206/209	3AUL	101/101
7BC	205/205	2PA	100/112
2BC	197 200	2PF	98 103
6KK	191/197	2BRK	99/103
4BG	188/196	2AND	98/102
6HD	186/191	1QL	98/100
3HE	170/175	4JI	97/100
3SX	151/157	4QF	96/100
3QV	141/145	3ACS	93/101
4NQ	132/136		

The first group of figures represents the total number of current countries, the second includes those countries which have been deleted.

The order is determined by the number of current countries worked; if two stations have the same number worked, then it goes on the second group of figures, and if this is identical then it goes on the States in numerical order.

THE WESTERN KEYBASHER'S AWARD OF PERSEVERANCE

Barry Ross VK6IF
(Secretary, AARTG)

The Western Keybashers Award of Perseverance is offered to all Amateur or Short Wave Listeners who have contacted, or in the case of SWLs printed, 10 Western Australian amateurs on RTTY on any band. It is hoped to encourage the seeking of VK6 amateurs by other states and possibly other countries. Also available will be various endorsements such as all on one band, QRP working etc.

Conditions will be:—

1. Contacts with all WA amateurs with either Full or "Z" calls are permitted.
2. The only mode permitted is RTTY.
3. Only one (1) contact per WA station is allowed to count towards the Award.
4. All contacts must be two way RTTY contact except for the SWL class.
5. All contacts must be listed showing date, time and frequency and should be verified by one other amateur who should sign the log as well. QSL cards should not be sent.
6. All contacts after the 1st of July 1978 are eligible.
7. Cross band or cross-mode contacts are not countable.
8. A fee of $1.00 should be enclosed to cover postage etc.
9. Members of the AARTG are permitted to apply for the award.

RTTY contacts are not so easy to come by as phone or CW contacts so to work 10 WA amateurs should require some persistence on the part of the other station. All enquiries should be made to the Secretary, Australian Amateur Radio Teleprinter Group, G.P.O. Box N1002, Perth, 6001, W.A.

From AARTG Quarterly Newsletter No. 11.

HMS BELFAST IMPERIAL WAR MUSEUM
Issue of Special Amateur Radio Callsign

The amateur radio station aboard HMS Belfast moored in the Pool of London, between Tower Bridge and London Bridge, has been granted the use of the special callsign GB2RN for use when the ship is open to the public. Summer hours 1100 to 1800, winter hours 1100 to 1630, all times British local time. The station is interested in establishing schedules with other museum and special interest stations worldwide, these and other stations requiring skeds, please contact G3HZL, Don Walmsley, 153 Worple Road, Isleworth, Middlesex, TW7 7HT, England.

All HF bands from 1.8 to 28 MHz are covered, CW or SSB, it is hoped to have RTTY in the near future. G4HMS will be operational outside of the stated hours.

RNAS MERCURY AWARD

For contacts with member stations of the RNARS on a points basis, one point per station per band, double points for contacts above 30 MHz.

Special stations count double points, G3BZU, GB2RN, GB3RN, GB3RM, GB3FAA, GB3HMS, GB3GUZ, GB3RNR.

Award is issued in three classes: CLASS ONE — 20 points; CLASS TWO — 10 points, not available to UK stations; CLASS THREE — 5 points, not available to UK or Europe. Endorsements for AOB or mode, plus extra 10 points. Applications with £0.30 sterling or 6 IRC to Award Manager G3HZL, 153 Worple Road, Isleworth, Middx., TW7 7HT, England. Certified log data only, no QSLs required, award available to SWLs. ■

BOOK REVIEW

1000 Questions for Novice Licence Candidates by Kan Hargreaves VK2AKH, Dave Wilson VK2ZCA/NMW, Rex Black VK2YA.

This book consists of 1000 questions of the multiple choice type complete with answers. The questions cover both theory and regulations for the novice licence.

The book is intended to give intending novices an idea of the sort of questions which they will encounter in the exam. This is very necessary and must be met by a book such as this one because P&T do not provide old exam papers.

The book goes a long way to meeting the needs of novice candidates and their instructors for a ready source of typical questions. Indeed the compilation and checking of such a work is a daunting task. The authors deserve credit for tackling the job and carrying it out so well.

There are some typographical and other errors but they are a very small percentage and say a lot for the care and hard work that have gone into the book.

Those novice candidates and novice course instructors requiring a copy or copies should write to:—

WIA NSW Education Service
PO Box 109
Toongabbie NSW 2146

The price is $3 each with special arrangements for class purchases.

Also available from the above address are a range of texts and morse tapes at very attractive prices so send an SASE for details. ■

FROM THE OVERSEAS ADS

The new linears are all falling in line with the American FCC requirements and 10 metres seems to have all but disappeared from the linear bandswitch.

Dentron have a new DTR2000L using an Eimac 8877 valve and covering 160 metres to 15 metres. A nice looking unit. Henry Radio have brought out their 1KD5 which uses the Eimac 3-500Z triode. This model is more compatible with Australian power limits. Also 10 metres is included on their export models.

Swan have announced their 100 Mx transceiver which is a small transceiver with a very neat appearance. It is complemented by a matching AC power supply and an antenna tuner.

Ten Tec have released a neat new transceiver in their OMNI model with either a digital or an analog dial. Looks like all the new solid state transceivers have abandoned integral antenna matching. That outboard antenna tuner is a bit of a step back with two handed band switching. The old tune and load controls did give a bit of leeway for other than 50.00 ohms and zero reactance feedlines. After all most aerials aren't that good.

Well that brings us to aerials and Hygain have got back in with a range of 5 element monobanders. For 20 metres the 205 BA; for 15 metres the 155 BA; and for 10 metres the 105 BA. Should be most impressive. From F9FT come the Tonna range of 144 MHz and 432 MHz yagis which combine high performance with low weight and wind load. KLM are anticipating WARC79 with a range of log periodicals. ■

20 YEARS AGO

Ron Fisher, VK3OM

MARCH 1959

March 1959 brought two important events, one Federal and one State. The Silver Anniversary Convention of the WIA was working hard to prepare the brief for the forthcoming ITU conference at Geneva. It appeared that there would be enough finance to send our own delegate, and liaison had been taking place between the Institute and other major radio societies of the world so that a common policy for the Amateur Service might be achieved. In Victoria, a new home had been found for the WIA at 478 Victoria Parade, East Melbourne. March 1959 issue of Amateur Radio described the new property and also traced the history of the various locations that the Institute had been housed in.

Technical articles for March included: "AC Power Supply for the No. 22 Set". C. S. Rann VK3AAK described his heavy duty 12 volt DC power supply to power the popular disposals transceiver. Regulation consisted of a series resistor switched with a relay to reduce the voltage when the current drain reduced on receive.

Les Jenkins VK3ZCN described a simple noise limiter for mobile work. A 6AL5 double diode was shunted across the last IF transformer primary with apparently good results.

A reprint from QST, subtitled: "Become a Bridge Expert in one Easy Lesson", showed what an SWR bridge can and cannot do. For those who still consider the SWR meter as the end all for antenna measurements, this would be excellent reading today.

If you have a BC457A under the bench but you are not sure what it is, have a look in March 1959 AR. Noel Sinnbeck VK2OU presented a long list of surplus radio gear with a brief description of each.

Note that the new Geloso VFOs had been released. The 4/103 for two metres and the 4/104 for 80 through 10 metres and including the 11 metre band. The two metre model wisely provided for crystal control with the VFO to be used for calling only. I believe thata it drifted somewhat. ■

CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

FEBRUARY

10-11	BERU
10-11	JOHN MOYLE MEMORIAL FIELD DAY
4 and 11	TEN TEN NET OSO PARTY
24-25	FRENCH PHONE CONTEST

MARCH

3-4	ARRL DX PHONE CONTEST
17-18	ARRL DX CW CONTEST
24-25	CQ WW WPX SSB CONTEST
24-26	BARTG RTTY CONTEST

TEN-TEN NET QSO PARTY

0000-2400 GMT February 4 and 11.

EXCHANGE

Call, 10X number, ARRL section and name.

CLASSES

Single operator, multi operator and QRP. Max. 20 watts PEP output.

SCORING

DX contacts 2 points, add 1 point if with 10X number. QRP 2 points plus 2 points with 10X number.

Certificate will be awarded to Australian winner. Logs from members only to: Robert C. Mugherini, WA1AKS, P.O. Box 169, Randolph, Mass., 02368. (Full rules from FCM with SASE). ■

COMMONWEALTH CONTEST 1979 "BERU" — RULES

TIME:

1200 GMT Saturday 10th March to
1200 GMT Sunday 11th March.

MODE:

CW only 3.5 to 28 MHz. Call is CQ BERU.

Eligible entrants are radio amateurs licensed to operate in British Commonwealth call areas. In our region, Lord Howe VK2, Willis VK9, Christmas VK9, Cocos VK9, Norfolk VK9, Heard VK0, Macquarie VK0, and Australian Antarctica VK0 as well as VK1-VK8 are all separate contest areas.

SCORING:

5 points per contact exchange (RST 001 etc.); 20 bonus points for 1st, 2nd and 3rd contact with each call area other than one's own, on each band. There are 111 areas in all, with G, GW, GD etc. counting as a single area.

LOGS:

Separate logs are required for each band showing columns —

1. Date and time GMT.
2. Station worked.
3. No. sent.
4. No. received.
5. Band.
6. Leave blank.
7. Contact points claimed.
8. Bonus points.

Each band log should be separately totalled and should include at the end a check list showing areas worked and number of contacts per area. Separate band totals should be added together and the total claimed score entered on a cover sheet giving particulars of station, QTH, equipment, power, antenna and a declaration that the rules and spirit of the contest have been observed.

Entries may be single or multiple band. Single band entries should claim contacts on one band only, but submit details of contacts on other bands for checking only. Entries should be addressed to:

D. J. Andrews G3MXJ,
18 Downsview Crescent, Uckfield,
East Sussex, England, TN22 1UB.

Closing date: 14th May 1979 (by airmail, please). ■

COMMONWEALTH CONTEST 1978 — RESULTS

The following is extracted from the RSBG results of the 1978 Contest:

		points
1	ZL3GQ	6677
2	VE7CC	5821
3	VE3KZ	5687
4	VE5RG	5477
5	9HIEL	5393
6	VE3AKG	5249
23	VK4XA	3295

RECEIVING SECTION

2 Eric Trebilcock BCRS 195 2405 points.

AUSTRALIAN SCORES

23	VK4XA	3295	79	VK3MR	981
27	VK2GW	3060	80	VK8NT	968
34	VK7RO	2473	81	VK5FG	950
35	VK3ZC	2460	84	VK3YL	860
39	VK7CH	2340	88	VK5MD	820
40	VK3MJ	2321	91	VK5SW	755
45	VK7BC	2215	91	VK8GG	755
48	VK6AQ	1985	93	VK3YD	738
56	VK3RJ	1735	95	VK2BDU	735
61	VK7JB	1575	100	VK7RY	630
62	VK3YK	1538	102	VK4XJ	600
63	VK2AQF	1525	109	VK4UR	405
63	VK2XQ	1525	112	VK2BJL	368
65	VK6ED	1515	114	VK3XB	225
67	VK3KS	1240	116	VK5NLC	150
75	VK5BO	1058	119	VK7ZO	115

Single band entries among the above were:
3.5 MHz VK5NLC Overseas leader, VK7ZO
7 MHz VK2BJL
14 MHz VK3MR Overseas leader, VK8NT, VK3YD, VK4XJ.

ZLs other than ZL3GQ figured prominently:

11	ZL2BCO	4545	54	ZL1HV	1810
12	ZL2BR	4481	83	ZL1AZE	908
20	ZL1AIZ	3695	113	ZLZMM	320

also: 85 P29EJ 855

AUSTRALIAN AWARDS

The Silver Medallion for the leading VK entrant was won by Russ Colesion VK4XA, while the middle placing Bronze Medallion was won by "BO" Williams VK5BO.

How the leaders made their scores — Scoring details, QSOs/Bonus areas per band 80 to 10:

ZL3GQ	36/29	95/40	208/55	150/44	53/37
VE7CC	30/24	95/46	155/51	121/38	37/31
VE3KZ	18/17	91/36	155/54	150/35	96/23
VK4XA	0/0	34/26	119/49	37/27	13/12
VK2GW	11/10	50/34	63/44	20/19	9/9

VK4XA was unfortunate in that, having set the Sunday night for 80 metres, his power supply blew up with a few hours to go. The above figures are a reflection of band conditions in VK as compared with VE and ZL.

RSGB COMMENTS

The long-awaited improvement in band conditions at last appeared during this contest, bringing with it higher scores and OSO totals, and an increase in overall entries. Especially pleasing were the 28 MHz openings and, for Europe, the long 7 MHz opening to the Canadian west coast.

The top two positions this year go to the same stations as in 1977, although Peter Watson ZL3GQ, increased his margin with a score that put him well ahead of the field. There were many comments from all areas on his outstanding and consistent signal on all bands, and mention should be made of his extensive antenna farm which consists of 3/4/6 el. quads for 14/21/28 MHz and a 160m dipole at 100 ft. for the lower frequency bands. In second place was Lee Sawkins VE7CC, who made 438 OSOs. For yet another year (the sixth in succession) Al Slater G3FXB, won the Col Thomas Rose Bowl as the leading entrant from the UK.

The only band to attract many single-band entries was 14 MHz. Here, as in recent years, Stuart Jesson G4CNY was the leading UK station. He made 142 QSOs using a T4XC/R4C combination and a 2 el. quad. The overseas leader on 14 MHz was M. Campbell VK3MR who had a total of 90 QSOs.

The HF Contests Committee was disappointed to see the continued decline in the number of entries to the receiving section and would welcome suggestions on how this could be improved. The small entry, however, in no way detracts from the win by Ron Thomas BRS15822, who managed to double his score of last year and, in so doing, put an end to the winning run of Eric Trebilcock BCRS195, who has to be content with second place this year.

Many stations will notice that in the tabulation they have suffered a reduction in their claimed scores. In common with all RSGB events, the Commonwealth Contest is subject to detailed log checking. Especially damaging to a score can be an error in callsign, which loses all points (QSO and any bonus) to both sides of the QSO. Even worse are unmarked duplicate contacts, of which the committee takes a very poor view, and de-

ducts up to three times the number of points claimed. Other errors — mistakes in reports or serial numbers — lose a proportion of the points claimed. The implications for care during the contest and checking of the entry should be obvious.

The committee was pleased to receive comments and suggestions with the logs and these will be considered in due course. Suggested changes to the rules included additional bonus points for each UK prefix and a longer period for the contest — possibly 24 or 30 hours out of 36 with a rest period. Over recent years, with the decline in activity from the rarer call areas, particularly in Africa, this contest has become very much a G/VE/VK/ZL affair but, despite this fact, it still remains a very popular event, as evidenced by many log comments. It is hoped that the rise in the number of entries continues in future years.

Note: No changes have been made in the rules for 1979. See this issue AR. ■

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

DATE TIME GROUPS AND TIME ZONE SUFFIXES

Date Time Groups (DTGs) are used in message writing and instructions to uniquely define a particular time and date; for example 12 noon GMT New Year's day 1979.

DATE, TIMES

Date time groups are normally written as digits, the first two being the date and the final four the time, using the 24 hours clock. These are usually followed by a time zone suffix letter and can be subscripted as necessary with month and year. Hence our example becomes 011200Z JAN 79.

ZONE SUFFIXES

When it is necessary to connect local mean time with Greenwich Mean Time, the zone suffix system of expressing time is used. It is particularly necessary when dealing with places keeping different local time. The system is as follows:

(a) Variations of local mean time from Greenwhich Mean Time (GMT) are denoted by adding the appropriate suffix letter to the date/time group as follows:—

Number of hours local mean time is ahead of GMT	Zone suffix	Number of hours local mean time is behind GMT	Zone suffix
1	A	1	N
2	B	2	O
3	C	3	P
4	D	4	Q
5	E	5	R
6	F	6	S
7	G	7	T
8	H	8	U
9	J	9	V
10	K	10	W
11	L	11	X
12	M	12	Y

GMT is denoted by the suffix Z

(a) Thus 1800 hours Eastern Australian Summer Time becomes 1800L or 0700Z.

(b) Where the local time is an odd multiple of half-an-hour ahead or behind GMT, a two-letter suffix is used, e.g., 1500 hours SA standard time which is 9½ hours ahead of GMT would become 1500JK, or 0530Z.

From a WICEN point of view we will often get messages with DTGs in the preamble and all WICEN exercise instructions should use DTGs to enable members to gain experience and to eliminate any chance of confusion. ■

DIVISIONAL NOTES

VK2 DIVISIONAL NOTES

Notice is given of an Extraordinary General Meeting of WIA-NSW Division to be held on 23rd March 1979 at the Wireless Institute Centre, 2000 hrs. Details are in February "MB" and include suggested disposal of WI fee, constitutional matters and vote of no-confidence. ■

The Annual General Meeting of the VK2 Division of the WIA will take place on Friday, 6th April, 1979. The successful candidates for Council will be announced at this meeting. Nominations are sought for Councillors of the Division and these must reach the office of the Institute, 14 Atchison St., Crows Nest, no later than 21st February, 1979.

All nominees must be full members of the Division as must be the proposer and seconder of the nominee. On reception of more than seven nominees ballot papers will be forwarded to full members in early March. These ballot papers must be returned to be received by the Administrative Secretary, 14 Atchison Street, Crows Nest no later than Thursday, 5th April, 1979.

The following format may be used in nomination of a member for Council.

I ..... hereby agree to nomination as member of Council of the N.S.W. Division of the WIA.

.....(Signature) .....(Date)

I ..... wish to propose.....
..... for nomination as a member of Council of the N.S.W. Division of the WIA.

.....(Signature) .....(Date)

I ..... wish to second .....
..... for nomination as a member of the N.S.W. Division of the WIA.

.....(Signature).....(Date) ■

Full licensee call signs have now reached the "D" series of suffixes — i.e. VK2DAA.

N.S.W. Division members are notified that the Annual General Meeting of the WIA New South Wales Division will be held in the Wireless Institute Centre on Firday 6th April 1979 from the normal time for meeting (usually 19.30h). Nominations for Councillors (a form was included as part of the January Minibulletin) must reach the Institutes' registered office no later than 21st February 1979. Ballot papers, if these are required, will be sent out early in March and are to be returned to the registered office by 5th April 1979. All details were included in the January 1979 Minibulletin insert into Jan. 1979 AR.

VK3

The Midland Zone Convention will be held in Bendigo on Sunday 25th February from 10.00h at the Strathfieldsaye Hall. ■

GEELONG RADIO AND ELECTRONICS SOCIETY

The Geelong Radio and Electronics Society, VK3ANR, has recently been livened up by the forming of two groups, an RF group, and an AF group.

The following test equipment for use by members, is now on order, a CRO, a signal generator, a GDO and some general tools.

A printed circuit board workshop is now operating using presensitised board and excellent results are being achieved. The AOCP, LAOCP and NAOCP classes are held free of charge to members on Mondays at 7.30 p.m. and Syllabus meetings on Thursdays at 8.00 p.m. Visitors are welcome at the rooms on the Breakwater Road, Belmont Common, Geelong.

Address for Correspondence:

Geelong Radio and Electronics Society, VK3ANR, P.O. Box 962, Geelong, 3220. ■

MAGAZINE INDEX

Syd Clark, VK3ASC

BREAK IN September 1978
A Six State Logic Probe; A Battery Eliminator for 12 volt Rigs; QRP CW Transceiver; Simple Conversion of Pye Galaxie Radio Telephones to 2m FM; ITV and TVI; 80 metre Fox Hunting; Amateur Radio, What of it's Next 50 Years.

CO August 1978
Clipperton Island — A Dream Come True; A Versatile All-Band Antenna Tuner; One Last Crack at the Code; 1977 CQ WW DX Contest (Phone Results); Insurance and Your Radio; Building Enclosures for Small Units; The W20NV Delta/Slope Antenna; Dummy Up for DX; The Night of the Iguana; Gimmicking a CB Mobile Antenna for Two Metre Use.

CQ September 1978
Results of the CQ 1977 WW DX Contest (CW); An RTTY Primer, Pt. 6; Clipperton Island — A Dream Come True, Pt. 2; The GR 821 RF Admittance Bridge, Pt. 2; An Effective 40 and 75 Metre Vertical Antenna; The RF Faucet, A Simple 2 Metre Mobile Antenna.

HAM RADIO July 1978
General Purpose VHF Receiver; Sub-audible Tone Encoders; Pseudo-Logarithmic Spectrum Analyser Display; Variable Voltage Power Supply; Radio Sounding System; Frequency Display for the Heath HW2036; Phase Locked Loops; Voltage Calibrator for Digital Voltmeters; Multi-Band J Antenna; Colpitts Oscillator Design; Visual Aids for Microcircuits; RFI Cures for Home Entertainment Devices.

OST September 1978
Meet the Remarkable but Little Known Vackar VFO; Designing a Vertical Antenna; Pre-Scaler Updates the DVM/Frequency Counter; An Auditory Dip Oscillator; A Solid-State Transverter for 70 cm; An Inexpensive Capacitance Meter; Direction Finding — European Style; JG1QFW, First Solo Explorer to Reach the North Pole; Operation Outreach; Ask Not What Amateur Radio Can Do for You; Results, First Annual ARRL EME Competition; Results, FMT; Dawn of an Era; WARC 79; Moved and Seconded; Amateurs Lose on Reconsideration of 10 Metre Amplifier Ban; We Are Not Alone.

OST October 1978
A Newly Discovered Mode of VHF Propagation; The Canadian Wonder; A 25 kHz Calibrator for the HW-8; Build This High Performance Top-Band Converter; SSTV Pictures from Your Microcomputer; Medium-Scan Television — A New Frontier; Build This Sardine Sender; You and Your Log; How Safe Is Your Ham Shack, Pt. 3; A Different Kind of Courage; Sweepstakes for the Little Guy; Try a Hamfest Code-Contest; They Made It — W50DC/Double Eagle II; QST Abbreviations; 45th Annual Sweepstakes Announcement.

RADIO COMMUNICATION October 1978
Scrolling for the G3PLX vdu; A Colinear Antenna for Repeaters; Icom IC240 144 MHz Transceiver (Review).

RADIO ZS June 1978
How to Fit a Rotating Mast in a Tower.

RADIO ZS July 1978
Flat Lines for Flat Dwellers; How It All Began; The 10 Code.

RADIO ZS August 1978
Dual Purpose Battery Indicator; How It All Began; Common Repeater Problems.

SHORT WAVE September 1978
Antennas, The Weak Link, Pt. 5; Top Band for Next to Nothing; Memory Addition to G4CIK Morse Keyer; Courses for the RAE.

73 August 1978
Radio Row Revisited; How to Work Europe With an HT; What? CB Repeaters?; A Complete X-Band Transmitter; Shock; The PVC Portable; The Amazing Mobile Life Preserver; Power Line DX; Ruddy Good Show; Rock Steady; In the Eye of the Beholder; The End of RF Feedback; The Heavyweight; Sleight of Hand; CB to 10; In Search of Stability; On Your Mark; A WWV Primer; The Swiss Fork Special; The End of the Rats Nest; 2001-3; The Kalculating KIM-1; A No-Cost Digital Clock; The Basics of L-Network Design; Hung Up on the Autopatch; Updating the Wilson 1402; Quick Check for TT Pads; The Op Amp Beam Heading Indicator; Super Charger; HW-101 Owners, Check This; Sidetone is a Must; The Tiny Tone Repeater Saver; Dispense It Right; Ham Radio is NOT a Rich Man's Hobby; The Toggled 22; Custom-Make Your Key Paddle; Don't Let Your Battery Die; New Life for Double Sideband; Time and Tide — Digitally; The Sneaky J; The End of Autopatch Embarrassment; The "Do It All" Digital Clock; More CW Fun With Break-In Keying; Poor Man's Cruise Control. ■

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IC-22S. FM 10 Watts 2M Mobile Transceiver. .... $309.
IC-211. ALL Mode 2M.Transceiver. ..... $770.
IC-280. Mobile 2M.Digital Transceiver. ..... $429.
IC-701PS.Power Supply..... $275.

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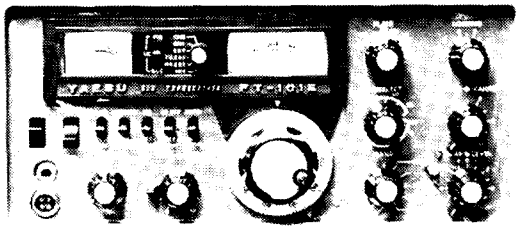

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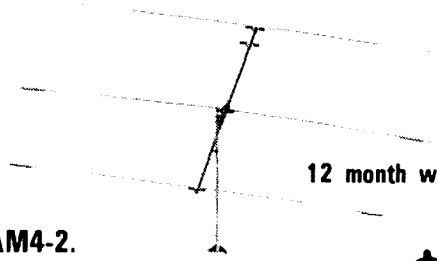

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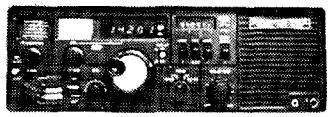

YC-601. Digital readout Adaptor for FT-101E  $279.

QTR-24. $33.

YD-148 $49.

YAESU

FT-901DM.160-10M Transceiver. ..... $1595.
FT-901DE.160-10M Transceiver. ..... $1305.
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FC-901. Antenna coupler incl SWR and PWR. .... $269.
YO-901. Monitorscope for FT-901. inc.pan adap. STBA.
TV-901. Transverter for FT-901.6M,2M,70cM... STBA.
SP-901. External Speaker for FT-901..... $53.
FT-101E. 160-10M Transceiver. ac only ..... $839.
FT-7. 80-10M Transceiver..... $389.
FP-4. Matching Power Supply..... $78.
FRG-7. General Coverage Receiver..... $369.
FRG-7000. Digital General Coverage Receiver. ... $675.
FT-227RA 2m. Mobile Transceiver..... $389.
FT-225RDM. 2M. ALL Mode Transceiver. ..... $995.
FL-2100B. 1200 Watt Linear Amplifier. ..... $559.
FL-110. 200 Watt DC input Linear Amplifier..... $245.
YO-101. Monitorscope for FT-101E. ..... $379.
YP-150. Dummy Load-Watt Meter..... $112.
YD-844. Desk Mic..... $52.
YO-148. Dynamic Desk Mic..... $49.
QTR-24. 24 hr.World Clock..... $33.
FV-101B. Matching VFO for FT-101E. ..... $155.
YC-500S. 500 Mhz. Frequency Counter..... $330.
YC-500J. 500 Mhz. Frequency Counter..... $359.
FTV-250. 2M.Transverter..... $329.
SP-101B. Matching External Speaker for FT-101E . $53.
YC-601. Digital readout Adaptor for FT-101E .... $279.
FC-301. Antenna Tuning unit inc. SWR,Pwr meter. $239
YO-301. Monitorscope. ..... $319.
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DS-1A DC Converter TS-520-820..... $74.
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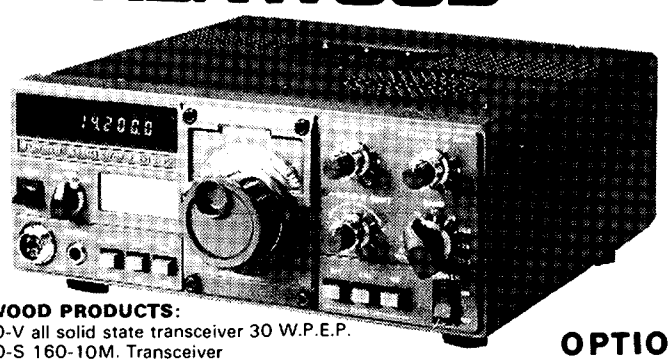

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R-820-S 160-M. Transceiver
R-820 Communications receiver
TS-700-SP. All mode 2M. transceiver.
TS-600-A All mode transceiver
TS-7000-A 2.M FM. 25W. Transceiver
TR-7500 2.M. FM. 10.W transceiver
TR-7600 2.M. FM digital transceiver 800 CH.
TR-8300 70. CM. FM. Transceiver
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VFO-30-G Remote VFO for TR-7200 TX-12. MHZ-RX. 45. MHZ.

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PS-20
MB-100
YK-88C
SP-120

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SP-8 Regulated Power supply 8.Amps
VFO. 520-S External VFO for 520-S
VFO. 820 - External VFO for 820-S
VFO. 700-S External VFO for TS-700-SP
SM-220 Station monitor
BS-8 and BS-5 PAN adaptor
SP-820 Deluxe Speaker consul
SP-520 Speaker consul
SP-70 Speaker consul for TS-700 & 600
VOX-3 Vox unit for TS-700 & TS-600
DS-1-A DC converter for 520-S & 820-S
DG-5 External digital display TS-520-S
AT-200 Antenna coupler
MC-30-S Microphone 500 OHM
MC-35-S Microphone 50. K. OHM
MC-10 Microphone 50. K. OHM.
MC-50 Deluxe desk Microphone dual imp
HC-2 Deluxe Ham clock
YG-68 CW. filter for TS-820
YC-3395 CW filter for TS-520
LA-30-A Lowpass filter
HS-5 Headphone
HS-4 Headphone
RD-15 Dummy load 450 MHZ. 15. Watts
RD-300 Dummy load 150 MHZ. 300 Watts.

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TH3-JR 10-15-20M junior 3 el. yagi 12' boom	$175
204-BA 20M 4 el. Tiger Array 26' boom	$230
HY-QUAD 10-15-20M full size cubical quad	$260
2M 5 el. Yagi w/balun 6'3" boom	$25
2M 8 el. Yagi w/balun 12'5" boom	$30
2M 14 el. Yagi w/balun 15'6" boom	$40
8N-86 Balun 50 ohm 1:1	$20
BU-5 Balun 50 ohm 1:1	$14

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11M ¼ wave G.P. w/3 radials.	$20
CLR 5/8 wave vert. w/4 radials 22'9½" 11M.	$50
CLR-2 5/8 wave vert. w/3 radials 19'10" 11M.	$40

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KEN KR-400 rotator medium duty 28V-AC	$125
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SKY 80 six feet long 3.5 MHz	$28
SKY 40 six feet long 7.060	$26
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SKY 15 six feet long 21.100	$25
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CRYSTAL FILTER, 9 MHz, similar to FT-200 ones. With carrier crystals. $39

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Female to female joiner
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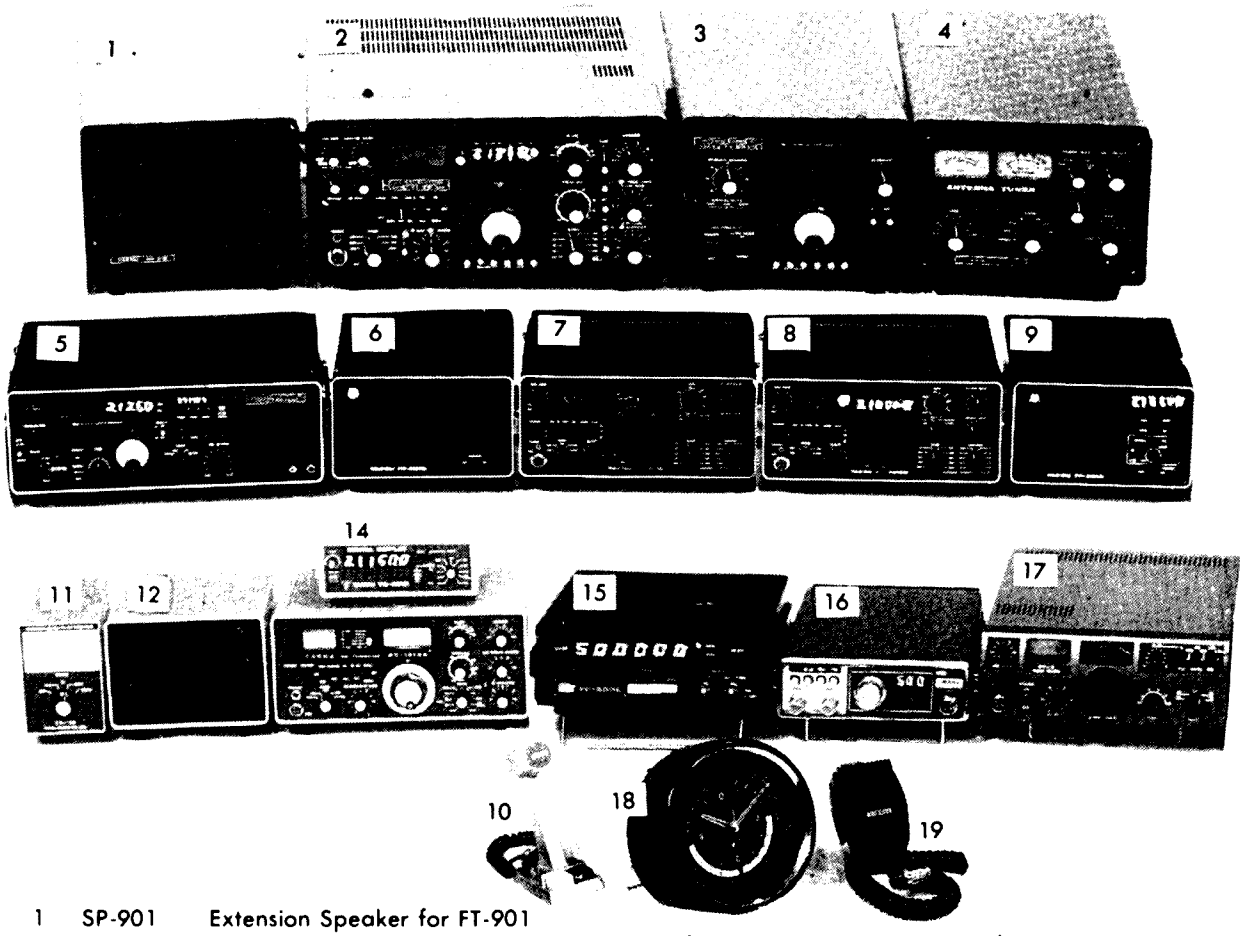

1	SP-901	Extension Speaker for FT-901
2	FT-901DM	All HF Band Transceiver with Everything!!
3	FV-901DM	VFO with Scanner & memory for FT-901DM
4	FC-901	Antenna tuner for FT-901
5	FRG-7000	Full band HF Receiver with Digital Clock
6	FP-301	25 amp 13.5V Power Supply with Speaker
7	FT-301	All HF Band Transceiver
8	FT-301D	All HF Band Transceiver
9	FP-301D	25 amp 13.5V deluxe Power Supply with Digital Clock, Speaker & I. D. facility
10	YD-844A	Base Microphone
11	YP-150	Dummy Load
12	SP-101	Extension Speaker for FT-101E
13	FT-101E	HF Transceiver
14	YC-601B	Digital Counter for FT-101E
15	YC-500S	Frequency Counter
16	FT-227	2 metre FM Transceiver
17	FT-7	HF mobile Novice Transceiver
18	QTR-24	World Clock
19	YD-846	Mobile Microphone

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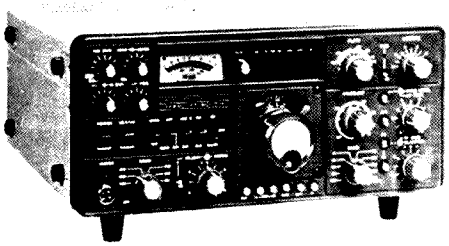
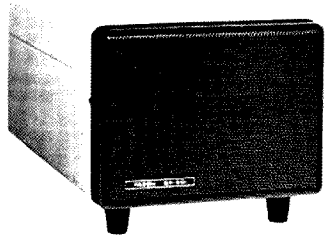
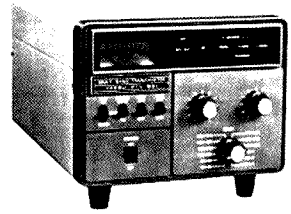


FT-901 DM De-luxe SSB, CW, AM, FSK, FM, HF Transceiver 160-10m, P.A. 2 x 6146B, Dig. readout, freq-memory, elect. keyer, rejection tuning, variable IF, audio peak filter, automatic tune-up timer, AC-DC operation etc., etc. Write to Bail for new colour leaflet on 901DM series.



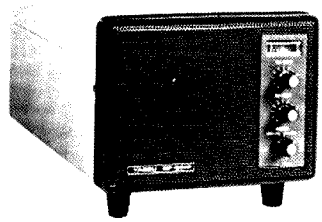
SP-901 Speaker
Dress up your station with the addition of the SP-901 external speaker. High quality speaker unit housed in an attractive cabinet to match the 901 styling.



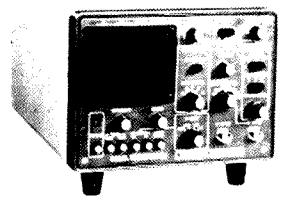
FTV-901 . . . VHF/UHF OSCAR Transverter.
A three-band VHF/UHF transverter from Yaesu for your FT-901 DM station. Basic unit is equipped with 144 MHz capability and option for 50 and 430 MHz plug-in modules. Repeater offset for 6 and 2 meters and full duplex operation on OSCAR modes A/B/J with external receiver.

FV-901DM Synthesized, Scanning External VFO
Flexibility in frequency control; PLL synthesis in 100 Hz steps; auto scan mode, which will search the band for a signal; manual mode which scan at one of three rates while you activate lever switch. Memory bank for up to 40 frequencies and clarifier for fine tuning between the 100 Hz steps, etc.

FC-901 Antenna Coupler
Efficient, compact antenna tuner for FT-901DM series. Features in-line wattmeter, SWR meter, and provision for selection of three coax-fed antennas and one single wire antenna. Presents a 50 ohm load to your FT-901 DM, all across the band.



SP-901P Phone Patch/ Speaker
Integrate your FT-901DM station with the SP-901P combination hybrid phone patch/speaker. Styling, size and interconnections match the FT-901 series of transceivers.



YO-901 Multiscope
High-performance oscilloscope, two-tone generator and an optional band scope (panadaptor) for instant determination of band conditions and activity. Monitors both received and transmitted signals. Convenient interconnecting jacks for 901 series.

As the authorised Yaesu agent and factory representative for Australia since 1963, we provide after-sales services, spares availability, and 90-day warranty except power valves and semi-conductors.

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JIM BAIL VK3ABA

60 Shannon St., Box Hill North, Vic., 3129.
Ph. (03) 89 2213

Yaesu Agents in Australia since 1963

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W.A.	H. R. PRIDE, 26 Eochart St., Como, 6152	Ph. 450 4379
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	PRINS RADIO, 123 Argyle Street, Hobart 7000	Ph. 34 6912
	J. D. ELECTRONICS, 64 Wentworth Street, Launceston 7250	Ph. 44 5000
N.S.W.	Aviation Tooling, STEPHEN KUHL, 104 Robey Street, Mascot 2020	Ph. 667 1650
	W. F. BRODIE, 23 Dalray Street, Seven Hills 2147	Ph. 624 2691
	DIGITRONICS, 186 Parry Street, Newcastle West 2302	Ph. 69 2040
	RIVERCOM, Sid Ward, 9 Copland Street, Wagga Wagga 2650	Ph. 21 2125
QLD.	MITCHELL RADIO CO., 59 Albion Road, Albion 4010	Ph. 57 6830
	TEL AIR ELECTRONICS, 187 George Street, Brisbane 4000	Ph. 221 7272
A.C.T.	QUICKTRONIC, Jim Bland, Shop 11, Altree Court, Phillip 2606	Ph. 81 2824

1978 REMEMBRANCE DAY CONTEST RESULTS

WINNER — VK1 DIVISION

	a.	b.	c.	d.
VK1	204	1556	26047	129237
VK7	321	1581	34121	107877
VK6	706	2641	58265	85169
VK5/8	1149	1819	69872	62630
VK4	1071	2054	59325	57446
VK3	2615	1566	48463	20099
VK2	3312	1498	44926	15063

a. Licences.
b. Average top 6 logs.
c. Total points from sections a, b and c.
d. Trophy score.

The following details show the section and the points scored:

VK1 PHONE

GB	2013	NBH	413	ZT	142
PM	1768	KV	401	ZCB	127
RK	1082	US	384	NBI	107
BC	1074	PA	337	ZTX	106
TD	1018	QJ	309	DS	82
SB	949	BS	305	VW	79
GM	757	NAV	293	VP	69
BX	729	FT	289	OE	66
RH	696	NBM	272	ZJR	55
DV	650	ZAR	235	ZAG	34
NAT	621	NAO	196	TR	32
KP	513	EF	195	ANR	23
XU	460	YS	186	ML	12
TH	454	JJ	184		
MF	448	WI	171		

VK1 CW

PG	1366	DH	530		

VK1 OPEN

AOP	1552	RC	1153	NAS	505
DA	1482	JN	1034	AVM	89

VK2 PHONE

ARX	1794	NMG	295	HJ	106
BGI	1284	AIC	289	NWE	102
ADZ	1276	CI	286	BJT	100
BAX	1164	ZBV	272	ZIA	100
BDN	1135	AUX	267	NJN	100
BAM	1128	XT	227	NWL	89
BGL	1011	OC	223	BDT	88
AGF	935	AKO	214	NYZ	82
BFR	809	AGZ	196	LE	80
BIP	795	NFT	186	NUK	78
BUC	747	ZCI/		NFG	74
BFG	678	NRB	180	ADL	71
BSB	652	NHD	180	WD	70
NUO	640	BNO	177	AZD	65
AUX	625	NAM	175	CO	60
APQ	597	PN	166	1 ZBL/	
LF	571	AJH	166	2	52
RX	563	BHD	166	AWF	39
ASH	555	APP	165	VW	38
BXD	467	BJN	164	NRY	38
NMH	401	EY	161	NZG	38
YEZ/		AEC	151	BIO	35
NQL	382	WT	145	NDC	32
BOD	359	AJL	126	ZVH/	
NYL	339	NHA	125	NTN	28
PT	325	AZR	124	IK	27
AO	308	AXL	122	CF	22
NV	306	WA	118	AWX	13
BAV	304	JQ	117	ZSG	13
BQS	301	OH	107		
WG	296	NXB	107		

VK2 CW

CX	1278	II	538	IV	200
BF	1020	BCC	470	JM	154
QL	964	GT	392	BAC	152
XQ	942	HC	240	RJ	114
AQF	872	ABM	228	VM	86
BHO	608	JY	224	BSG	44
EL	563	GR	210		

VK2 OPEN

BO	2073	SW	197	AJQ	47
OO	1283	CU	191	NAW	34
BTZ	1253	ADR	152	ZVN	23
NPS	1196	AHU	113		
AOA	1178	HZ	105		

VK3 PHONE

ADW	1402	AAW	383	BFN	111
ANA	1309	NMW	367	ARS	108
AQZ	1280	AEC	348	AOM	101
NNX	1199	NBP	335	ZE	98
AFE	1119	ZJ	326	WY	94
BIR	1105	RU	324	YFZ	91
BLF	1096	AGH	318	BIT	89
ANM	1070	NAW	316	BIE	88
DF	985	QH	303	LR	88
BHU	894	OD	299	RF	88
DS	882	SZ	290	BSR	83
NLO	826	XY	281	ZAE/	
BLY	813	BII	275	NED	83
NMI	791	BJM	266	NMX	80
NLS	736	WJ	244	ZAO	78
AYF	699	AIE	239	BMV	76
NJE	676	NAF	219	YLD	76
YO	638	AMK	218	AVQ	74
XF	604	BGM	212	JY	73
SM	570	ZYL	203	OK	59
LP	564	NOV	190	BJW	56
BBM	540	JV	183	RN	51
YQ	511	BIS	182	AAI	42
NDF	493	ZUX	173	ACS	39
NB	469	NNU	154	BER	36
AER	469	BCC	151	ZXW	34
HE	465	ZR	141	ZNQ	22
RV	429	YIW	137	BME	21
JG	424	NFQ	131	BDL	15
KK	389	NRB	121	ATN	6

VK3 CW

AEW	774	AJB	398	FG	56
FC	748	AMD	396	ACV	55
DG	624	ANI	320	AT	46
RJ	574	MR	209	FA	38
KF	518	SV	184	AYL	26
YK	474	NK	184	OF	22
BDH	470	YL	84		

VK3 OPEN

UM	2291	HY	407	AZT	205
WP	1758	VF	387	ALS	201
WW	1354	PR	330	KS	101
YF	636	XB	315	NKY	83
OP	560	NIL	288		
LV	410	DQ	219		

VK4 PHONE

9ZM	2596	NFU	565	RF	232
YS	2375	BG	543	VU	221
QJ	1749	FN	484	CW	214
SE	1636	MI	484	ADW	212
ARW	1368	PJ	475	HB	209
AGP	1316	FX	469	CI	201
AFF	1289	DO	460	QT	183
QO	1251	ACT	431	UG	169
KW	1236	EQ	422	AMA	167
AMH	1212	AG	393	LK	166
TE	1146	NKD	379	NJL	152
WIT	1136	2RP/		UJ/	
AEV	1121	4	368	P	144
PF	1118	YT	337	CZ	142
RT	1051	KD	301	ZBV	129
ADR	983	OX	296	AET	122
ACM	960	LE	274	XT	107
NU	931	RO	260	PV	104
YL	876	QA	258	XZ	102
ADA	809	PS	255	FE	89
NEX	700	JY	246	FU	83
AAK	669	ASC	245	AKO/	
ZIT/		RE	244	P	80
NFN	600	NJN	235	NFO	65
ZIG	64	4	37	NV	21
NBZ	62	ZWT	35	EH	20
XN	61	ZLP	34	HW	20
ZGB	59	DH	32	ZSD	20
NHR	52	ZDE	31	PR	19
AF	47	ZSK	31	ZTJ	18
ZRF	47	QY	28	NIL	17
3EF/		ZDG	28	MU	16
M4	46	DY	27	GT	14
VS	42	ZEA	27	ZRU	11
BQ	39	ZJP	27	NS	9
IE	39	IQ	24		
3CX/		ZFA	22		

VK4 CW

XA	1715	FB	482	SV	222
KX	1118	LV	356	SF	214
JH	754	CJ	320	OK	188
HH	694	OM	240	CV	168
XJ	628	XY	228	AXJ	76

VK4 OPEN

HE	1964	AAU/		AWR	253
MS	1927	P	747	ZA	79
RH	1413	WL	483	LZ	57
UX	1000	DT	394	FI	56
GH	967	ATW	376	AK	55
YG	821	SO	359		

VK5 PHONE

OX	2163	ZBI	302	ZSD	111
CHL	1971	NIC	293	RX	105
MG	1773	OC	291	NBG	103
MM	1529	WR	289	FX	96
LP	1219	LM	282	NJS	95
NX	1208	EF	281	ZHS	94
ZH	1159	ZAY	278	VB	90
ZZ	1066	OL	274	CL	87
OU	1021	WIE	272	ZCM	86
NN	995	ZK	263	JX	84
ZGO	904	ZMO	254	JT	82
LN	861	NVM	246	ZQ	82
XZ	856	VE	245	NDB	80
NJ	849	NDS	239	YX	78
BI	775	NRM	215	NJI	76
AMJ	753	ACE	206	HN	75
KR	740	RI	206	YV	73
NJQ	737	ZF	203	NPP	66
FO	715	ZSF	203	SN	66
DI	702	OZ	203	NCC	63
TY	675	VV	194	ZB	63
BW	644	WW	189	KG	62
GL	596	CY	188	AS	60
ATW	580	ASA	187	HU	58
ABW	572	ZLH	184	CA	57
ZJB	555	ZIM	182	EU	57
US	545	OT	176	IM	57
BP	530	ZRS	176	NF	56
LQ	529	BG	173	ZAJ	51
TZ	526	NIS	173	WN	50
NBC	526	LC	168	AAA	45
IZ	522	KX	158	HM	44
ZSB	511	ZJE	158	SE	43
DV	494	RR	151	BF	42
VT	479	KH	137	ZRW	42
NI	474	ZGP	137	NDG	40
NJO	432	ZBC	131	ZRF	40
AMW	425	IA	130	RC	33
IT	408	ZRJ	128	YQ	30
ARZ	402	ZIW	127	ZX	29
NSU	400	LL	126	ZT	28
NGP	395	NCE	124	DO	26
ZJG	382	IQ	123	ML	26
SG	375	NSC	123	ZLX	25
ND	368	NAJ	121	UL	24
RV	366	NOK	121	ZJJ	23
NPC	358	ZKK	120	CJ	22
FD	357	TW	119	ZPB	20
EV	352	ZNJ	119	QS	13
NSA	352	DQ	116	ZSS	13
ZU	333	WC	116	ZMM	11
NBL	331	DH	114	KT	7
ZIC	312	WF	111		
QV	308	ZMA	111		

VK5 CW

8HA	1526	HO	416	ABB	116
UM	1410	DL	322	QR	82
OR	1222	KU	322	UE	68
BN	816	LI	316	KY	62
FY	566	RT	150	NKA	52
AU	492	QQ	127	AI	17

VK5 OPEN

EN	1816	NTB	566	RK	270
KK	1607	QI	552	AVQ	261
8NT	1583	8DB	396	JK	127
BO	1510	NMQ	390	TL	37
MY	1123	8NJN	370		
ALC	584	IP	343		

VK6 PHONE

AS	3589	LV	392	SH	131
WV	2843	CD	374	NCW	130
HK	2566	ZBJ/		TU	127
OR	2254	NBJ	364	ZGA	124
DA	2081	FS	361	KD	121
NBU	1994	FM	304	ZJX	116
AO	1757	ZDT/		JK	112
JP	1732	NCT	303	NER	90
ST	1536	NCR	298	MM	83
LD	1293	ZHM	254	WV	74
DY	1241	NAR	246	IC	71
SU	1162	ZIT	230	ZKI	68
JX	1028	HU	227	MB	67
NAY	958	LG	221	EJ/	
IF	954	TP/		P	45
9XW	897	P	217	MO	40
RL	720	TR	185	EB	39
NDG	663	ZBD	176	NEB	37
NAN	646	BV	164	IH	31
XD	573	GB	163	ZGZ	26
WL	486	ZGO	152	ML	19
NCY	455	ZFB	147	NDL	18
TX	445	NCQ	145	JO	8
AN	444	MO	140	ZKL	7
DC	417	OO	139	SO	5

VK6 OPEN

ED	2512	LP	632	ZKY/	
RU	1896	NAG	632	NAM	194
PD	1374	FC	532	GL	107
NAO	970	HE	384	MG	82
GW	746	CR	285		

VK6 CW

WT	1874	RM	676	HX	276
HQ	1756	AJ	668	SM	222
AQ	1226	MA	388	NK	212
RS	770	VK	356		

VK7 PHONE

AE	2042	WI/P	388	KK	144
KZ	1688	BM	382	NXJ	107
HK	1633	CT	375	LS	102
MS	1487	NTS	359	ZBL	102
KH	1274	CL	342	ZJB	93
KC	1154	BJ	297	IL	84
MX	1041	FT	290	TT	76
GD	842	JR	265	ZAH	64
GW	834	EB	264	ZTA	62
HL	802	AI	261	JD	34
JV	668	NFR	251	ZAK	34
SS	650	NAD	250	NAM	32
NCW	626	AX	233	KS	30
AW	622	NRM	218	NWS	30
IC	595	NSA	192	JG	23
SG	552	LH	179	ZAJ	18
NOW	511	PS	179	ZDC	18
NDP	510	ZLB	178	ZRF	17
SF	470	MG	166	ZBY	15
PF	434	CF	155	JN	12
NAE	424	ZOA/			
PK	414	NOA	155		
GS	410	ZFP	147		

VK7 CW

CH	1364	MZ	356	MC	198
RO	1162	RD	322	ZO	96
TW	840	GV	270		

VK7 OPEN

CCC	1022	AC	277	NGD	199
ZZ	520	ZIE	271	ZAT	198
AL	488	ZPB	231		

RECEIVING

Bryan Gard	L1003	3476
Ron Whitford	S. Aust.	2363
Graham Mutton	L70107	1992
Gregory Cooke	Vic.	1769
F. H. Price	L60030	1707
June Greenaway	W. Aust.	1662
John Brereton	L50257	1593
David Pedler	L30740	1107
L. J. Harper	L70151	1104
Eric Trebilcock	L30042	824
Stephen Pall	L20301	758
John O'Brien	N.S.W.	723
Mark Stephenson	L30848	669
H. J. Charles	L70126	631
M. Davidson	Qld.	608
Robert Chester	L50087	476
George Edmeades	L50122	345
George Clark	L60336	316
Robert Hodges	L40724	233
Daryl Boyce	L20668	140
Tim Hamilton	L60296	107
S. E. Maddigan	Tas.	45
David Warrington	S. Aust.	35

OVERSEAS CHECK LOGS

P29LS	Ph	3432	ZL2GJ	P	1279
ZL1GQ	O	2578	P29GA	P	328
ZL1AFE	O	1972	ZL4IJ	P	311
ZL4BE	O	1754	ZL1AGO	P	311
ZL4HA	CW	1664	ZL1TB	P	283
ZL3SZ	P	1433	ZL3TX	P	199
P29NKV	P	1395	ZL1HV	CW	—
P29EJ	O	1305			

COMMENTS FROM CONTEST MANAGER

The general standard of log presentation was shocking. A large number of logs did NOT have a cover sheet giving the details required in the rules, others were not scored and in one case no call-sign or name appeared. Every size, shape and quality of paper was used and one log was even held together by solder! The worst Division for errors was VK1, over 50 per cent of the logs were totalled wrongly making hundreds of points of difference.

These matters make the job of the contest manager more difficult and this being my first one has stunned me somewhat. Consideration must seriously be given in the future to disqualify without question any logs that do not meet the simple instructions laid down in each contest for presentation.

So much for the brickbats — now for some bouquets: Eric Trebilcock, Receiving Section CW only..

The following Novices for excellent scores:

VK1NAT	621	VK2NPS	1196
VK3NNX	1199	VK4NEX	700
VK5NTB	566	VK6NBU	1994
VK7NCW	626		

Alan VK2BAX and Pierce VK2APQ for the best presented logs. ■

QSP

VHF & HF CROSS PATCHING

The Postal and Telecommunications Department has advised that they are concerned with the cross-patching of Amateur stations from VHF to HF and vice-versa. This system is employed regularly by some clubs during their club nets. The Department has stressed that it is contrary to the regulations for a Novice's transmission to be relayed to any band which Novices are not permitted to use, and similarly, Limited calls must not be relayed to any band which they are not permitted to use ordinarily.

Members of the Department have apparently observed through-patching of Novices to VHF and Limiteds to HF without even the appropriate identifications being announced.

From VK2 Mini Bulletin, Dec. '78. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

TH6DXX Hygain, as new, complete with BN86 balun and 36 ft. heavy duty galv. mast, crated on transport, $275. Dentron antenna tuner MT-2000A, $210. Oskerblock SWR-200B, $50. Both new, in cartons. Katsumi EK26 elec. keyer, 12V-240V AC, good cond., $50. J. Moyle VK4ZT, QTHR.

Yaesu FGR7 Rx in mint condition, $280. VK2BIW, QTHR. Ph. (02) 27 6432 (bus.) or (02) 449 2198 (AH).

Heathkit HW101 80 thru 10, excellent performer, heavy duty power supply, mic., spkr., $350. VK3BAF, QTHR. Ph. (03) 546 4947.

Complete Drake Station, mint condition, T4XC Tx, 200W PEP and R4C Rx (160-10m), $899. AC4 power supply, $85. MS4 speaker $25. Extra xtls for almost entire 0-30 MHz band, $40. All connecting cables, all ONO. Will trade FT101 or similar for mobile work, particularly. VK5TO, QTHR. Ph. (08) 278 3126 AH, or (08) 381 1493 bus.

Sideband SE502 Transceiver, 240V AC 12V DC, 24 ch., 28.3/28.6 MHz, clarifier Rx¾Tx, SWR/RF meter, 3 el. 10m yagi, plus 50 ft. co-ax, $205. Bruce Hood VK5NBA, Boolagoon, via Naracoorte, 5271, Ph. (087) 64 7545.

Icom IC202 2m SSB/CW Transceiver, Oscar crystal plus 12W linear, complete with coax leads, $175. Full set of Hustler mobiles, complete with base and spring, $100. VK2LH, QTHR. Ph. (02) 456 2027.

Yaesu FL-200B Tx and **FR100B** Rx, spare set new final tubes, speaker, manuals, connecting cables and mike, $350. Swan Txcvr, 80-40-20m, AC and 12V DC power supplies, $150. Yaesu 6m convertor FC6, $20. Herb VK4KM, QTHR. Ph. 55K Mundubbera.

Bargains in mint condition, complete with original cartons and manuals. Drake TR-4C with spare new finals, all xtals, RV4C remote VFO, 34PNB noise blanker, AC4 power supply, Yaesu FRG7 receiver, KW107 Super Match, Mosley TA33 Senior tri-band beam, Drake TV3300 low pass filter, Shure 201 mike, mike mixer pre-amp., Mini SWR meter. Best offers. Must be sold. VK2ASH, QTHR.

Communication Rx, Realistic SX190, covers ham and internat. BC bands in eleven 500 kHz segments, with service manual and speaker, new cond., $180. VK1ZUM. Ph. (062) 49 1595 AH.

Multi-Band Vertical Antenna by Hidaka, 80, 40, 20, 15, 10m, complete with nylon guy ropes, as new condition, 12 months old, $100. 10m mobile transceiver, ex. 11m band. Gemtronics GTX3325, 28.3-28.59, power supply also available if desired, $100. VK4NGK, 28 Coolmunda St., Mansfield, 4122.

"Belcom" SSB Tcvr, covers 28.348-28.638 MHz, also fitted for CW, $90. Brian VK2BVH. Ph. (02) 525 2547.

Yaesu FT 75-B 100W 10m-80m Tcvr, AC and DC power supplies, external VFO, mobile mounting cradle, xtls for all bands. All as new condition, $450 rail freighted anywhere in Australia. 100 Hz to 30 MHz digital frequency counter, $95. P. King VK2NRZ. Ph. (049) 73 1120 AH, (049) 77 1103 bus.

Collins KWM-2 Tcvr with Collins PM2 plug-in power supply, first class order, with instructions, mic., dummy load, SWR meter, etc., complete station, $1450. Ken KP202 2m FM Tcvr in "as new" cond., with full complement of xtls (repeaters and 40/50), nickel-cad. batteries and 240V charging base, $155. VK3AHR, QTHR. Ph. (03) 836 4203.

National NCX-3 Xcvr, 240V PSU/SPKR, Turner 90D-S Mike, $250; Drake SSR-1 Rx as new, $250; Eddystone 770R VHF Rx, $195; Heathkit IM-18 VTVM, 240V, $35; Advance H-1 Audio Sig. Gen., $50; 301 SWR Meter, $12; all items with handbooks. Chas VK3IB. 75 Lloyd St., Dimboola, 3414. Ph. 76.

FT101 and Oskerblock SWR Bridge, $600 the lot. VK3ADB, QTHR. Ph. (051) 34 2718.

Swan 700 CX SS-16B-Special 700W PEP SSB Transceiver, complete with AC supply and special 16 pole filter and spare finals, mint condition, $850. VK3WW, QTHR.

Hygain trapped Vertical Antenna, type 14AVQ for 10, 15, 20 and 40m, good condition and instruction manual included, $75. VK2AXR, QTHR. Ph. (02) 44 1389.

200 MHz Frequency Counter, basically EA design, fully built and calibrated, features 0.6" LED read-outs, selectable 7 digit/2 second update or 6 digit/continuous update, ceramic range switch, BNC input, 240V AC/12V DC operation, lives in a grey enamelled box 220 x 230 x 70 mm, $90 ONO, will consider swap with/without cash adjustment for other gear. FT101 series mobile mount, $20 ONO. Mike Vale VK1VW. Ph. (062) 88 8994 AH, (062) 83 2215 bus.

Morse Tapes — All Speeds — the cheapest and the best. C60 specify speed when ordering, $2 posted. WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

Yaesu FLDX/FRDX 400 Matched Tx/Rx with ext. speaker, manuals and original packaging, 10-80m, 240W PEP split frequency capability, AM, SSB, CW, 2 selectable filters, FSK obtainable by making minor modification, mint condition, $650. VK2NOK. Ph. (02) 827 3589 after 0800 hrs. GMT.

"Amateur Radio", Oct. 1971 to Dec. 1976, complete except Aug., Dec., 1973 and Nov. 1976. Also "New Scientist" 29. July 1976 to 29. Dec. 1977. Best offers plus postage accepted. VK3GI, Box 22, Woodend, Vic. 3442, or Ph. (054) 27 2576.

Yaesu FT DX 400 with adjustable effective noise blanker, speaker, cooling fan, second VFO, set of 19 spare valves, manual, $500. TR-44 rotor and control unit, manual: $90. MFJ (US) audio speech processor, manual, $25. All equipment clean, unmarked and in original working order (owner paid $850). VK2AOU. Ph. (02) 53 9789 AH, (02) 807 0484 bus.

Yaesu FT620B Transceiver with VC-75 voice controller and handbook, as new, 20W SSB, CW; 8W AM; AC/DC, all solid state auto final protection, $515. VK2ZMA. Ph. (02) 634 2451.

Eddystone Model EC10 solid state communications Rx, .55 to 30 MHz, excellent condition, $160. Ross Treloar VK2BPZ, QTHR. Ph. (02) 239 5267.

Linear using pair of 3.5002 in parallel, built to Heathkit SB 200 circuit, power supply, separate range of some 2000-5000V. All parts imported from US, 2 only new 3-500Z as spares. Power supply 20-30-40V each side CT — 10A with 6/40 rectifiers, electro condensers and 3055 to make two 10A — 12V supplies, voltmeter included. Offers requested for both. H. G. Wilson VK4AGO, QTHR. Ph. (071) 27 4101.

Tower, Hills 57' triangular steel winch-up, CW base used guy wires, turnbuckles, etc. $220; also Standard 6 ft. rack, $20. VK2DV, QTHR. Ph. (02) 371 6735.

Realistic DX160 Rx, perfect condition, $100. VK2NFN, QTHR. Ph. (042) 84 6170 AH.

TS520, unmarked, 18 months old, AC/DC, $520, or may haggle a little. VK2AZT. Ph. (069) 42 1392.

Swan 350, matching AC, PS, USB, LSB, xtal calirator, VOX unit, microphone, manual and unused spare valve and relays, $350. VK2YN, QTHR.

Yaesu FTDX560 Tcvr (similar to FTDX401), 560W PEP 80-10m, with noise blanker accessory. All in A1 condition (some spare valves included), $500. Eddystone Amateur band only Rx 888A (double conversion), some spare valves, $200 ONO. VK2UE, QTHR. Ph. (02) 451 3032.

Yaesu FR101 Rx, including both 6-2m converters, all modes 160-2m. Yaesu FL101 Tx, 160-10m, both units as new condition, in original cartons with instruction manuals, $1300. VK6ET, QTHR. Ph. (092) 276 8928.

Audio Magnetics recording tape, 1800 ft. on 7 in. reels, in boxes. No drop-outs, high sensitivity. Performs identically to Scotch and Ampex pro. stock with small bias adjustment. Specifications available, incl. typical noise, frequency response and distrotion figures. $5.00 each or $4.50 for 10 or more. Surplus to own need. VK3BND. Ph. (03) 523 9229.

C60 Cassettes Hi-Fi LN Screwed Case, $65 per 100 Inc. freight. Smaller lots sim. rate, Army HF C11R210 TRNSC inc. PS ATU cables and manuals, $120. HF Rec. 7/15 MHz Ex DCA, $30. EA Deltahet complete kit, $150. Phone Barrie VK3YMW (058) 21 9458.

Yaesu FRG-7, 0.5 to 30 MHz continuous coverage Rx. Latest model with fine tuning, as new condition, plus professionally built 2m mosfet converter, would be, but no morse novice, $320 ONO. Ph. (03) 91 4041.

Drake T4X-R4A combination with power supplies, instruction manuals and connecting cords, in excellent condition, $750, or sell separate. Galaxy "Rejecto" audio filter and amplifier with 12 volt P/S, $50. Drake noise blanker NB4 for R4C Rx, new, $45. Ouasi-logarithmic speech processor, as new, $45. MFJ SSB selectivity filter, $20. VK3LC, QTHR. Ph. (03) 509 2556.

Complete Dranke Line Station, comprising TR4C Tcvr, $575; remote VFO RV4C, $125; external spkr. box MS4, $42; ant. matching unit MN4, $115; wattmeter W4, $49; cables and mike included. All mint cond., looking for buyer in Sydney metrop. area who will take complete station. Offers invited. VK2AOW, QTHR. Ph. (02) 449 3538.

Complete Yaesu Line Station, comprising FT101 Tcvr with VK5 mods, fan, 10-160m, $550; FL2000 linear, $385; remote VFO FV101, $105; external spkr. box SP101, $32; cables and mike included. All mint cond. Looking for buyer in Sydney metrop. area who will take complete station. Offers invited. VK2AOW, QTHR. Ph. (02) 449 3538.

Bits and pieces from deceased estate. Telequipment service scope, $50; advance sig. gen., $40; Variac 0-280V 8A, $90; Heathkit SB610 monitor scope, $85; Heath Cantenna HN21 1kW, $25; Swan-tenna model 45, 10-80m mobile ant. with base, $105; set of 5 Hustler mobile whips, 10-80m, $70; 2m base loaded s/steel whip with base, $15; Q-crult SWR/PWR bridge, $20; Omega TE7-01 antenna noise bridge, $32. VK2AQW, QTHR. Ph. (02) 449 3538.

Icom IC202 2m SSB with "Oscar" crystal, $150 ONO. Phil VK2BYX ex VK2YDY, QTHR. Ph. (067) 52 1185.

Like new FT101E, with Kenwood LF30A LP filter and Midland 23-136 P/SWR meter, connectors, little use, $735. VK4PJ, QTHR. Ph. (07) 399 2881.

TS520 AC/DC model CW filter, in as new condition, $650. VK3PR, QTHR. Ph. (056) 62 2711.

Complete RTTY station, in mint condition, as new. Includes: Model 15 page printer, Model 14 tape reperforator and tape distributor, all super sound proofed. Custom RTTY terminal DT600 Mk 2, loop supply, 110V power supply, patch cords, connectors and spare paper. Any inspection and trial. $550 — will consider exchange HF gear, contact VK2BAX, Orange, N.S.W. Ph. (063) 62 7210.

FT7 Trcvr, as new, $500 ONO. VK3NOW. Ph. (053) 59 0246, or VK3NMJ. Ph. (03) 550 4203.

Heathkit HR10 BRx, covers 80-10m, built-in 100 kHz xtal cal., excellent cond., $80 ONO. Teleprinter Creed 7B, complete with sound cover, good condition, $40 ONO. Contact D. Hides L60142, QTHR. Ph. (09) 275 2698.

Yaesu FT101, good condition, $550 ONO. Write J. Lee, Rywung, Qld. 4352. Ph. Rywung 3 U.

Hygain 18V 10m thru 80m base loaded vertical antenna, excellent portable antenna, $35. Morrie VK3BCC. Ph. (03) 561 1151.

Yaesu FT75BS and DC7SBS power supply, two channels fitted, 80, 15 and 10m, seldom used, in original cartons, $375. VK6NAH, QTHR. Ph. (09) 446 3008.

Honda portable generator EM300, had little use, 240V 300W and 12V charging, $325. Peter VK3NRP. Ph. (056) 55 1067.

Communications Rx Tandy SX190, covers 3.5 to 27.5 MHz, in excellent condition, must sell, $180 ONO. D. Hughes L30853, QTHR. Ph. (053) 31 1138.

Dentron Tuner Jr. Monitor, ideal for mobile, as new, $95 ONO. Geloso 222R Tx, good order, $100 ONO. AWA Class C wavemeter, $15. VK3AKB, QTHR. Ph. (059) 44 3241.

Icom 22A in new condition, little used, channels fitted: 2, 4, 6, 8, 40, 50, complete, as new, $200. VK3QZ, QTHR. Ph. (051) 74 1797.

SBE34 80/15m Solid State SSB Xcvr., 125 watts, inbuilt AC/12 volt DC power supply, complete and excellent order, $350. Icom IC21A 2m FM base or mobile Xcvr., $175. Swan WM1500 in-line watt meter, 5/50/500/1500 watts, $55. VK3OM, QTHR. Ph. (03) 560 9215.

20 Mx Mono Band Yagi Hygain 204BA, 4 elements with BN86 balun, exc. condx., $140. VK3UV, QTHR. Ph. (03) 90 6424.

FBG7 Comm. Rx, mint condition, $275. VK3AOC, QTHR. Ph. (03) 88 2180.

Set of mobile antennas for 80m, 40m, & 20m (Hy-Gain), complete with fold-over mast, spring, swivel base, heavy duty bumper mount and instructions. Very good condition, $125. VK3AMK, QTHR. Ph. (03) 787 5581.

18 AVT Vertical Antennae, complete and in fair condition, $50 ONO. VK2GK, QTHR. Ph. (02) 623 8292.

WANTED

Geloso T/R G222, handbook or circuit required urgently please. Loan or purchase. VK4LN, QTHR. Ph. (071) 82 2675.

Has anyone a Geloso G209R Rx in reasonable condition, they are willing to sell? Contact VK4LN, 43 Garrick Street, Gympie. Ph. (071) 82 2675.

Aspiring Novice Candidates — the complete self contained Novice study kit — contains morse and theory — texts, tapes and 1000 typical exam questions. Real value for money, $15 posted, WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

Collins 800 Hz. bandpass filter, type F455FA08 and/or 500 Hz bandpass filter type F455FA05, both to suit 75S3 receiver. VK2AS. Ph. (02) 467 1784.

Ammeter AC 0-20 amperes or more, in good condition. VK3AVH, QTHR. Ph. (059) 88 8797.

Swan 500/700 VOX unit, channel 3 xtals to Ken KP202, price and particulars to T. Foster, 3 Sinclair Street, Beaufort. Ph. (053) 49 2028.

Txcvr for novice bands, 230V, no objection to QRP; antenna tuner, preferably with SWR meter; grid dip oscillator; all items commercial or home brew, age no bar, but should be in working order and at reasonable price. John Weir, 100 Wrigley Street, Maroochydore, Qld. Ph. (071) 43 3023.

6LQ6 six new tubes required. Details to Bob McKernan VK4LG, 16 Tanderra St., Brackenridge, Qld. 4017. Ph. (07) 269 5175.

Private collector is interested in swapping old tapes of old time Australian, English, American etc. radio and TV programmes and advertising commercials. Movie posters, stills and 16mm and 35mm films (complete or segments) from commercial films also wanted. Will exchange air checks from Australian and overseas radio stations. VK2ATJ, Box 140, Kensington, N.S.W. 2033.

FV50 or similar VFO, suitable FT75B mobile, state condition and price, cheque forward. VK6TL, QTHR. Ph. (09) 386 7692.

Sideband attachment for IC245, will pay purchase price if in good working condition. Adrian Lewis VK3YBZ. Ph. (057) 93 7028 bus.

Plugs with/without cables for No. 11 and 19 sets. 3BZ Rx. WWII Army type headphones. Pre-War morse keys and telegraphic gear, any type, condition. Write VK4SS, 35 Whynot St., West End, Brisbane, Qld. 4101.

18 AVT 80-10m Vertical Antenna required. VK3BJO. Ph. (03) 729 2802.

TRADE HAMADS

Broadcast Band Listeners: "English Shortwave Stations Audible in Australia" publication is available exclusively from Southern Cross DX Club (Inc.), G.P.O. Box 336, Adelaide 5001 for 3 x 20c stamps. Over 40 countries listed!

Are you looking for a yagi, 10-11 or 15 metres, mono or duo bander, gamma match, spare parts or single elements for modular design also available. Please ring VK3NCW (03) 366 7042 after 5 p.m. Werner Wulf, 92 Leonard Ave., St. Albans 3021.

Alpha Linear HF Power Amplifiers, 1-30 MHz frequency coverage, 160-10 metres, Alpha 76 uses three EIMAC 8874 power amplifier tubes, Alpha 77 DX has single EIMAC 8877 ceramic triode, Alpha 77SX two 8877 tubes, the ultimate in high power linears, ideal for continuous duty RTTY, SSTV, contests, hard core Dxing, reliable point to point worldwide communications distributor for Indonesia, Philippines, New Zealand, Thailand. James Goodger VK2JO, Australian Sound and Signal Research. Telephone (02) 389 0428 or (02) 389 7786; After Hours order number (02) 36 7756.

OBITUARY

LEN WORRALL VK4WL

Len passed away suddenly, after an illness-free life, due to a heart attack, with only eighteen months of retirement.

Len obtained his licence at about 18 years of age in Sydney and was active in Cairns, with the late Doctor Hewitt on CW before World War 2, after which he remained inactive until 1973.

CW remained his great interest.

Len is survived by his wife Rose, a married son and a married daughter.

By Peter Brown VK4PJ

WILLIAM GEORGE CLARK VK3FY

Bill passed away suddenly on 19th November 1978, after suffering a heart attack. Radio amateurs of the Bendigo area will greatly miss Bill, who was a valued friend of all. He was very active in WIA Midland Zone affairs, having been both President and Secretary.

Bill served in a Beaufighter Squadron in the RAAF in World War 2, and later at Frognall Signals Base. He obtained his licence post war, and since coming to Bendigo in 1952 had been active in many local activities. His hobby other than electronics, was a love of music. Bill was a church organist, and choral society member. He was a member of Legacy, and always helped local schools, scouts, in fact many, many people.

Bill's vocation was insurance, he was Assistant Manager of a large local office, and his ability and friendliness were well known.

He will be sadly missed by all of those who knew him, for he really was a fine man.

To his wife Daphne and his family, we extend our deepest sympathy.

N. Stilwell VK3ACN.

KEN MILLBOURN "SNOWY" VK3CW

We all regret the passing of our good friend and amateur "Snowy". Let us convey to his wife and family, our deepest sympathy.

A word about our friend "Snow".

Snow was an amateur of long standing, close to 30 years. He served with the RAAF during World War 2, with most of the time at Darwin.

Most Australian amateurs knew of "Snowy" via the little shop in Melville Street, Hawthorn. Here was a meeting place for amateurs and all those with a common radio interest, a cup of tea, a lot of natter, and a warm welcome.

Snow was a great supporter of the WIA, and for many years was Father Christmas at the children's treat. He was also a member of the Chelsea Life Saving Club, and performed the role of Father Christmas for the annual treat at Chelsea.

I feel "Snowy" was also Father Christmas to many amateurs, a kind, generous and honest man, a great feeling for his fellow man. I was proud to be his friend.

"Snowy" will be missed not only by amateurs but people in many walks of life.

Sadly for all of us.

Alan G. Smith VK3AN

NOEL ARNOLD VK2OJ

It is with deep regret that we record the passing of Noel Arnold VK2OJ, after a long and serious illness.

Noel had been licensed some fifty-one years, continuing active, except for a war break, until illness prevented him from operating.

He was most active on 20 metres CW — particularly with the United States.

He was one of the first amateurs in Albury district, from which he operated at all times, except for a few times mobile.

Noel was active in early radio club activities, furthering the interest of amateur radio by training younger aspirants.

He was a Life Member of the Quarter Century Wireless Association, New York.

To Noel's wife and family we extend our deepest sympathy.

Jack VK2AY

TED ISAACS VK2ABO

It was with deep regret that I learned of the passing of Ted Isaacs VK2ABO.

I remember him for being honest and friendly, but above all for his generous nature. He would readily give assistance, regardless of any personal inconvenience.

Amateur Radio is the poorer for his loss, and the absence of "apples, bananas and oranges" will leave an empty spot on the dial — Vale Ted.

N. A. Latfman VK2APL

Mr. CLAUD BURNS VK4CB

Claud, who was born in Maryborough in 1893 had been an active amateur radio operator for over 54 years and in fact was active on the air up to within a few days of his death.

His first transmission was in 1924 from Rabaul, using morse code and his first amateur radio operator's licence was issued at Kingaroy in 1927 and his first call sign was A4CB. This call sign was later changed to VK4ZY, the call sign which will now be so sadly missed on the air waves.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. W. G. CLARK	VK3FY
Mr. R. OHRBOM	VK3OC
Mr. C. MALONEY	VK3NDE
Mr. W. J. BREBNER	VK3WZ
Mr. R. A. ISAAC	VK2ZAI
Mr. V. H. WILSON	VK2YW
Mr. N. ARNOLD	VK2OJ
Mr. R. SATCHELL	VK2BZS
Mr. M. J. O'BRIEN	VK2ZMO
Mr. A. H. TODD	VK4HT
Mr. L. A. WORRALL	VK4WL
Mr. C. E. J. BURNS	VK4ZY

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VHF EQUIPMENT

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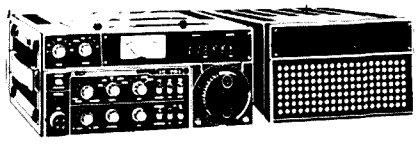

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SP820	Matching speaker for TS820S	65.00
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Semiconductor Complement	2 transistors and 1 diode.
Power Supply	9-volt battery: 006P, NEDA Eveready 216, Burgess 2U6, or equivalent
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Launceston	44.3882
Ballarat	32.7234

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 3 MARCH 1979

FEATURED IN THIS ISSUE:

- ★ SOLID STATE SWITCHES FOR VIDEO AND RF
- ★ LINEAR AMPLIFIER FOR THE IC 202 AND IC 502
- ★ MODEL 15 TELETYPE INFORMATION
- ★ WIA AWARD UPDATES
- ★ RED COSS MURRAY RIVER CANOE MARATHON

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SPECIFICATIONS:
Transistors, 13; channel number, 3, on 28 MHz Citizens Band; transmitter frequency tolerance, ±0.005 per cent; RF input power, 1 Watt; tone call frequency, 2000 Hz; receiver type, superheterodyne; receiver sensitivity, 0.7 uV at 10 dB S/N; selectivity, 45 dB at ±10 kHz; IF frequency, 455 kHz; audio output, 500 mW to external speaker jack; power supply, 8 UM-3 (penlite battery); current drain, transmitter — 120-220 mA, receiver — 20-130 mA; accessory, shoulder strap, battery UM-3, 8pcs, instruction manual.
$105 Pair — $58 each
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amateur radio

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COVER PHOTO

You can't start them too young. Tom Dexter, three-year-old son of Tony Dexter VK5DL, tunes 20 metres on the station receiver — a Hallicrafters SX100.

WIRELESS INSTITUTE OF AUSTRALIA

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Executive Office: P.O. Box 150, Toorak, Vic., 3142. 2/517 Toorak Rd., Toorak, Ph. (03) 24 8652.

Divisional Information (all broadcasts are on Sundays unless otherwise stated):

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President — Mr. E. W. Howell VK1TH
Secretary — Mr. Ted Radclyffe VK1TR
Broadcasts— 3570 kHz & 146.5 MHz: 10.00Z.

NSW:
President — Mr. D. S. Thompson VK2BDT
Secretary — Mr. T. I. Mills VK2ZTM
Broadcasts— 1825, 3595, 7146 kHz, 28.47, 52.1, 52.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and ch. 3 and 6).

VIC.:
President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. J. A. Adcock VK3ACA
Broadcasts— 1825, 3600, 7135 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (5) repeater: 10.30 local time.

QLD.:
President — Mr. A. J. Aarsse VK4QA
Secretary — Mr. W. L. Giells VK4ABG
Broadcasts— 1825, 3580, 7146, 14342, 21175, 28400, kHz; 2m (Ch. 42, 48): 09.00 EST.

SA:
President — Mr. C. J. Hurst VK5HI
Secretary — Mr. C. M. Pearson VK5PE
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

WA:
President — Mr. L. A. Ball VK6AN
Secretary — Mr. P. Savage VK6NCP
Broadcasts— 3600, 7080, 14100, 14175 kHz, 52.656 and 2m (Ch. 2): 01.30Z.

TAS.:
President — Mr. I. Nicholls VK7ZZ
Secretary — Mr. M. Hennessy VK7MC
Broadcasts— 3570, 7130 (AM) kHz with relays on 2m Ch. 2 (5), Ch. 8 (N), Ch. 3 (NW), 28.56 (AM), 52.525 (FM), 144.1 (AM) and 435 (FM) MHz 09.30 EST.

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VK1 — P.O. Box 46, Canberra, 2600.
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h).
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Weekdays 10.00-15.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 1173, Canberra, A.C.T. 2601.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Treblicock, 340 Gillies Street, Thornbury, Vic. 3071.
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VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK6HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP —

THE ARNOLD REPORT

Well, here we are already three months into 1979, the year of the WARC.

Of course matters concerning this most important conference are uppermost in our minds at present.

And while this is naturally understandable, we must not forget the institute and its wellbeing.

As you know, the prime object of the WIA is to look after the interests of its members, Australian Amateurs. It is funded by the members, and these members elect and are able to consult with, their governing council and its executive.

The annual meeting of the council, "The Federal Convention", is this year being held during April as provided for under the Constitution.

In 1976 Bob Arnold presented a report on the organisation of the WIA together with a number of suggestions.*

The Federal Council of the day, in deciding to retain the existing organisation, however did accept many of the suggestions that did not involve organisational changes.

Since the initial introduction of the Arnold Report, there have been changes in the climate of amateur radio in several areas.

It would therefore be well to give this report further thought, bearing in mind that we should attempt to make the most efficient use of our resources, both personnel and funds.

With the Federal Convention coming up, it is for the members of the Divisions themselves to provide guidance for their Federal Councillor in order that the Council may as a whole, after due consideration, reach decisions that will best serve the Institute.

I am looking forward to a Convention that will set the Institute well on the post-WARC road.

D. A. WARDLAW VK3ADW

Federal President.

*** See AR for April 1976.** ■

QSP

ULTIMATE DX

Remember the SETI article in AR for December 1978, page 55? Prof. Paul Horowitz W1HFA, writing in CQ for December 1978, describes a three month visit to the Arecibo antenna system in Puerto Rico. The dish is 1000 feet in diameter and it can steer 20° from the zenith in any direction. It has a gain of 68 dB at 1420 MHz and has an on-line computer to calculate the correct frequency every 20 milliseconds and set the local oscillator accordingly. This degree of accuracy is required because the earth's rotation causes the received frequency to drift at 0.15 Hz/second. The rubidium referenced oscillators are stable enough to allow multi-channel spectral analysis with a resolution of 0.01 Hz at 1420 MHz. Total bandwidth was 1 kHz resolved into bins of 0.015 Hz. The frequency most favoured was close to the neutral atomic hydrogen "hyperfine" spectral line at 1420.405751768 MHz. During three months in early 1978 Prof. Horowitz looked at all sun-like stars within 80 light years visible from the dish, a total of 185 stars. Sensitivity was 4 x 10^{27} watts/meter^2 which, if used in another star system, our galaxy with an identical twin using 0.5 mW CW, would have been easily detected at 1000 light years distance. Even using a choice from the 100 separate stages of receiver modules linked together as discrete "receiver units" produced no results.

PR IN EMERGENCIES

When a disaster or an emergency arises and a "net" is set up to handle traffic on the high frequencies, the word spreads quickly among the hams that that particular frequency is busy handling a public service from Amateur Radio. Rapidly the number of "listeners" grows. As a well trained Amateur, no stations other than those involved with the emergency situation will interrupt the proceedings. But this does not mean that hundreds, or perhaps thousands, might not be evesdropping and discovering new areas that "they" can prepare themselves for in Amateur Radio work. And, just as our hams are listening, so is the SWL and "this" is the time we can do a job and promote public relations at the same time. Every operator working into that "Emergency Net" is a PR representative for Amateur Radio.— From San Diego ARNS Bulletin August 1978. ■

WIANEWS

John Payne VK3AED, Federal Councillor of the Victorian Division, accompanied by VK3 Council member Col Fisher VK3YII, attended the Executive meeting held on 25th January. Much of the time was devoted to discussions about the Channel 5A report submitted to Executive from the Victorian Division's special sub-committee.

It appears that lobbying in the political arena last year, coupled with other important factors relating to other frequency users of the Channel 5A spectrum allocation, has led to a re-appraisal of the use of this non-standard channel

The Channel 5A report will now be considered by the VHFAC, under the chairmanship of Peter Wolfenden VK3ZPA, to determine how best to prepare a suitable presentation for the attention of the Minister.

50 cm BAND

During the same meeting the opportunity was taken to hold a considerable discussion on the temporary allocation of the 50 cm band to the amateur service. This is a unique allocation with no counterpart elsewhere. It was made a temporary substitute for 70 cm after WARC 59, when the 70 cm band could not be allocated for amateur use because it was being used in Australia for other purposes. The 70 cm band was an amateur international allocation elsewhere in the world at that stage and, of course, still is to a greater or lesser degree in different regions.

Since, however, Government has not published any plans relating to UHF television and since the amateur service is very keen to foster UHF television in Australia to remove pressures in the VHF region, little is likely to be achieved by any action at

this time. It is considered most important to secure the best possible allocation relating to the 6 metre band and the earliest possible removal of the Channel 5A allocation.

Those who have made a close study of frequency management concepts will understand the enormous number of problems to be resolved, with or without the influence of WARC 79.

1979 CALL BOOK

DO WE HAVE YOUR ACCURATE INFORMATION FOR THE 1979 CALL BOOK?

Members can check the accuracy of the Call Book data by looking at their AR address labels. Any differences should be advised to Box 150, Toorak, as early as possible.

The real problem area is information about licensed non-members. Monthly lists of new calls, changes of address and cancellations used to come from the P. & T. Department even though delayed and containing inaccuracies. Now, however, there have not been any since April last year which makes it very difficult to produce a comprehensive Call Book. If any member would care to assist by asking non-members to send in their details to Box 150, Toorak, this would be greatly appreciated. We have over 2000 non-members listed on the computer file but when the request for donations towards the costs of WARC 79 were mailed to them last October approximately 10 per cent were "returned to sender" by the Post Office as "left address", "unknown", etc.

WARC 79 APPEAL

Notwithstanding this setback, donations towards the expenses of WARC 79 have been coming in very satisfactorily. Over $1500 has been donated in the last few months and a listing of donations from members will be published as soon as space in AR permits.

MEETINGS

The Executive Meeting on 25th January also discussed the Ron Wilkinson Achievement Award, WICEN training exercise requirements, the appointment of Bill Verrall VK5WV as the new Federal Awards Manager, and thanks to Brian Austin VK5CA, presently hospitalised, for his work in this area. Ideas about the proper use of the $3500 donations for Federal Education and a number of other items.

PROJECT ASERT

A meeting of Project Asert on 18th January reviewed the latest situation for a report in AR and proposed standards for receiving equipment. ■

THE RON WILKINSON ACHIEVEMENT AWARD FOR 1978

Details of this estimable annual Award were set out on page 17 of AR for March 1978. The Award is funded from interest received from a most generous donation received from Mrs. Mary Wilkinson, widow of the late Ron Wilkinson VK3AKC.

For the year 1978 two names were considered by Executive and after considerable thought, both were recommended to receive the Award jointly.

The President of the Tasmanian Division, Ian Nichols VK7ZZ, submitted and recommended the name of Winston Nichols VK7EM, of Penguin. His recommendation received the support of the Tasmanian Division Council.

VK7EM receives the Award for his outstanding work over many years for VHF and Amateur Television signals on 70 cm. He still holds a distance record for a successful two-way ATV contact on 70 cm with VK3 and hopes to extend this by contacting a VK5 as early as possible.

The other recipient is well known to almost every Australian amateur for his persistent and continuous work over many years in the field of Intruder Watching. He is none other than Alf Chandler VK3LC. Alf's devotion to his task, despite every conceivable difficulty, has ensured the continuance of this most important activity. Without him there might have been no Intruder Watch service.

His overseas contacts and close liaison with IARUMS ensures that Australia is represented in the international area. He is also the Intruder Watch Co-ordinator for IARU Region 3. If he could not obtain satisfaction through the local channels for reports, he certainly obtained several successes through the good offices of his friends abroad.

Congratulations to VK7EM and VK3LC for their well-deserved recognition. ■

WANTED

Qualified accountant with amateur call sign to advise the Federal body on financial matters in particular. Work load is barest minimum, no book-keeping. One meeting each month on the average and possibly only an hour or two extra to study accounts. Would suit any qualified volunteer in Melbourne area wishing to donate a few hours of his time to the WIA.

Please ring Executive office 24 8652. ■

A SHORT COURSE IN PUBLIC RELATIONS

The 6 most important words:
"I admit I made a mistake".
The 5 most important words:
"You did a good job".
The 4 most important words:
"What is your opinion".
The 3 most important words:
"If you please".
The 2 most important words:
"Thank you".
The least important word:
"I". ■

QSP

144 MHz BAND TE OPENINGS

On 5th November last beacon station ZS6DN on 144.13 MHz was received in Athens by SV1DH, a distance of about 7100 km.—IARU R1 News January 1979.

10m BAND INTERNATIONAL BEACONS

According to IARU R1 News of January 1979 the following is a list of 10m band beacons —

MHz	Station	Location
28.175	VE3TEN	Ottawa
	Change to new frequency delayed.	
28.205	DL0IGI	W. Germany
28.2075	N4RD	Flo., USA
28.210	3B8MS	Mauritius
28.2125	ZD9GI	Gough Is.
	Under construction.	
28.215	GB3SX	Gowborough
28.220	5B4CY	Limassol
28.2225	HG5AIR	Budapest
28.23	ZL2MHF	Mt. Clinle, NZ
28.235	VP9BA	Bermuda
28.245	A9XC	Bahrain

THE BARGAIN KINGS

From Florida Skip (W4IYT), from the Phantom XYL.

The wife of a Ham can never brag,
About the bargains she does snag.
While the wife of a man who, with his face straight
Can say, "I got everything for eight-ninety-eight".
It seems his gear all comes from MARS,
Or he salvaged it out of railroad cars.
And he got some of it at a surplus store
Where he always discovers bargains galore.
(He gets it all in the 50c bin — and he
Filled his whole sack for less than a fin.)
At the CAREN club auctions he got parts for a steal
He got tubes and transistors for a price that's unreal
For two bucks he got 5,000 pounds of neat junk
That all went with us in our automobile trunk.
And I've not even touched on the trading he's done,
Many's the time he got three for one.
And the treasures he's given that someone can't use
Like the receiver he found that just needed a fuse.
And the telephone treasures that he holds so dear
Were traded by friends who stopped by for a beer.
No ham ever tells his wife or his honey
That something he has actually costs money.
I wonder who supports Heath and Crabtree
The inescapable conclusion — it must be CB.
—From San Diego ARNS Bulletin August 1978. ■

SOLID STATE SWITCHES FOR VIDEO AND RF

Andrew Pierson
1 Bindana Ave., Salisbury Park 5109

For switching low level RF and video signals (in the order of 1V p-p), a fully electronic switch will do the job much faster and more reliably than a relay. The cost will be about the same or less than a medium quality standard relay, depending on the type chosen. There are other additional advantages: better cross-channel isolation, impedance buffering between input and output lines and also a low current control line.

The need to switch high frequency, low level signals at coaxial line impedance often arises, particularly when TV video signals are being handled. Whilst a commercial toggle switch will often suffice, it is not capable of being remotely actuated. Also, since these devices are not intended for switching RF, radiation and crosstalk problems (in a changeover application) may ensue. A standard relay will enable remote operation, but these two problems may still be present. The ideal answer is to use a good quality coaxial relay, but of course these devices are not cheap. If you have the need to switch high level RF signals, the coaxial relay is probably the best choice, especially if transmission line impedance discontinuities are to be avoided.

Two designs for solid state video switches are presented. The first (Type 1) employs a pair of 4016 CMOS quad bilateral switches, and the other (Type 2) uses all-discrete circuitry. The capabilities of both configurations are broadly similar, with the IC design having generally superior performance for most parameters. Of course, the discrete design may do all that you require at a lower cost. The following comments apply equally to both circuits, after which the operation of each type will be discussed separately.

Both switches are intended to perform a changeover function for standard CCIR TV video waveforms, which have an amplitude of 1.0V p-p. The circuits are designed to drive 75 ohm coaxial cable, although they would drive 50 ohms lines with a small deterioration in signal handling capabilities and high frequency performance. The input and output lines of both switches are AC coupled, with the time constants being such that no frame tilt is detectable on a transmitted CCIR TV waveform. This good low frequency characteristic (together with the HF response figure) makes the switch circuits more than adequate for very high quality audio signals, if you have a requirement in this direction. If a low output impedance is not required, the emitter follower stage may be omitted in both designs. This will greatly reduce current consumption and also lower the total cost.

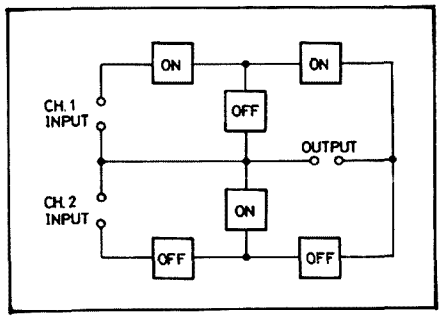


FIG. 1(a)
Channel 1 selected

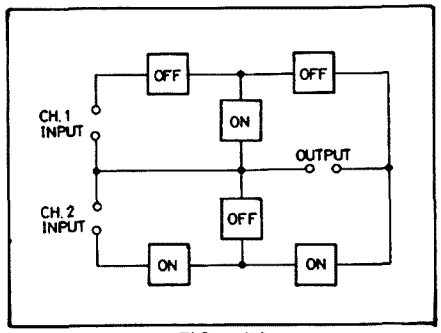


FIG. 1(b)
Channel 2 selected

The input impedance for each channel of the Type 1 (IC) switch is about 900 ohms, and about 9k ohms for the Type 2 (discrete) switch. Depending on the circuitry feeding the switches, it may be necessary to terminate the inputs with a resistive load, in order to correctly match the characteristics impedance of their respective coaxial cables. In this respect, the switches presented have the advantage over a relay that a very low output impedance is achieved without imposing any significant loading on the input line. Therefore, the input may be arranged to perform a "bridging" function, if necessary.

The outputs from the switches may be terminated or not, according to your requirements. Remember that coaxial cable is a transmission line, and that long lengths should be terminated in their characteristic impedance, in order to prevent mis-matching and consequent reflections.

Both switches are designed to operate from a +12V supply rail, and consume between 25 and 45 mA of current, depending on the type used and also which channel is selected. The control voltage states are 0V for channel 1 out, and +12V for channel 2 out. The "low" state should be less than +0.5V, and the "high" state should be greater than +11V. The control line resistance is about 30k ohms in the case of the Type 1 switch, and about half that value for the Type 2.

CIRCUIT DESCRIPTION — TYPE 1

Heart of this switch is the 4016 integrated circuit, which contains four separate CMOS bilateral switches. These may be considered as "electronic relays", but they have an "on" resistance of a few hundred ohms. Hence, if we are going to use them in a low impedance switching application, some form of current driver will be required after the switch. Also, if they are wired for a simple SPST function, the stray shunt capacity existing across each switch in its "off" state will give rise to crosstalk at high frequencies from the channel which is supposed to be switched off. This shortcoming is remedied by using six switches (three for each channel), wired in the configuration shown in Figs. 1(a) and 1(b).

In this manner, signal passed via the "carry-through" capacitance of the first series switch in each channel is shorted to ground when that channel is "off". The two series switches prevent the shunt switch from shorting either the input or the output lines.

DC operating bias for the output emitter follower is provided by a resistive divider network at the input of each channel. When the system changes over, bias is supplied from that network associated with whichever channel is selected. The AC input signals are capacitively coupled on to this fixed bias voltage, and thus either signal can appear (together with the bias) at the output of the switch, which is then applied to the base of an emitter follower.

The output line is capacitively coupled from the emitter of this stage. The bias level at this point is about +1.65V DC, which implies an output drive amplitude capability for a symmetrical signal of 3.30V p-p (unterminated) or 1.65V p-p (terminated in 75 ohms). Note that the broadband gain of the switch does not alter significantly when it is terminated; the drive capability drops to half its value, i.e. you can only apply a maximum of 1.65V p-p to the inputs. This is more than adequate for a standard CCIR TV signal (1V p-p). The 10k ohm resistor across the output line prevents the build-up of a DC potential due to the leakage resistance of the 1000 uF electrolytic coupling capacitor when the switch is running unterminated.

PERFORMANCE — TYPE 1

The broad-band insertion loss of this switch is 0.36 dB (unterminated) and 0.73 dB (terminated — 75 ohms). The response (referred to 1 MHz) at 30 MHz is —1.6 dB (unterminated) and —5.3 dB (terminated — 75 ohms). The crosstalk (measured at 5 MHz) is better than 60 dB down, but note that these figures can be spoiled by poor circuit layout. These and other parameters

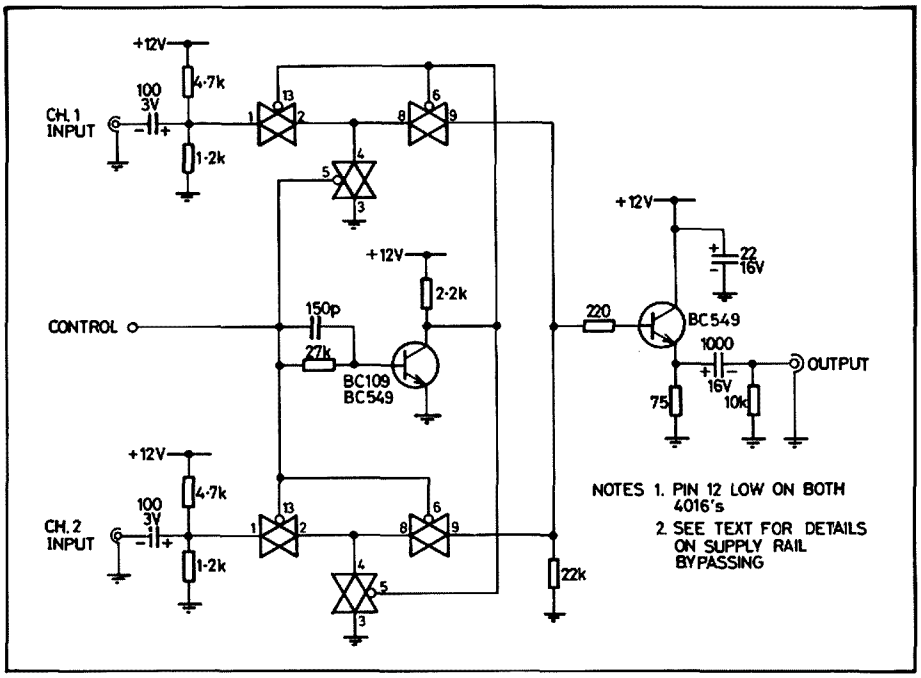


FIG. 2: Solid State Video Switch, Type 1

may be compared with those of the Type 2 switch in Table 1.

CIRCUIT DESCRIPTION — TYPE 2

This switch operates on an entirely different principle to that employed in Type 1. Here, the configuration consists of two common-emitter amplifier stages sharing the same collector load resistor. Each stage is provided with operating bias upon which the signal to be switched is superimposed. Now, each emitter load is returned to earth via the collector-emitter junction of a switching transistor. The control signal is applied to the base of the switching transistor associated with channel 2, but the switching transistor for channel 1 is supplied with an inverted version of the control signal. Thus, only one channel can be activated at any particular time. Since the bias networks for each channel are identical, the DC conditions of the switch remain unchanged whilst the AC information changes over from channel 1 to channel 2 when the control line is taken to +12V.

Since a phase inversion is incurred in this switching process, a unity-gain inverting stage follows, in order to restore the correct signal phase. The final stage is an emitter follower which provides a low impedance drive to a coaxial line. The purpose of the 10k ohm load across the output has been described in connection with the Type 1 switch. The bias voltage at the emitter of the cable driver stage is typically 2.0V, which gives a maximum symmetrical signal drive capability of 4V p-p (output unterminated) or 2V p-p (output terminated — 75 ohms).

PERFORMANCE — TYPE 2

Note that in the common-collector pair the ratio of collector load to emitter load resistance is slightly greater than unity (1.19). This small gain figure conveniently makes up for other losses incurred in the circuit. As a result of this, the overall broad-band gain for the Type 2 switch is 0.67 dB (output line unterminated) and 0.18 dB (output line terminated — 75 ohms).

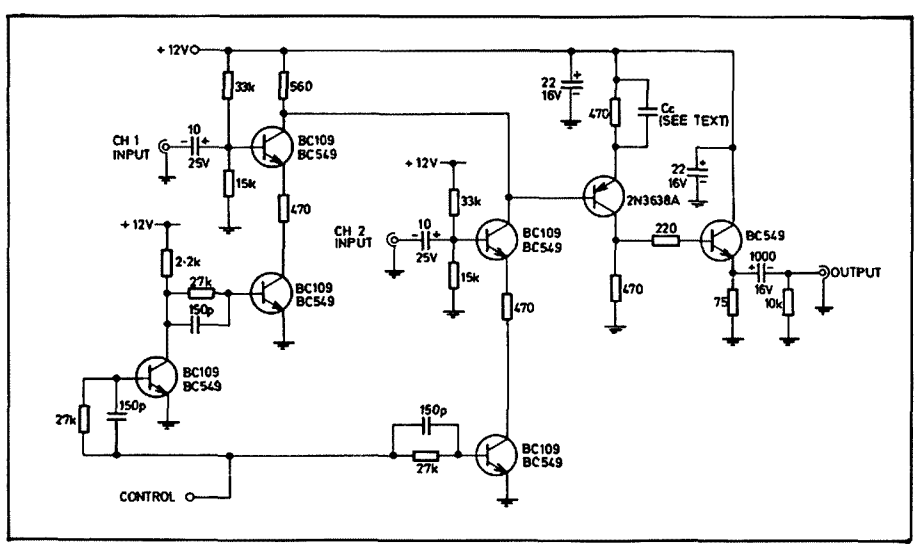
Since excess current gain is available, frequency compensation is employed in the phase inverting stage by means of Cc, which lifts the gain at high frequencies as its capacitance reactance falls. For normal video bandwidths (5-6 MHz) the inclusion of this component is unnecessary. However, if the optimum bandwidth is required, the value of Cc should be 47 pF if the output stage is to run unterminated. The —6 dB bandwidth under these conditions will be approximately 22 MHz. If the output is to be terminated in 75 ohms, Cc should be made 56 pF. Then the —6 dB bandwidth will be about 19 MHz. Note that the above compensation capacitor values are for optimum square wave response, i.e. the frequency vs. amplitude characteristic does not exhibit a positive slope at any point. The cross-talk figure (—32 dB at 5 MHz) is not as impressive as that for the Type 1 switch, but it is quite adequate for normal video use.

CONSTRUCTIONAL DETAILS — TYPES 1 AND 2

For the Type 1 circuit, PC card would prove the most suitable method of construction, due to the presence of two ICs. A piece of either DIL experimental card or VEROBOARD would be the most expedient. The Type 2 switch circuitry is more amenable to hard wiring techniques, but a specially laid out PC pattern with plenty of earth area would be the ideal method for both designs.

All resistors may be ¼ watt 5% tolerance, and all electrolytics are "tag" tantalums, with the exception of the 1000 uF output coupling capacitors which are etched aluminium foil types. All the 150 pF "speed-up" capacitors may be ceramics, and the frequency compensation capacitor in the Type 2 switch may be a silvered mica or NPO ceramic type. The BC109 transistors have been used because of their high current gain, and substitutes with minimum current gains of less than 200 should not be used. Similarly, the 2N3638A in the Type 2 circuit has been chosen for its current gain, and should not be replaced with a 2N3638.

Although the dissipations of the output emitter followers are within the 300 mW limit for the BC109 (228 mW and 267 mW for Types 1 and 2 respectively), BC549s have been specified for these positions as their higher dissipation rating (500 mW) should ensure better long-term reliability.



PIG. 3: Solid State Video Switch, Type 2

Even so, the output drivers run at a fairly high temperature, and arrangements for adequate convection cooling should be made.

In connection with bypassing, it should be noted that the supply rails to both 4016s in the Type 1 switch should be bypassed *at the chip* by means of 22 uF, 16V "tag" electrolytics. Also, the 220 ohm series base resistor and the 22 uF, 16V "tag" bypass at the collector of the output emitter follower stages are important anti-oscillation measures, and should not be omitted. The bypass capacitor should be situated as close to the collector as possible.

If you intend to put either of these switches to use in applications where their extended low frequency response is not required (e.g. for switching over a pair of HF VFOs), it would be prudent to replace the Input and output electrolytic coupling capacitors with smaller value ceramics. As well as saving both space and money, you will circumvent any possible problems which may arise at HF due to inductive effects within the output coupling capacitor.

On a final note, it may have occurred to some readers that one of the unused 4016 sections in the Type 1 switch could have been used as the control line inverter. The reason why I did not do this is that I preferred to keep the control and switching functions apart as far as possible, in order to avoid interaction effects when the circuit is handling signals near its upper frequency limit, i.e. about 30 MHz. However, if you would like to try this method, it is performed in the following manner. Ground the output of the 4016 section, and connect the input to the +12V rail via a 2.2k ohm resistor. Connect the control pin for this section to the master control line, and then an inverted version of the control signal will appear at the input. The low point of this swing will be higher than that from the BC109 inverter stage due to the "on" resistance of the 4016, but it will adequately switch the other 4016 sections. Under these conditions, the master control line resistance will be very high (all CMOS), which may prove advantageous to you. Also, the current drawn from the +12V rail will remain at 25 mA irrespective of the channel selected. ■

PARAMETER		TYPE 1	TYPE 2	UNITS
SUPPLY VOLTAGE		+12	+12	V
SUPPLY CURRENT	Channel 1 selected	25	40	mA
	Channel 2 selected	30	45	
CONTROL LINE LOGIC LEVELS	To select channel 1	Between 0 and +0.5	Between 0 and +0.5	V
	To select channel 2	Between +11.0 and +12.0	Between +11.0 and +12.0	
CONTROL LINE CURRENT	0V (channel 1 selected)	0	0	uA
	+12V (channel 2 selected)	420	840	
INPUT IMPEDANCE	Channel 1	0.87 (min.)	9.3 (min.)	k ohm
	Channel 2	0.87 (min.)	9.3 (min.)	
OUTPUT IMPEDANCE		To drive 75 ohm or 50 ohm (see text)	To drive 75 ohm or 50 ohm (see text)	ohm
MAXIMUM OUTPUT VOLTAGE SWING (for a symmetrical input waveform)	Output unterminated	3.30	4.0	V p-p
	Output terminated — 75 ohm	1.65	2.0	
BROAD-BAND INSERTION LOSS OR GAIN (measured at 1 MHz)	Output unterminated	—0.73	+0.67	dB
	Output terminated — 75 ohm	—0.73	+0.18	
HF RESPONSE (relative to 1 MHz)	Output unterminated	—1.6 dB at 30 MHz	—6 dB at 22.4 MHz (Cc = 47 pF)	db - MHz
	Output terminated — 75 ohm	—5.3 dB at 30 MHz	—6 dB at 19.25 MHz (Cc = 56 pF)	
CROSSTALK CONDITIONS: (1) Measured at 5 MHz. (2) 1V p-p input to Ch. 1. (3) Ch. 2 input shorted. (4) Ch. 2 selected. (5) Output terminated. (6) Output measured with respect to Ch. 1 input.		—60	—32	dB
ALTERNATE CHANNEL OUTPUT OFFSET VOLTAGE (measured at 100 kHz)		50 (typ.)	100 (typ.)	mV
SWITCHING TIME CONDITIONS: (1) Measured at 100 kHz. (2) Control voltage swing 0V-10V. (3) Result is time taken for a 10%-90% change in offset voltage.		0.5	2.0	us

A LINEAR AMPLIFIER FOR THE IC202 AND THE IC502

Gil Sones VK3AUI
30 Moore St. Box Hill South, 3128

The IC202 and the IC502 are great portable rigs and quite adequate for local contacts from the home QTH — they do however lack power for DX openings or pile-ups. The amplifier described uses the ubiquitous QQE06/40 to give that extra bit of "oomph".

The QQE06/40 is a rugged valve which was used for many years in commercial VHF base stations. It was also a favourite final in AM rigs used by VHF amateurs. Many readers will, like the author, have at least one somewhere in the shack gathering dust.

The circuit is shown in Fig. 1. It is a conventional amplifier with fixed bias stabilised by zener diodes. The correct tube idle current is set by adjusting the voltage of the series strings of zeners. The power supply must provide a reasonably stable screen voltage but is not critical otherwise. The author used the old AM rig's supply. The screen used the driver supply which once ran at 100 mA and hence has adequate regulation in this application. You only have to look at a commercial transceiver circuit to see what you can get away with.

Coil data is given for both bands but you should check the circuits, with the valve inserted, by means of a GDO to see that resonance occurs. Circuit layout can cause minor variations. The 2 metre grid coil is self resonant with the QQE06/40's input capacitance.

Parasitic chokes were found to be necessary on 6 metres. The grid swamping resistor was found to be useful in stabilising the load on the driver and for sopping up some excess drive.

The amplifier must be built with absolutely minimum length leads to maintain stability. The cathode bypass is made by paralleling several disc ceramics to obtain a low impedance bypass. The tube should be mounted so that the metal disc inside the valve is level with the chassis. This is a requirement for tube shielding and self neutralising.

Fig. 2 shows the circuit for the relay driver. Alternative interfacing methods are shown in Figs. 3 and 4.

The IC202 and IC502 provide a DC output voltage on the coaxial output con-

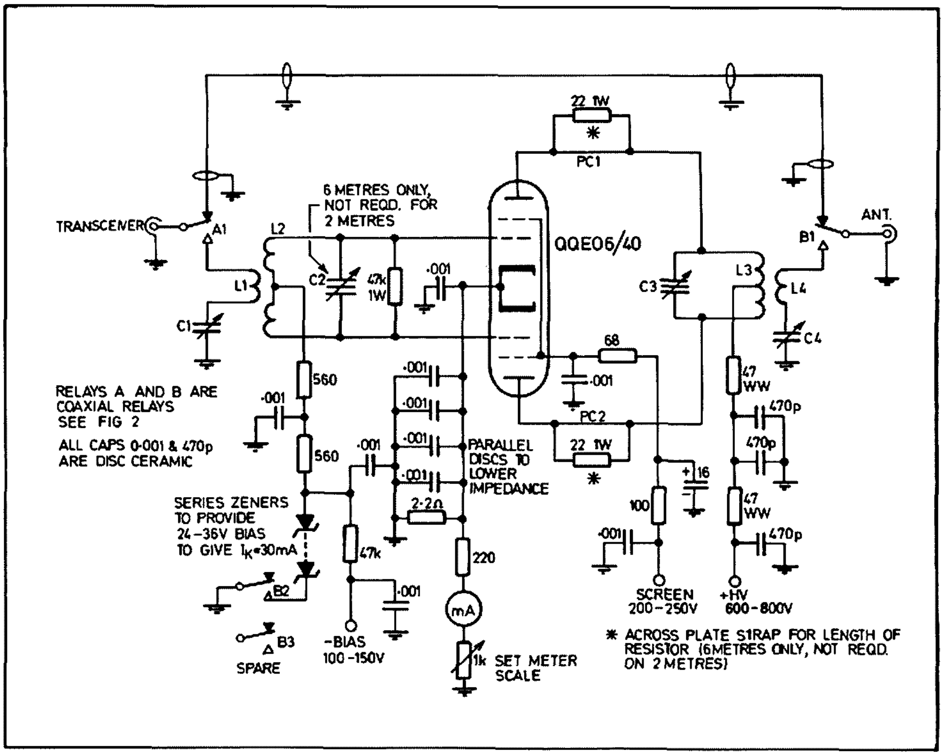


FIGURE 1: Linear Amplifier for 6 and 2 metres

COIL DATA

	2 Metres	6 Metres
L1	1 Turn 16G	2 Turns 16G
L2	4 Turns 16G	8 Turns CT 16G
	16 mm Dia.	22 mm Dia.
L3	4 Turns 10G CT	10 Turns CT 10G
	18 mm Dia.	25 mm Dia.
L4	1 Turn 16G	1 Turn 16G

TUNING CAPACITORS

C1	25 pF	50 pF
C2	Not required	15+15 pF
C3	8+8 pF	15+15 pF
C4	30 pF	100 pF

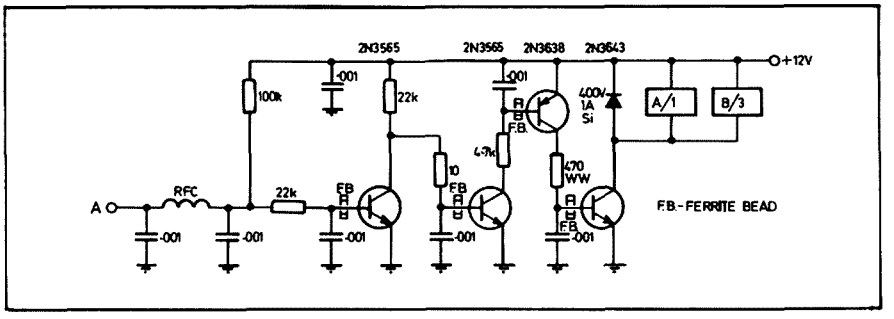


FIG. 2: PTT Relay Driver to suit IC502 or IC202

nector's inner conductor during the receive condition and zero on transmit.* This is part of the send-receive diode antenna switching control system. This voltage is used in the scheme shown in Fig. 4 to control the linear amplifier via the relay driver shown in Fig. 2.

An alternative is to connect the microphone to the IC202 (or IC502) via the amplifier and so access the PTT line. This is a simple scheme but to avoid upsetting the PTT circuitry in the transceiver the same relay driver should be used. See Figs. 2 and 3.

The author used coaxial relays for antenna change-over but any low RF loss switching relay can be used. Remember, especially on two metres, to take care here as losses will reduce receiver sensitivity. You can't work the DX if you can't hear it!

On two metres a low noise preamplifier is a worthwhile inclusion as the IC202 noise figure whilst adequate is not the lowest available. If a preamplifier is used "barefoot" operation becomes inconvenient without more switching. On six metres the IC502 would suffer severe cross-modulation in channel 0 areas if a receive preamplifier were used.

The prototypes of both amplifiers were built using printed circuit laminate soldered together to form a combined box and chassis. This is an easy method of construction and provides readily solderable earth planes. Earth leads can be kept very short and shielding is easy, important factors in maintaining stability. The board used was the cheap surplus "moulded mud" variety as the dielectric properties are unimportant.

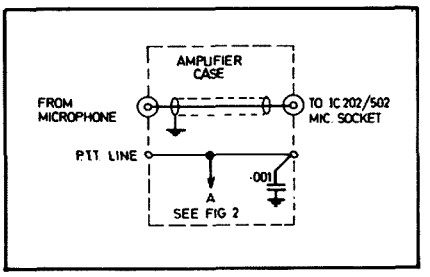


FIGURE 3: Using the PTT Line Actuation

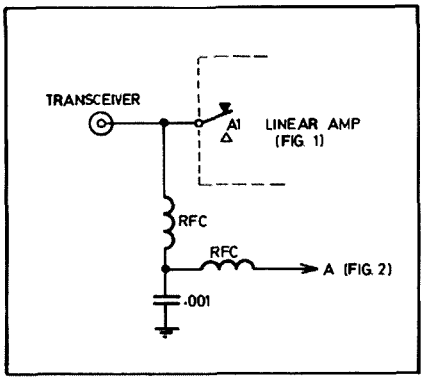


FIGURE 4: Using the Coaxial Line Actuation

*The IC502 requires a modification to short out a DC blocking capacitor in series with the antenna connector. — Tech. Ed.). ■

FOX HUNTING — MANUAL GAIN CONTROL FOR THE IC202

Gil Sones VK3AUI
30 Moore St., Box Hill South, 3128

Foxhunts require a manual gain control to reduce receiver sensitivity as the hidden transmitter is approached. The IC202 is a very compact rig and can, if necessary, be carried overland (or water if on some foxhunts . . . Ed.).

This very compactness makes the provision of a manual gain control a problem. Many owners are not prepared to drill holes in the case anyway. Salvation is at hand because the PTT line, available at the microphone socket, is connected to the control transistors supplying the major gain stages of the receiver. All that is required is a potentiometer connected between the PTT line and ground.

The manual gain control may be mounted as a plug-in module or built into the microphone case.

The circuit is shown in Fig. 1. The nominal 150 ohm resistor R1 should be adjusted so as to make the minimum gain setting just above the point where the IC202 PTT is activated (150-300 ohms). There is a range of adjustment between the minimum gain point and the point where the transmitter is actuated. The maximum gain is set by the maximum value of the potentiometer so any value which gives maximum sensitivity can be used. The author found that 10k ohms was sufficient. Higher values such as 15k or 20k could be used if these are in the junk box. ■

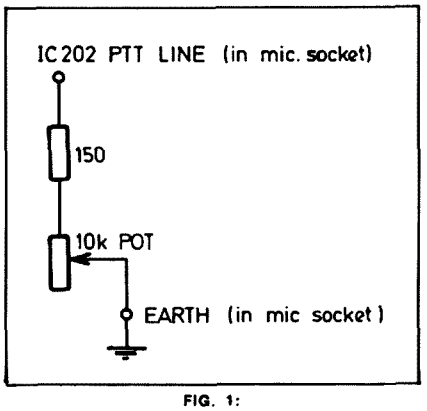
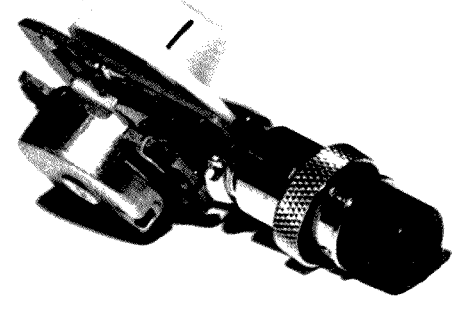


FIG. 1:

Photos of Manual Gain Control



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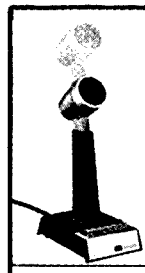

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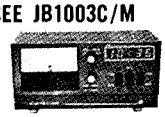

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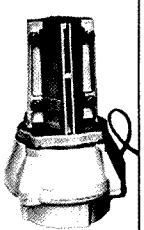

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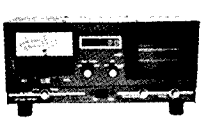

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SPECIFICATIONS

Transceive frequency range 2 MHz in 144-148 MHz, transceive channels 6, channels antenna impedance 50 ohms unbalanced, BNC connector power requirement 12V DC (negative grounded), Power consumption transmit 300 mA, receive 100 mA stand-by 25 mA, size 68 mm (2-43/64 in.) wide, 154 mm (6-1/16 in.) high, 41.5 mm (1-41/64 in. deep, weight 470g (1.03 lbs.). Repeater offset +600 kHz modulation variable reactance phase modulation, max. deviation +5 kHz microphone condenser, microphone receiver, double conversion superheterodyne (1st IF, 16.9 MHz; 2nd IF, 455 kHz). Sensitivity —4 dBu NQ 20dB). Audio output maximum 0.3 watts. Attachment rubber ducky antenna. Nicad battery pack. DC cable with cigarette lighter plug. Carrying strap.

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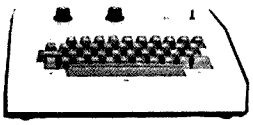

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2m FM PLL SYNTHESIZED MOBILE TRANSCEIVER

● 144-148 MHz. PLL digital synthesizer system (800 channels) ● A large-sized LED, digital display system provides readings up to six figures ● Easy-operating separate and selective mechanism displayed by the frequency unit for wider operation ● Transmitting output: 25W/1W, two-step selector switch ● Provides repeater operation of ± 600 kHz and desired frequency ● RF output with S meter indicator.

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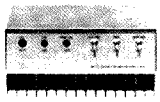

● Full 80-10m broadband coverage ● Full 100 watts output AM (150-200 watts PEP on SSB ● Dual power: Selectables S/10 watt input power ● Operating modes: AM, FM, CW, SSB, RTTY, SSTV ● Broadband — requires no tuning across band ● Harmonic levels typically —50 dB or better (see specifications) ● RF actuated switching relays ● Full VSWR and reverse voltage protection ● Extra stabilization circuitry ensures spurious-free operation at all input power levels ● Under 1 dB insertion loss in receive or bypass mode ● Remote control capability ● Receive pre-amp nominal 18 dB gain across band.

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● 10W input, 80W output nom ● Low power input yields nom 10 dB gain ● Covers entire amateur band w/o tuning ● Built-in receive pre-amplifier ● automatic TR switching or hard keying ● Variable TR delay for SSB/CW use ● Pre-amp and power amp independently controllable ● Pre-amp nom 11 dB gain, 2½ dB overall NF.

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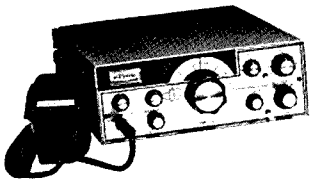
alda 103



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FDK BIGEAR TRANSCEIVER TYPE 1

2m FM SSB CW PLL SYNTHESIZED MOBILE BASE TRANSCEIVER

● 144-148 MHz, PLL digital synthesizer system, FM: 800 channels (5 kHz step); SSB: 400 channels (10 kHz step), plus VXO system (±7 kHz) ● AC 117/240V, DC 13.8V, two-step power supply ● Digital display system (using a large-sized LED), providing reading up to six figures ● Transmitting output: 10W/1W, shifting mechanism ● Front loudspeaker suited for base station ● Easy-reading, separate S/RF centre meter ● ON AIR/ RECEIVE/RIT position displayed by LED ● Include RIT, AGC, VOX and noise blanker circuit ● Provides repeater operation of ± 600 kHz and ±1 MHz.

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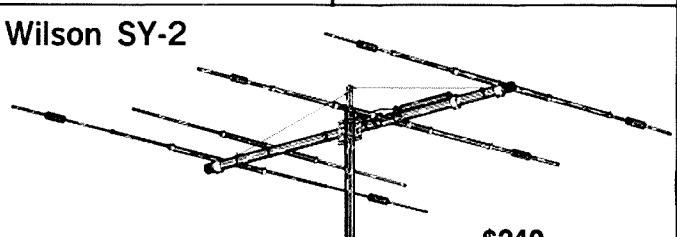
Wilson SY-2



$240

Delivers outstanding performance on 20, 15 and 10 metres. Features Wilson's large diameter High-Q Traps, feeds with 52 ohms coax, a beta match method presents tapered impedance which provides most efficient 3 band matching and DC ground to eliminate precipitation static. The result is SWR less than 1.5 to 1 at resonance on all bands and maximum front-to-back. An added feature is the separate 10 metre reflector for correct monoband spacing. Add to this the rugged boom to element mounting, heavy duty taper swaged elements.

SOME INFORMATION ON THE MODEL 15 TELETYPE

G. F. Hughes VK2ZNY
P.O. Box 37, Ryde, 2112

In the short period that has elapsed since RTTY groups have been established, the availability of machines has been on the increase, particularly in two major brands. This article deals with one of them.

The Model 15 Teletype (and its various offshoots equipped with paper punchers and readers) is an old and reliable model. Although it suffers from antiquity, it is nonetheless a very easy machine to set up.

In the following paragraphs are some bits and pieces which the author hopes will help those who have recently acquired one of these machines.

CIRCUITS

These are divided into three groups: the baseplate which is primarily the motor and its speed regulator, the transmitter, and the typehead (receiver). If your machine is intact, your circuits will be as shown in the diagrams. It must be noted, however, that some Model 15 machines could be ex-PMG, and certain facilities not required by the Department may be omitted.

The motor speed regulator is a centrifugal type fitted at the rear end of the motor in a drum. Contacts and RF chokes are included in this unit. A rear plate carries a double brush contact arrangement to carry power to this section. Speed is checked by observing strobe marks painted on the periphery of the rotating member. The use of ordinary 50 Hz lighting for this is not, strictly speaking, applicable as the shaft revolves at 2308.5 r.p.m. for 50 Baud rate, or 2098.5 r.p.m. for 45.45. If one is prepared to paint 3 equally spaced marks around the drum periphery, the motor speed will have a 3.4 per cent error at 45.45 Bauds using a 50 Hz lamp (for a stationary pattern, exactly 46.995 Bauds is the setting).

The transmitter consists of a cam unit operating 6 sets of parallel connected contacts, and is provided with the necessary network for operating on DC lines. For AFSK, this network may cause problems and should be disconnected if operation directly from these contacts is anticipated. A contact "debouncing" circuit should also be considered. When series connecting the transmitter and typehead to produce local copy this network may be needed. It is a good idea to run the transmitter contacts into the AFSK modulator, and obtain local copy by demodulation. In this way a constant check on the MODEM (modulator-demodulator) system can be had while

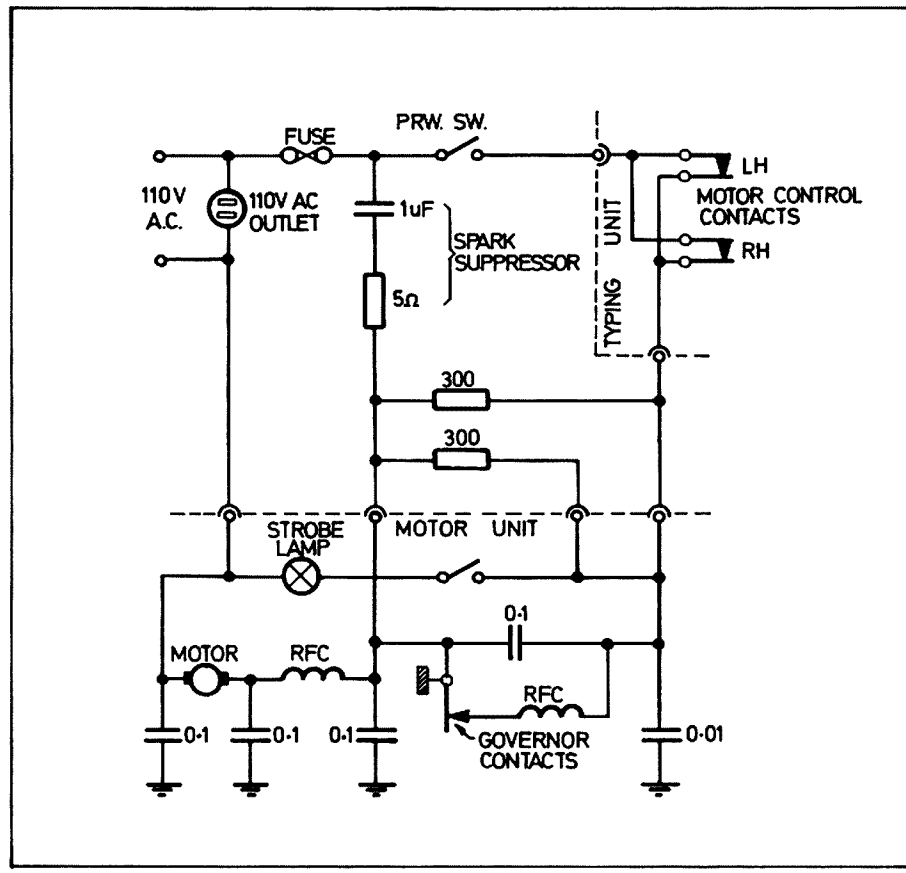


FIG. 1: Model 15 Teletype System

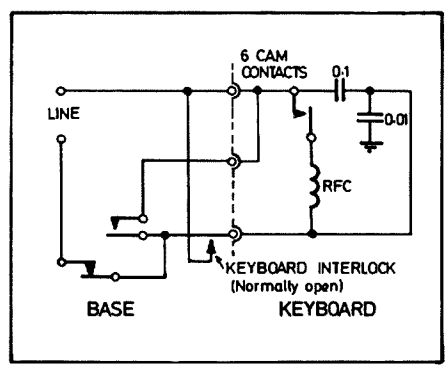


FIG. 2: Transmitter

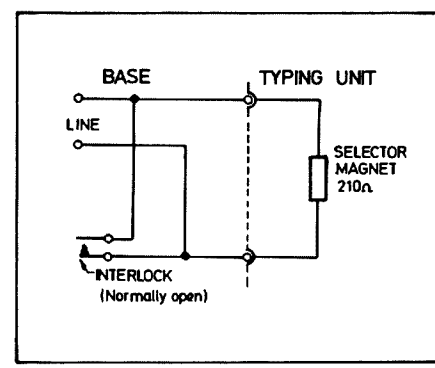


FIG. 3: Receiver

transmitting or punching a tape; while playing a tape or receiving, the demodulator only is used.

The typehead consists of a pair of coils whose total resistance is about 210 ohms, and requires 60 mA for proper operation. When connected as the receiver on a long telegraph line, it is usually preceded by a correction network to correct for line waveform distortion of the ideal square form. For amateur use, the coils are driven directly. Low impedance drive tends to be rather sluggish when operating in the constant voltage modes.

Ideally, the typehead magnet should be driven from a high voltage source via a high resistance. At the lowest possible voltage, the time constant will be L/R, where R = 210 ohms, and L is the coil inductance (a constant). If the supply voltage is, say, 150 volts (current 60 mA), the series resistance would be 2500 ohms. When substituted into the above formula, it is easy to see that the apparent magnet speed will be about 12 times faster. We can also make the release time just as fast by quenching the back EMF via the same resistor through a catching diode across this series combination — not just across the coil. This would be required to protect a keyer transistor from reverse Vce breakdown in any case. Dissipation of the resistor is about 9 watts, and can be handled either by a single 10 watt unit or ten 250 ohm 1 or 2 watt units in series.

POWER SUPPLY

As the motor of the machine operates from 110V AC, a suitable stepdown transformer must be used. This can, with a bridge rectifier and capacitor of 100 uF or so also provide 150V DC nominal voltage for the typehead magnet/resistor circuit by grounding one side. Although it leaves the motor circuit "up in the air" when connected to the same transformer secondary, there shouldn't be too many problems of hash experienced with suitably filtering around the motor governor circuit. The author used an old TV power transformer normally used in a voltage doubling HT supply, furnishing 105V RMS and 6.3V heater. Under load, the motor was quite happy with the slight voltage difference. The heater winding was operated with a voltage doubler and gave sufficient input to drive a 12V three terminal regulator to supply the Modem.

SOME THINGS TO TRY

Remembering Department "mods", certain facilities may or may not be included on your machine.

Motor Stop: If the letter "H" or "J" in the FIGS selection immediately follows the blank (without space), the motor will stop. The typehead magnet must be de-energised to allow various levers to close the series motor control contacts to start the motor. The contacts are located on the lower front portion of the typehead basket assembly. If you want to disable this section, go to it!

Signal Bell: It is wise to retain this facility, as it can be used at the commencement of a transmission. It is designated on the typing keys in FIGS as a bell symbol or the letters "BL". In telegraph hookup, it is used to set other teleprinters into operation that may be in standby mode, and to wake up the sleeping operators (as if they couldn't hear a Model 15 making its noise!). It is also handy to make sure that the machine is operating properly, thereby eliminating the risk of printing garble.

Keyboard Lockout: If two blank signals are received consecutively without any other character or spacing breaking the sequence, a handle marked "SEND-RECEIVE" will move to receive position. This closes a pair of contacts which short out the keyboard transmitter bank. The handle must be manually moved to SEND to transmit from the keyboard.

ADJUSTMENTS

To optimise the machine for receiving, it is important that the decoding cam in the typing system is in step with the transmitter of a second machine. The letters "RY" are used in continuous fashion while adjusting a quadrant lever at the LH side of the machine. Unlock and move this lever while noting the scale position where the machine prints garble. Move the other way for the same effect and set midway between the two. This assumes that the motor speed is set to amateur Baud rate of 45.45.

The motor speed is set by adjusting the spring tension pulling against a centrifugal weight fixed to a pair of contacts inside the drum fitted to the rear shaft section of the motor. Two levers skim a rubber tyred wheel fitted to an adjustment screw in the drum, and either increases or decreases tension appropriately. With a little inspection, these levers are easy to find. One is situated between the drum and the rear cover of the motor on top of the bearing, while the other is fixed to a large spring at the back. This system may appear archaic, but it is the basis of the XYL's Sunbeam Mixmaster food mixer, or the motor governor in the majority of cheap type (and some exotic) cassette recorders!

There may be other characteristics not listed here, and the author apologises for any missed. How about sending in your pet RTTY gimmick for all to share?

73s. Goodnight. ■

COMMERCIAL KINKS

RON FISHER
VK3OM

This month we return to the Yaesu FRG-7 receiver. Arthur Solomon VK3LJ has come up with some simple tricks which no doubt increase the pleasure of using this fine receiver.

Over to Arthur.

"Recently I purchased an FRG7 and am delighted in general with it. After experiencing the many shortcomings of other receivers in the moderate price range, I consider the acquisition of the FRG7 a definite step forward.

Nevertheless, I do have some criticisms (rather obvious ones, perhaps) and some simple modifications which may be of interest to you and to your readers in AR. I offer them for what they may be worth.

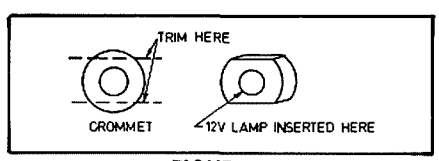


FIGURE 1

(1) I wired in a miniature 12 volt lamp for the S meter as suggested in June AR but with a slight alteration. The miniature lamp I bought was supplied with a rubber grommet, which I trimmed as indicated in Figure 1. I cemented the grommet, rather than the lamp itself, above the S meter, and then pushed the lamp through the grommet. This makes replacement of the lamp a very simple matter. (The leads to the lamp are taken, as you suggested, to the three lug strip above the chassis to the rear of the main dial.)

(2) An annoying feature of the FRG7 is the dial set knob which protrudes barely a millimetre or two through the front panel. Now, it is obvious that continual use of this knob is certain to cause wear of the panel surface at this point, not to mention disfigurement, if not obliteration, of the lettering above it. A simple solution is to take a black plastic LED socket, file its interior to fit the metal knob of the dial set, and cement it in place. It offers a firm purchase for the fingers, is not obtrusive and blends perfectly with the design of the front panel (Figure 2).

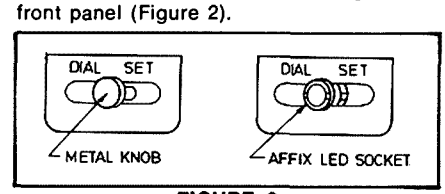


FIGURE 2

(3) Another criticism of the FRG7 concerns the main dial itself. The cursor is set forward at least one cm from the dial itself and this introduces a serious parallax error.

A simple solution would be to fit a highly polished thin metal band just above the dial markings. There are many ways,

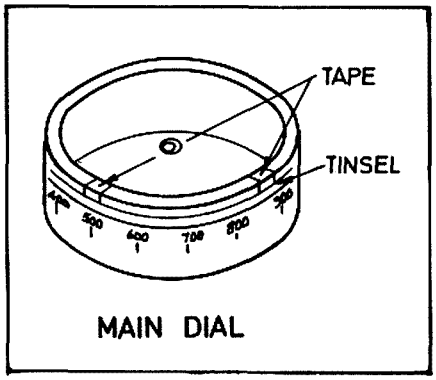


FIGURE 3

of course, of providing such a mirror backing, but after trying several, I settled for what I think is a very simple method. I bought a packet of "silver" tinsel, the kind that Is used in Christmas decorations. The tinsel is only about 2 to 3 mm wide and is highly reflective. The tinsel is wound around the main dial drum at a height of about 1 mm above the figures on the dial and is secured at strategic points with transparent cellulose tape. Its use is simple: the crystal calibrator is switched on and the receiver is tuned for maximum S meter reading (on AM) or zero beat (on SSB) and the dial set adjusted until the cursor is lined up with its image in the tinsel.

This procedure of superimposing the cursor on its image is repeated when setting or reading frequencies on the dial.

The mirror scale harmonizes well with the general appearance of the receiver and the modification itself can be removed in seconds without leaving a mark.

(4) A deficiency in the FRG7 is the absence of an inbuilt crystal calibrator. Such a facility is essential in any serious communication receiver and can be provided for the FRG7 by means of a quite simple modification — *provided* one is willing to relinquish the rather doubtful advantage of being able to operate the FRG7 from dry cells! (This is to me a rather pointless facility: most amateurs or SWLs wishing to operate this receiver portable would surely have access to either the mains or to a car battery). The LIGHT switch on the front panel is only a necessity if you wish to operate the FRG7 from dry cells, and if you are willing to forgo that facility, then you can use the LIGHT switch to operate an inbuilt crystal calibrator.

The modification is as follows:

(i) Remove the two wires from the LIGHT switch, solder them together and tape the join. The LIGHT switch is now available for the calibrator.

(ii) Remove the plastic dry-cell compartment on the sliding carriage at the rear of the receiver, first unsoldering the red and black leads from the white *socket* on the back panel of the carriage. Mount your calibrator circuit board and crystal on the sliding carriage as shown in Figure 4. The

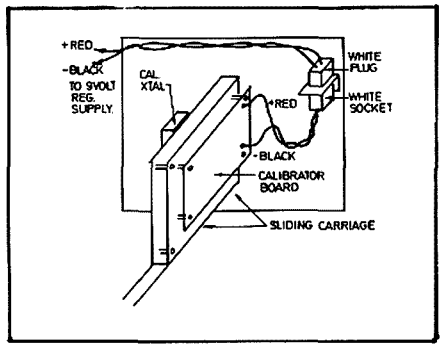


FIGURE 4

red and black leads from the white socket are connected to the board as shown.

(iii) Trace the red and black leads from the *white* plug to their termination on the lug strip near the DC input jack under the chassis and disconnect them. These leads and their plugs are now available to supply voltage to the calibrator (Figure 5).

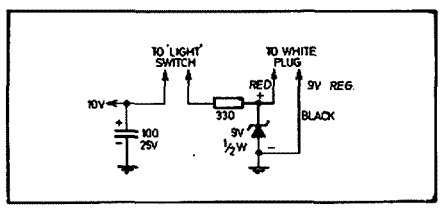


FIGURE 5

(iv) Supply voltage for the calibrator can be taken from the 10V terminal on the three lug strip to the rear of the main dial. This is the same source that was used for the 12V miniature lamp used to illuminate the S meter. Wire a 100 mFd 25V electrolytic across this point, otherwise you will hear a quite impressive hum on the calibrator signal. Also add the circuit shown in diagram 4 in order to transform the 10V source into a 9V regulated supply. (You could simply use the 9V regulated supply of the FRG7 itself but I found that with this arrangement, the incoming signal tended to drop whenever the calibrator was switched on.) The LIGHT switch should be connected as shown.

The modification is now complete and provides the FRG7 with a crystal calibrator controlled from the front panel. This simple modification does not deface the receiver in any way, does not deprive the operator of any essential facility and, in the event of subsequent disposal of the FRG7, restoration to the receiver's original state can be accomplished in but a few minutes.

A 100 kHz crystal would be the ideal choice for the calibrator but even a 500 kHz or 1 MHz crystal would be adequate. I use a 500 kHz crystal taken from a defunct No. 10 Crystal Calibrator. This is a rather sluggish crystal and therefore I used the circuit shown in Figure 6. This was designed by G30GK and published in the RSGB "Amateur Radio Techniques" (1972 ed.). This little unit draws 1.5 mA

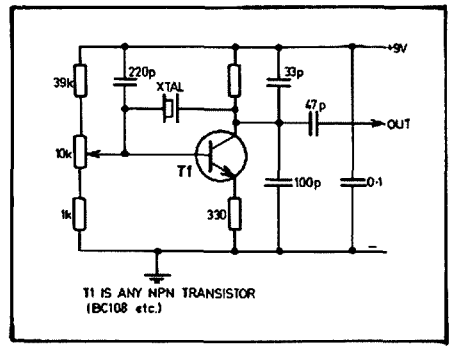


FIGURE 6

and provides a better than S9 calibrator signal over the entire range of the receiver.

The output of the calibrator was taken by the most direct route to the SW antenna terminal.

(5) My last point consists simply of two comments:

(a) The Record socket on the front panel has an additional use easily overlooked: it is not only an output socket but also an *input* one. You cannot only record from the FRG7 through this jack, you can also *play back* through it and make use of the audio stage of this receiver.

(b) The FRG7 as supplied to me was far too generous in its S meter readings. The S meter sensitivity, of course, can be adjusted by means of VR401 on PBI528. Since one of the many purposes for which I use the FRG7 is to monitor the amateur bands, I considered that it would be a considerable advantage if its readings could be made to correspond with those given by my FT101E. Thus I simply tuned the FRG7 and the FT101 to a strong signal on the 20m band and adjusted VR401 until the two S metres agreed. Strangely enough, this correspondence holds closely across all the amateur bands. (Incidentally, since the inclusion of the crystal calibrator, I can locate a signal on the FT101 within 2 to 3 kHz of that indicated on the FRG7.)"

Next month, a few interesting modifications to the Realistic DX 160 receiver. ■

CQ OUTER SPACE

Perhaps one of the most fascinating aspects of radio is the eternal question, "Is anyone else out there?" Out there meaning the vast, limitless depths of interstellar space.

From time to time there appears short and frustrating bylines in the world's press that such and such a group of scientists in so and so a country has definite proof of the reception of intelligent radio signals from the cosmos. Like quicksilver these startling announcements suddenly appear and disappear, never to be heard of again. Russia and the United States are the chief sources of these singular revelations and it is in these two countries that the ominous cloak of secret military classification effectively silences further references to them.

OPTICAL LIMITS

Optical astronomy has almost reached its workable limits unless an observatory can be erected on the moon, free of the distorting effects of the earth's atmosphere. Even if this fantastic achievement was ever completed it would only increase optical penetration of the universe to another boundary. The only effective way we have today for a survey of the real depths of space is by radio astronomy. Space probes have and are being used as well, but these are almost exclusively confined to our solar system, but radio observations know no such confining limits.

The search for extraterrestial life began as far back as 1892 when Nikola Tesla and Gugliemo Marconi both began to speculate on strange morse signals they received on their primitive wireless apparatus. Again in 1920 Marconi heard unidentified signals when he was engaged in reception experiments and these aroused so much interest in scientific circles in the US that on August 21st, 1924, all American commercial stations, including the high powered Navy transmitters, were silent for a period of five minutes each hour for eight hours. It was hoped this silent period would enable various listening posts to pinpoint the strange signals. The results were inconclusive owing to the very broad spark signals emitted by European transmitters who were not signatories to the American silence period.

MILKY WAY

It was not until 1939 that Grote Reber, an amateur located in Chicago, built to his own design a 10 metre metal dish and found that the entire milky way was a source of natural radio noise with several areas of very intense emission.

After World War 2 the search was taken up by Cocconl and Morrison of Cornell University who together wrote many papers on the subject, but were hampered by lack of search gear. They tried to involve Sir Bernard Lovell with the Jodrell Bank radio telescope in their enthusiastic plan, but in true British tradition he dismissed the idea as "frivolous". He was later to accept the challenge in principle, but was not prepared to divert the Jodrell Bank radio telescope from its planned survey of flare and magnetic stars to undertake such speculative work.

In recent years there have been worthwhile attempts with radio astronomy to delve into the questions of life on other planets. Project Ozma undertaken by the United States was the biggest attempt of this nature and took place at Green Bank, West Virginia. Again several conflicting statements were Issued at the conclusion of the tests, rather of a negative nature. The object of these activities is not an attempt to communicate with other worlds, but to listen to intelligent radio signals that may emanate from some far distant planet. It may be worthwhile at this stage to make clear two opposing views on the use of radio astronomy. The more staid, conservative school uses radio telescopes to listen to the natural radio noise that emanates from far distant galaxies. In this way deductions can be made to determine the nature of the awesome proceses at work on newly formed or exploding nebulae and stars. Jupiter, in our solar system, is an excellent source of radio noise. The other school of radio astronomy is the one that concerns us. It is the use of radio telecopes to listen for intelligent transmissions in space. The equipment used in both cases is identical and comprises a large metal dish mounted on adjustable bearings that can be tracked to any point in the sky.

RADAR ECHOES

The giant telescopes of the world, such as Jodrell Bank and a newly completed one of immense size in the United States, are used almost exclusively by the first school, the staid conservatives. These installations are used to probe stars and constellations far out in space. By listening on various wavelengths (hydrogen gas has a frequency of 21 centimetres) innumerable deductions can be made regarding temperature, composition of atmosphere, etc. Even radar plays a part in these researches, but only with limited distances. For instance Venus Is never seen, only the thick atmospheric cloud cover is visible, effectively hiding the surface of the planet. By means of radar this cover was penetrated enabling the planet's rotation period to be calculated together with its surface topography. This was accomplished in March 1961 using a wavelength of 2,388 mcs and a power of 12,600 watts and took place at the Deep Space Instrumentation Facility in America, the echo from Venus taking 6.5 minutes to return to earth. A further triumph was the first radar echo from the sun and later from Mercury. It was a scientist named van de Hulst who made the discovery that clouds of hydrogen gas emitted radio signals at 21 centimetres. It was the use of this wavelength that enabled scientists to map out the spiral arms of our galaxy which were invisible to conventional telescopes because of the massive dust clouds that intervened.

Returning to the subject of possible life on other worlds, It can be safely predicted that our own solar system is devoid of intelligent life capable of communicating with us. Our search must therefore expand to other constellations, the most suitable being Tau Ceti and Epsilon Erdani which might or might not have planets capable of supporting life as we know it.

The size and nature of their suns is used as a guide or yardstick to ascertain very roughly the conditions that might exist on their planets. As both these constellations are 11 light years away from us and as radio signals travel at 300,000 km per second, it would take (providing we had established there was a civilization able to converse with us) 11 years for our message to reach them and another 11 years for their reply to return. A total of 22 years for the complete message! A sobering thought indeed!

Another possible obstacle to our search is the stage of development reached by any alien civilization. Assuming there is an inhabited planet in a certain constellation with similar conditions to our own earth, for us to listen to their radio signals and later to communicate with them, they must be at a stage of develpoment similar to us. If they were a thousand years ahead of us in development, it can safely be assumed that they would use some form of communication such as superior mental telepathy, ESP or perhaps a very advanced form of scientific visual communication. A thousand years behind us would mean they had just come out from the bow and arrow stage. Two or three hundred years would be nearer the mark, even then the balance would be critical. Consider our own scientific advances during the past one hundred years as a guide.

Another point worth considering is that assuming they were capable of monitoring our own radio spectrum and eavesdropping on our broadcasts from around the world, one can visualize their council of elders declaring "Leave well alone!" Going on our past and present record of international strife and bickering, could you blame them? Planet earth is not exactly an attractive proposition!

We now come to the last and, possibly, the most important aspect in our quest for life out there. It is the vast, incomprehensible distances involved in which time plays a decisive part. When one looks up at the stars at night, one is actually looking at the past. The light seen actually left many of those stars and constellations tens, hundreds and thousands of years ago and in fact, many of those stars no longer exist. The incredible distances involved are difficult to grasp mentally. For example, the nearest star to us called Alpha Centauri and Proxima Centauri (it is in fact a double star) whose light takes four and a half years to reach the earth, is a mere stone's throw away in astronomical distances. For comparison assume the sun is one metre away from us. Then this nearest star, Proxima Centauri, is 200 km away from us! The same applies to radio signals which also travel at the speed of light. If we did happen to hear an intelligent series of radio messages, the chances are that the transmission originated on a planet a hundred or so light years away. It is possible that its parent sun had exploded and become a supernova during the time the signal took to reach us. That particular civilization could have equally well died out or decimated itself with an atomic holocaust during this period of time. In plain language we could be listening to something that did not any longer exist!

The prospect is not exactly encouraging. The best we can possibly accomplish at our present stage of scientific development is to listen and keep on listening. If we can prove beyond reasonable doubt that we have overheard and decoded an intelligent radio transmission, we will know, once and for all, that we are not alone and that there are others out in the cosmos, even if we are unable to communicate with them. It will also mean the adaptation of beliefs and dogmas of large sections of the world's population and a lot of scientific noses would be put out of joint!

The Russians are far ahead in this search. In 1973 the Soviet newspaper, "Tass", announced that the director of the Gorki Radio Research Institute had received signals of an unusual nature and did not resemble in any way the natural radio emissions from far distant galaxies. Other USSR scientists, among them Dr. Kardashev and Professor E. Troitsky, are pioneering the search for intelligent transmissions. They too have received signals which they describe as being of regular character and in groups lasting from two to ten minutes in duration. In 1975 the Ural Research station also claimed to have received transmissions which are not natural but artificial in origin and sent by sophisticated radio equipment. It is high in these Ural mountains that the Russians are or have constructed a giant radio telescope about twice the size of the installation at Jodrell Bank. It is indeed a great pity that news and information of this kind cannot be pooled and shared among the scientific circles of the world. The United States are just as guilty in suppressing vital news of this nature and the press often omit news items dealing with the subject as of being of no consequence. Again the ugly word "military and secret classification" keeps a lot of information locked away. The lack of any information on UFOs is another case in point.

Another fascinating radio sideshow has been the perplexing echoes received from our own regular radio transmissions. These were first noticed during 1927 in Holland. A replica echo from a test broadcast which took from three to twenty seconds was noticed at irregular intervals over a period of several years. The normal rebound of a signal from the ionosphere takes about a fraction of a second depending on the wavelength used. What reflected these odd echoes? The Dutch transmissions were broadcast on 150 and, subsequently, on 31 metres and the echo times were identical. How did the signals penetrate the ionosphere and more strangely still, how did they return again through the reflective layers? This phenomenon has been observed at odd intervals through the years, the last reports being in 1963 from Germany and Austria.

Even VHF and UHF have their quota of mysteries as illustrated by the following occurrence. During 1953 some UK television viewers were startled to see on their screens the identification card of TV station KLEE during a BBC church service. The image was strong enough to override the normal picture and remained visible long enough to be photographed by several people. The BBC engineers dismissed the whole episode as freak long distance pick-up from the United States until someone did their homework and discovered TV station KLEE went off the air permanently in 1950 and in fact the station had been dismantled when it was bought out by a rival network!

"Pirates" screamed the engineers when they learnt of this new development, until someone came up with some very disturbing facts. If indeed it was a pirate station how was it viewed in various areas from one end of England to the other? TV signal propagation is limited to roughly a line of sight so how was this widespread coverage accomplished? It would require at least fifteen very powerful stations to cover the areas involved. The image lasted just over four minutes and was never repeated in spite of careful monitoring by the engineers, so the idea of pirates can be dismissed without further thought. What caused this odd occurrence? One of the photographs of the card as it appeared was sent to the Federal Communications Commission in America who handle the licencing of TV stations and it was compared to the original from defunct station KLEE. It was identical in every respect, even to a slight blemish in one corner!

How was this picture received on British television screens three years after the last transmission from Texas? Why was this particular low powered TV station chosen? Why was it only received in certain areas in England where a different type of transmission is used? Why was it seen only once and never again?

In conclusion, let me quote the chief engineer of the BBC when asked for his explanation of the mystery. "We are confronted with circumstances which are at variance with all accepted facts of television transmission. It is unthinkable that these signals could have been circling the earth for the period since that station last transmitted them. It is physically impossible that they could have been reflected by any celestial body in space at such a vast distance and received with such power: Power far beyond the limits of the original station. This leaves us with one remaining possibility, however bizarre, that this television signal was transmitted to us with intelligence and with a purpose, from a source and with an object presently unknown."

From Radio ZS November 1977. ■

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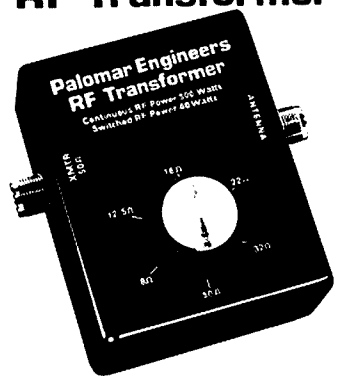

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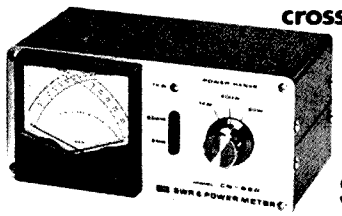

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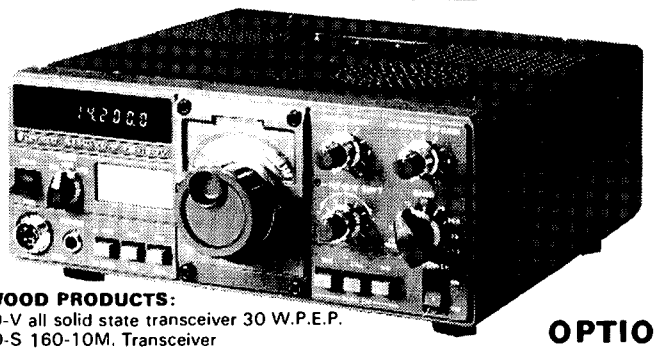

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5M RG 58-U w/PL-259 one end	$3
Bumper mount c/with 3/8" 24-thread ant. mount	$7
Gutter mount c/with 3/8" 24-thread ant. mount	$4.50

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KENWOOD AMATEUR RADIO EQUIPMENT

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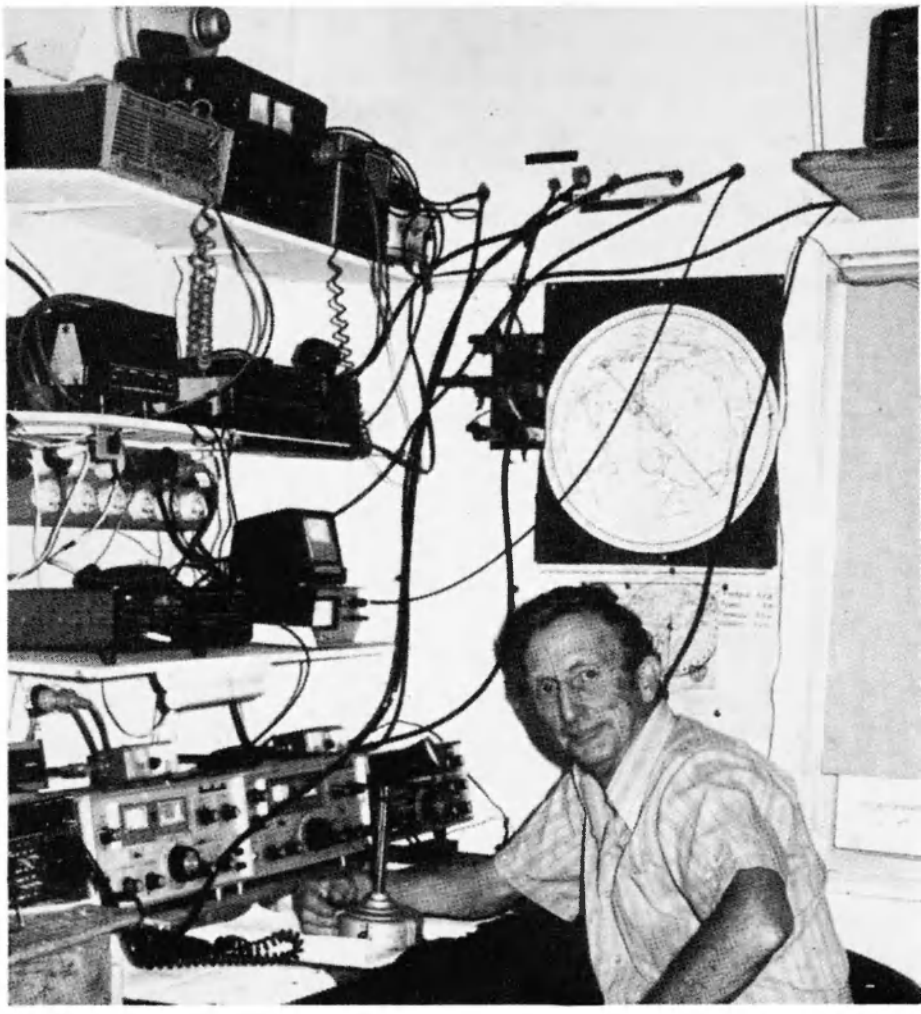
THE MAN BEHIND THE MICROPHONE

David Thompson VK2BDT, President of the Goulburn Amateur Radio Club. David's QTH is just outside Goulburn. His tower was originally used at the old Goulburn Fire Station.

Photos courtesy of the Goulburn Evening Post. ■



WIA QSL BUREAU INFORMATION FOR NEWCOMERS — AND OTHERS!

Fred Lubach VK4RF
Qld. Div. Outwards QSL Officer for past 8 years

To take full advantage of QSL bureaux certain rules should be observed. Some States have both an Inwards QSL Officer, and an Outwards QSL Officer, as in Queensland. The Inwards section handles incoming cards from both interstate, and overseas, and these are sorted, and eventually handed out to members at WIA meetings, etc., or, in the case of Country Members, posted by ordinary parcel post. Country members should insure that they have stamps, or stamped addressed envelopes lodged with the QSL Bureau to cover cost of postage.

QSL cards are *proof of contact* and should contain all relevant information, such as Date, Time, Band, Mode, Signal strength, etc., and all times quoted should be in GMT (UTC) and the month written in words. This is because in USA 2-6-78 means 6th February 1978! Preferably cards should be small enough to fit an ordinary letter-size envelope, and on *thin* cardboard.

The call sign of station worked should be CLEARLY printed after the words "To Radio, . . .". Some newcomers are writing Christian names in this space, causing QSL officers to tear their hair out! Always pre-sort cards alphabetically, according to country *prefix*, with the exception of Australia and USA, when they should be sorted numerically according to States. Note: USA has eleven QSL bureaux.

If the station worked has a *QSL manager* handling his cards, please write his call in a prominent position, preferably in a different colour. Remember, your cards are handled by several persons en route. Postal authorities allow us to send cards in bulk at a special rate, but require that no more than five words be used in the *remarks* section.

Remember, bundles of cards that have not been pre-sorted, or are back-to-front, or upside down, are *NOT* appreciated by your voluntary QSL Officer who usually sorts thousands of cards at a time. In VK4 each outgoing QSL card must bear a 1 cent QSL sticker, available from the WIA (Q'ld. Division) Secretary. ■

Ian J. Hunt VK5QX
Vice-President and Federal Councillor,
Wireless Institute of Australia,
South Australian Division

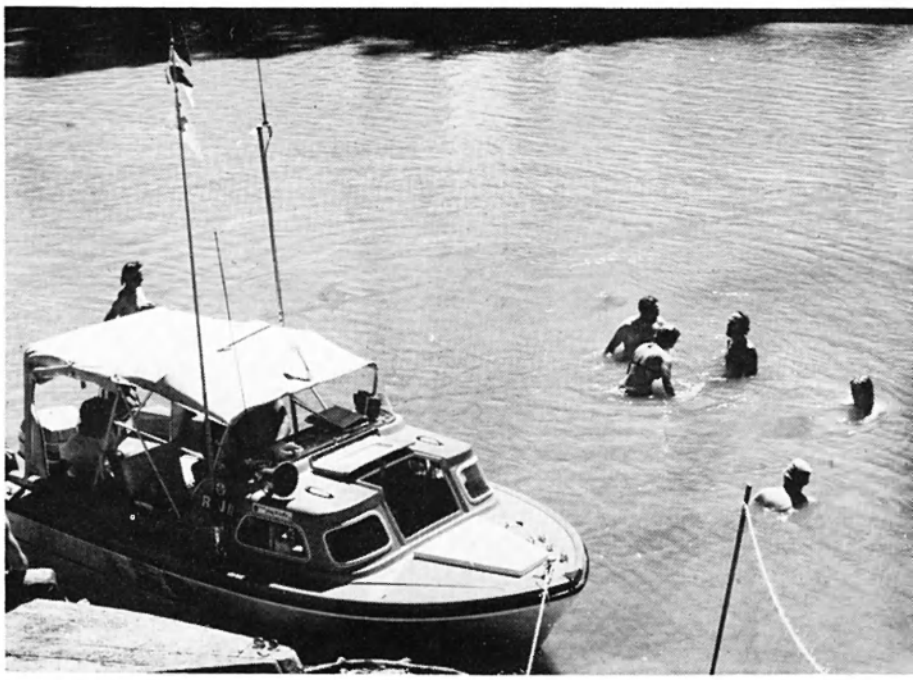
THE RED CROSS MURRAY RIVER CANOE MARATHON

(IMPRESSIONS OF A VK5)

On Boxing Day 1978, having installed both the VHF (Kyokuto) and HF (TS520) in the car, I headed north-east from Adelaide, making for Kerang in northern Victoria, via Blanchetown, Renmark, Mildura and Swan Hill. Conditions for 20 metre mobile were excellent with short skip to VK2 and 3 and good contacts with friends in VK6. This allowed me to while away the driving time meanwhile, including contacts through both the Mildura and Swan Hill repeaters whilst in their service areas, with a promise to call in and see Ray 3BRB and Joan 3BJB to share a cuppa on the way back. A good test of the 60 watt 2 metre amplifier was provided by working Alex VK5CCT cross-band 2 metres/80 metres when approaching Kerang. Upon arrival at Kerang I found that Alex had everything well organised with four wheel drive Land Cruiser and trailer packed with absolutely all necessities, plus luxury such as 12V/240V car refrigerator to keep the important items cold. A quick transfer of my radio equipment (as back-up gear) and other personal necessities (spare pair of socks) to the Land Cruiser, a short visit to Alex father's home for refreshments and then we were away, headed further east to Yarrawonga and the starting place for the marathon canoe race.

This race, which is the longest canoe race in the world over 403 km (about 250 miles), has been run for the last nine years in aid of the Red Cross Society. Each year the VK3 Wireless Institute Civil Emergency Network provide communications support for this event, and it was for this reason I had travelled the 910 km (approximately) to both observe, learn and assist where possible in this operation. Arriving at the starting point where all the officials, canoeists, support groups and about 30 amateurs were camped on a local sporting oval, I was confronted by myriads of tents of all descriptions, hundreds of vehicles, and met with a cordial welcome by the VK3 group, immediately renewing old friendships and meeting new faces as well.

Night had by this time fallen and, following the usual social chatter commonplace amongst amateurs, a most comprehensive briefing by gaslight was conducted by John Payne VK3AED. As I was not the only newcomer to the group, John went to some considerable trouble in extending the briefing with an extra special section for those such as I who were not completely familiar with the organisation of the race and the radio nets so necessary to the safety and smooth running of the event. A little further social chat ensued and then it was sleeping bags ready and bed down for the night. Half expecting a rough shake and a "Wakey, Wakey, Rise and Shine" call in the morning I was pleasantly surprised to hear amid the twittering of the birds and, believe it, the



WICEN craft, with operators enjoying a "cool-off" in the Murray River

Ian Hunt VK5QX operating one of the portable links

call of a kookaburra exhorting us to bestir ourselves at a fairly early hour, the strains of the song "Morning Has Broken" coming out over an amplifying system, and growing louder as the public address vehicle approached our portion of the camp. Such a romantic way to be awakened, camped next to the Murray River in a small Victorian country town. I might add that by the morning of the fifth day, after several late nights and early risings, "Morning Has Broken" had, however, lost a certain amount of appeal. Anyway, now for my first lesson in WICEN operation, Canoe Marathon Style.

At this point I feel I should explain how the organisation, nets, etc., were comprised and operated, together by necessity with some details of the canoe race itself. The race itself is divided into 5 daily periods with stages covered by the canoeists as follows: Day 1, 92 km; Day 2, 96 km; Day 3, 77 km; Day 4, 62 km; and Day 5, 76 km. The actual starting and finishing points are: Day 1, Yarrawonga to Tocumwal; Day 2, Tocumwal to Picnic Point; Day 3, Picnic Point to Echuca; Day 4, Echuca to Torrumbarry, then a portage section to Murrabit; Day 5 being from Murrabit to Swan Hill and finishing on New Year's Eve. Between the starting point (S—Sierra) and the finish (F—Foxtrot) up to four land based check points are set up at the river's edge, these being designated points A — Alpha, B — Bravo, C — Charlie, and D — Delta. At all these points are located stations with both HF (3.6 MHz) and VHF (146.0 MHz) capability. Most, if not all stations, erect wire dipoles for HF and where possible gain antennas (beams, co-linears, etc., for VHF. At each of the check points Race Marshalls and First Aid personnel are also present.

The station at the start of the race is usually first to set up with the other operators proceeding by road to their nominated check points and coming on air as soon as possible. Up until such time as the station at the finish is operational the station at S — Sierra acts as Net Control, finally handing over an established net and Control to VK3AWI at F — Foxtrot where the Race Information Centre (RIC) is also established. As well as these stations, others operating only on VHF are installed on power boats which take up position on the river approximately mid-way between each of the land check points. Thus a power boat mid-way between check points Sierra and Alpha is designated as being at Sierra/Alpha 5. The "5" indicates that the boat is approximately 0.5 of the distance between A and B, and should it move further downstream can indicate its estimated position as for example, Sierra/Alpha 9, i.e. 0.9 of the distance between S and A.

Each of the boats carries at least a complement of three, namely radio operator, First Aider and of course the skipper. Thus there is always someone in good position to both observe the canoeists,

Left to right: Nick Batten VK3NB, Ken Williams and Jack Batten socialise after a busy day

provide assistance where any is necessary and obtain help quickly where any is needed, and the safety of all participants is well assured. A further three stations are also involved. First of all, forward survey is carried out each day by members of the Land Rovers Owners Club (LROC) to ensure access to the check points along the river for the following day. A mobile station equipped with at least HF capability accompanies this group. Secondly, it can be definitely stated that communications at points along the course can at times be difficult, particularly on VHF, due to vagaries of propagation, high river banks, dense foliage, etc. To this end a mobile station with both HF and VHF capability designated "Boat Relay" travels parallel with the river course keeping pace where possible with the main areas of activity so as to provide a "fill in" point for communications. The third station referred to is a Land Rover vehicle fitted out to provide service as a medical evacuation unit and designated Medivac 1. This vehicle also maintains its position in the area of major canoe concentration, however, being fitted with radio it can be

called upon at a moment's notice in the case of emergency. Thus the nets and stations are set up. Messages passed by the networks are varied in nature and typically may take the following forms.

1. Service Messages. These are messages originated by the participating stations and dealing only with operation of the net, station status, etc.
2. Urgent Messages. Matters of safety, first aid requirements, etc.
3. Routine Messages. Details of canoes started, numbers passed particular check points, withdrawals, etc.

The finish station (F), as mentioned before, is set up in conjunction with the Race Information Centre and normally located in the back of a large van. As the canoes, which totalled up to 385 in number, pass each check point along the river the marshall at the check point makes out a message detailing the canoe numbers concerned and hands it to the check point station for transmission to the control station and RIC. Such messages usually contain up to 25 numbers and were passed during the marathon with rapidity and accuracy. Experience in Contest operation would certainly be useful here. At the RIC a large board showing all canoe numbers and race sections is displayed. A golf tee placed opposite a canoe number beneath a check point number indicates the position of each canoe when last reported. Thus for interested spectator members of the public, supporters and land crews associated with the canoeists an almost immediate picture of canoe progress is provided, and organisers can keep themselves comprehensively informed as to what is going on. In the case of the boats, should any canoeist appear to be experiencing difficulties, such as favouring a shoulder, suffering from exhaustion or the like, the first aider doing the observation can radio ahead to the next land check point suggesting that the canoeist concerned should be called in and checked or any other appropriate action taken. Thus the importance of the radio facilities provided can easily be seen and the contribution to the safety of all concerned be understood.

Now for a few more of my own personal observations and experiences.

THE CANOEISTS

Sometimes quite a sight both on the water and out of their canoes. Faces covered with zinc cream, a weird assortment of hats, towelling covering their necks and paddling in such non-constrictive garments as pyjamas. In the showers at night displaying bruised and sometimes apparently painful red raw rear ends, and some blissfully appreciating the luxury of a shower after many long hours of paddling, seemingly unaware of the foam padding still taped to upholster the said rear ends. A sight to behold indeed. Generally, however, quite cheerful and exchanging comments about conditions and how they are going.

THE OFFICIALS

The Marshalls obviously well aware of their jobs and very well organised. There were various categories of Marshalls such as Traffic, Check Point and Camp Marshalls. One thing amongst many did, however, impress me. At each of the stopping places each night, the whole entourage, approximateliy 4000 people in all, camped at the local football oval or showgrounds. Upon entering the said camping area we were greeted at the entrance by a camp marshall, directed to our particular area within the grounds and handed a large green plastic gar-bag within which to place our accumulated rubbish. The next morning after the camp was cleared these marshalls further ensured the tidiness and cleanliness of the area by collection of the gar-bags and any other litter left behind. Thus a most responsible approach to the local environment was generated.

ORGANISERS

These officials were most courteous and helpful and seemed well informed as to the whole operation. Questions were answered with no difficulty and in the main immediately.

RED CROSS

Meals were provided for supporting officials on payment of a small fee. However I had no need to avail myself of this facility as Alex VK5CCT had arranged to carry with his set-up enough provisions to my way of thinking to feed a small army anyway. Canoeists and their land support groups had, however, to fend for themselves. The Red Cross also ran a mobile stall where one could purchase such things as souvenirs, T-shirts, badges, stickers, drinking mugs, sun hats, etc. At each stopping place a "massage parlour" was set up where paddle weary competitors could go to stretch out on the tables and have their tired and aching muscles expertly eased by a rub-down. I didn't hear of any travel weary amateurs availing themselves of this service. I wonder if climbing trees tires one as much as paddling a canoe?

THE WICEN OPERATORS

Certainly a most self-reliant and versatile group. Setting up camp sites, repairing equipment, both whilst on the move and by torchlight at night on the bonnet of a motor vehicle. Unsoldering heavy joints on Alex's gas barbecue when repairing an antenna. Contributing useful suggestions at each debriefing and pre-briefing at the end of each day. Charging batteries under adverse conditions, running power cables with a multitude of double adaptors, leads and outlet boxes where power could be obtained at a campsite. Fixing up broken leads, checking power meters, petrol generators, making new leads and antennas, organising makeshift stations and supplying extra equipment where needed. You name it, and they probably did it. Perhaps an excerpt from the Melbourne "Herald" of 29th December, 1978, would not go astray at this point.

It read as follows:—

"SMOOTH RUNNING — BUT NOT FOR AIRWAVES"

"Radio messages vital to the safe running of the Red Cross Murray River Canoe Marathon were running hot yesterday. Amateur radio operators Peter Mitchell and Geoff Eley had smoke pouring out of their transmitters. Their zener diode and their power transformer had burnt out under the strain and no parts were available locally. But not to be put off the enterprising operators hit on the idea of getting the parts they needed from an old television set, and where better to find an old TV set but at the local Tocumwal tip. Sure enough a quick scour of the tip turned up a zener diode for Mitchell of East Brighton but Eley of Box Hill North did not have the same luck. And now the radio operators on the marathon have decided to form a raiding party to sift through the tip at each of their stopping places in search of the vital spare parts they need to keep their communications network. The operators are volunteer members of the Wireless Institute Civil Emergency Network who have given their time to help keep track of all the entrants in the marathon."

Well, some journalistic licence allowed perhaps, but the part about the zener diode and transformer was as stated. In view of the fact that many of the local service clubs along the river support this event to aid the Red Cross, we were a little concerned that some of them may have seen the newspaper article and decided to help us *in their own way*. Imagine waking up in the morning to find piles of old TV sets dumped outside your tent entrance!

The WICEN operators, both OM and YL, did however, apart from displaying their skill and versatility on the technical side, show a magnificent spirit of camaraderie, interest, dedication and helpfulness throughout the event despite the late nights and early mornings, tiredness, dust, ants, flies and at times primitive conditions prevailing. For this alone they are to be congratulated apart from the excellent job done in direct support of the event.

SETTING UP A CHECK-POINT

Throwing hefty adjustable spanners attached to cords through tree branches one could become an expert at, with the type of practice provided. A solid "star sinker" from a fishing kit did appear at one stage and proved to be a most useful missile for this purpose. Stringing out an 80 metre dipole through the scrub at the river's edge is, however, made more difficult by unco-operative trail bike riders who will insist upon riding over the antenna and tangling same in their rear sprockets even after having been requested to desist from doing so and to allow us to get the antenna into the air

and out of the way. We had our own satisfaction, however, in seeing one fall off after one tangle and another one of the bikes blow up its engine. Most unsporting of us maybe, but that's human nature on our part. The antenna still worked well after repair, too. Alex VK5CCT had as his installation an FT301 HF transceiver and Asahi centre loaded whip, Kyokuto 2 metre FM rig with a co-linear antenna bumper mounted, plus an assortment of antennas which could be strung up by various means. This equipment functioned well throughout both at fixed check points and also while mobile. 240 volt mains were found at times in the most unusual places along the river, however the 2.5 kVA generator did sterling work from time to time. The TS520 and back-up Kyokuto with 60 watt amplifier were pressed into service as control station on several occasions and worked well. Headphones were used quite often to obviate problems of local acoustic noise, noise between operators working side by side and to maintain a certain amount of privacy from the public where discretion was necessary or messages would appear to be of a sensitive nature.

A group of elderly fishermen provided some interest. Apart from a pleasant chat it was most interesting to see their "goldmine". Layers of bank notes and newspapers spread on the ground. Yes, one of them had fallen into the river with all their fishing trip money and I came along as they were drying the money out. They were keeping a careful watch on it, however.

FINDING A CHECK-POINT

This can also be most interesting. Some of the check points are at almost inaccessible places and a network of unsignposted dirt tracks, if they can be called even that, can cause you to go in the wrong direction for a while. From Tocumwal to Check Point Bravo for Day 2 should have meant a distance of perhaps 50 kilometres. A tour through the southern Riverina area, eventually via Deniliquin and Mathoura close to where the day's run was to finish, then beating back through the scrub up river to the check point, to cover a total distance of about 17 kilometres, proved most interesting to us. Dusty though! We still made it before the canoes arrived. Better maps for this particular area would of course be helpful if they were available. I think they chose Alex for this one especially as he had a four wheel drive.

THE FINAL DAY (AND NIGHT) — AND FUNNY SIGHTS

The last day of the Marathon found Alex and myself at a scenic spot on the river near the bridge at Murrabit. This time a smaller borrowed generator was used to power the TS520, the larger unit being loaned out for one of the other stations. The problem of a missing adaptor to suit the main lead to the Japanese generator was solved by a call on VHF to one of the other operators passing nearby in his vehicle, thus obviating the need to plug in with bare wires held in place with match sticks. The problem of the transceiver not transmitting and receiving on the same frequency plus FMing of signals on receive was solved by running the generator to provide 240V 60 Hz, with the 50/60 Hz switch in the 60 Hz position and not the 50 Hz position for 60 Hz supply. A most unusual fault, as on receive in particular the current drain would have been very low. Has anyone an explanation? The race starter duly appeared with his list of canoes despatched to inform us also that it created a race record for the number of canoes to start on the fifth day. His opinion was that the excellent weather experienced was the reason. The really hot weather had not begun at this stage and competitors were finding conditions much to their liking.

Activities at the start having wound up, we enjoyed a pleasant chat with a Novice operator from the nearby New South Wales town of Barham who had heard the strong signals we were putting out and came to investigate. This area being the local stamping ground for 5CCT, we then travelled leisurely to visit some friends of his nearby and were treated to Christmas cake and rich milk coffee made with milk provided freshly from their own cow. Following this pleasant morning tea interlude we then travelled in convoy to Swan Hill, myself ferrying a vehicle for one of the operators whose duty for the day was on one of the power boats. Upon arrival at Swan Hill we proceeded to the Control Station at the finish line to which we had handed over the net somewhat earlier. I then provided some operating assistance while Alex set up camp at the Swan Hill showgrounds and then went back up river to provide another check point. Fortunately for me I had no duties to perform as the first of the canoes to cross the finishing line appeared around the island upstream of the finish. Whilst first across the line does not necessarily mean that canoe is the winner, as it is a timed event and six different canoe categories apply, I imagine that line houors do still mean something. The first two canoes to appear were Double Canadian types. Even after the last day's distance of 76 km, these two canoes crossed the line with the two paddlers in each paddling like crazy and with no more than about two feet separating them at the finish mark. Needless to say, the substantial crowd appreciated the battle waged and clapped and cheered for all they were worth. To make the finish more spectacular and exciting the official starter was there with his loud muzzle loading powder gun which he fired as the first canoe crossed the line. At this occurrence a very large brown retriever type bird dog, which had been standing near the river's edge, obviously watching everything with alert interest, apparently decided that someone had just maybe shot a duck, and bounded forward into the water to begin swimming downstream after the canoes. The dog crossed the line In third place and gaining on the canoes at this stage. I could complete this part of my story by telling you that the dog then retrieved one of the canoes with its two occupants, but you probably wouldn't believe me! The last competitors arrived at the finish at approximately 7 p.m., following which the whole network finally closed down after a most successful five days of operation. This, however, was not the end of the event, as it was, after all, New Year's Eve. That evening the crowd gathered in the centre of the beautifully grassed Swan Hill showgrounds to witness the presentation of medallions to the placegetters in each section and category, including the handing of perpetual trophies to the winners of each class. Then the New Year's Eve celebrations really began. Leading up to, through and just after midnight was marked by the booming reception of the 10 MHz timing stations WWV and JJY coming from the loudspeakers in one of the amateur operator's vehicles. By 0200 hours on New Year's Day I was observing one of the strangest sights I had seen in years. On every antenna on almost every vehicle crammed into the showgrounds between the myriads of tents and other equipment scattered about was placed an upturned empty beer can. This applied even to the vehicle broadcast antennas, and you can just imagine what a sight presented itself in the case of the radio amateur section of the camp with up to six antennas on a vehicle. I might add that later in the night I removed the beer cans from the antennas on our vehicle and replaced them with a soft drink can on the roof the Land Cruiser to indicate to all that Alex and I were of the sober gentlemanly type.

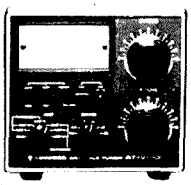
New Year's Day was then spent with Alex and his family at Kerang, meanwhile sorting out all the equipment and reinstalling my mobile gear for the trip home. A most pleasant journey was begun early the following morning and with the sun behind me for most of the journey I returned along the picturesque Hume Valley Highway, operating again 20 metre and 2 metre mobile. By the way, I did call in for that promised cuppa at Mildura and spent a pleasant two hours with the husband and wife team of Ray and Joan 3BRB/3BJB.

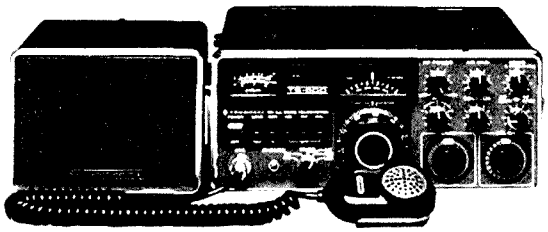
Before closing I would like to say that I enjoyed very much the company and friendliness extended to a visiting VK5 operator by the VK3 WICEN Group on the Murray River Canoe Marathon. I learned much and had a most interesting experience overall. So, if you enjoy a challenge and are looking for adventure maybe you should talk to John Payne VK3AED and find out about assisting WICEN and joining in this and other like activities when they are held. ■

CUSTOM COMMUNICATIONS

TRIO KENWOOD COMMUNICATIONS

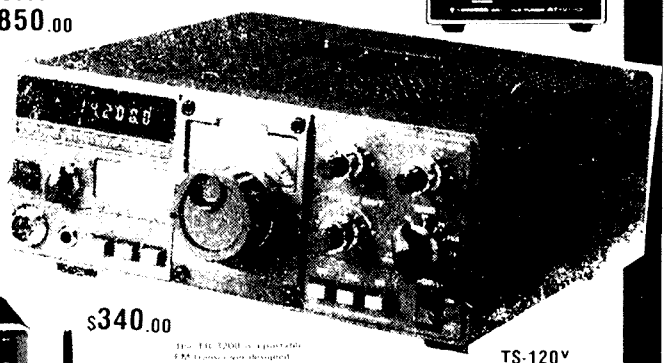
$185.00





$43.00

TS600
$850.00



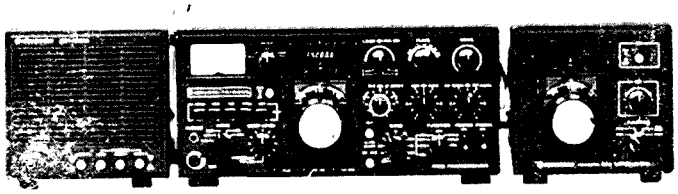
The TS-600 is an all-mode solid state transceiver which fully covers the 6 meter band. This transceiver is based on our many years of successful experience with the 6 meter band. Its features include SSB, FM, CW & AM operation with sending and receiving capabilities on 20 channels with 5 crystals. The TS-600 is an all-in-one type that comes complete with built-in speaker, power supply, and microphone. You can enjoy QSOs with domestic stations or DX especially when sporadic E occurs.

$340.00

TS-120V
$630.00

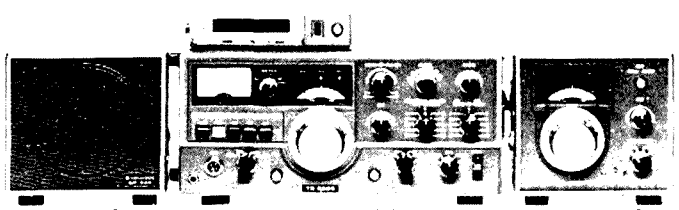
SP 700 $43.00 TS-700SP $875.00 VFO-700S $157.00

The TS-700S is the all-mode solid state transceiver that provides you with versatility plus over the entire 2 meter band. It's feature-packed design puts you on SSB, FM, CW, and AM. The AC and DC power supplies are built in which allows you to operate the TS-700S just about anywhere. Equipped with a VFO that enables continuous tuning from 144–148 MHz, the TS-700S comes complete with built-in digital frequency readout, receiver preamplifier, VOX, sidetone, and microphone.



SP820 $70.00 TS-820S $1300.00 VFO820 $185.00

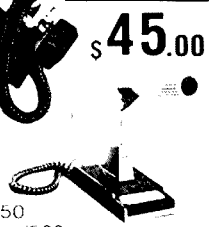
The TS-820S is a 1.8 to 29.7 MHz SSB, CW, RTTY transceiver backed by *our many years of successful experience and "know-how"*, as well as the most advanced electronic technology. The signal circuits of both the transmitter and receiver sections are quite simplified with the employment of a single conversion system for linearity. This transceiver also employs phase lock loop (PLL) circuitry. PLL technology allows accurate frequency



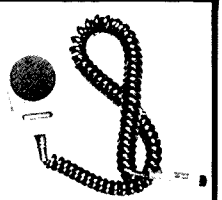
SP520 $33.00 TS-5205 $799.00 VFO-520 $153.00

The TS-520S combines all of the fine, fieldproven characteristics of the original TS-520 together with many of the ideas, comments, and suggestions for improvement from amateurs world-wide. Kenwood's ultimate objectives . . . to make quality equipment available at reasonable prices. The TS-520S provides full coverage on all amateur bands from 1.8 to 29.7 MHz. Kenwood gives you 160 meter capability, WWV on 15.000MHz. And with the addition of the TV-502 and TV-506 transverters, your TS-520S can cover 160 meters to 2 meters on SSB and CW.

$45.00



MC-50
50 kΩ/500Ω
Dynamic Desk Mic

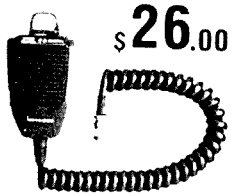


MC-20
500Ω
Dynamic Handy Mic

$20.00

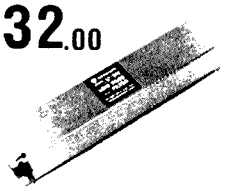
MC-10
50 kΩ
Dynamic Handy Mic

$26.00



MC-30S (500Ω)
MC-35S (50 kΩ)
Dynamic Handy Mic

$32.00



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ICOM

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2 MTR FM
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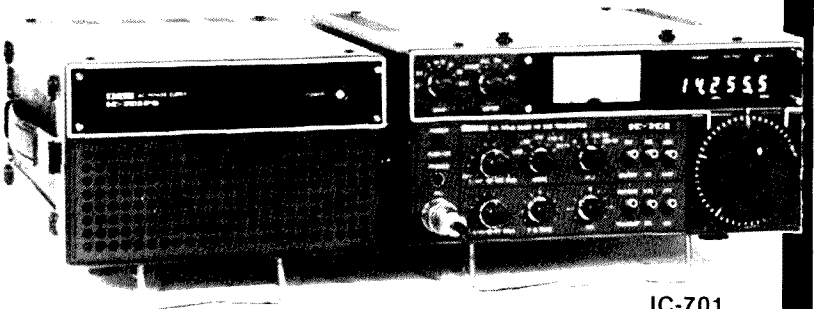

IC-PSU
$253.00

1-8-30
MHZ HF

IC-701
$1480.00

PLEASE SEND FOR PRODUCT CATALOGUE!

IC-225
FULLY PROGRAMMABLE
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2MTR ALL MODE $799.00

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300W INPUT $809.00
SSB HF TRAN.
DIGITAL DISPLAY

MODEL 350D HAS THE SAME SPECIFICATIONS AND CHARACTERISTICS AS THE 350B EXCEPT THE UNIT COMES WITH A BUILT-IN DIGITAL FREQUENCY DISPLAY WITH READOUT TO 100HZ.

DIGITAL DISPLAY
TO SUIT 700S
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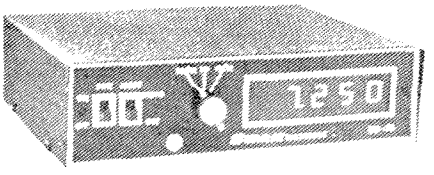

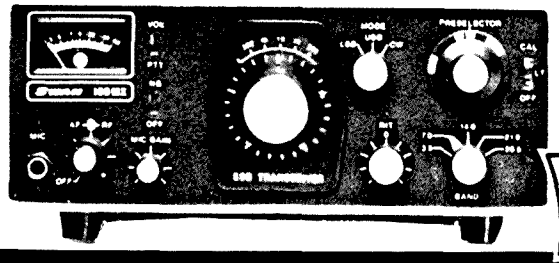

MX-100 $799.00
100W PLUS
MOBILE SOLID STATE

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NOVICE NOTES

SOLDERING HINT

With the Scope soldering iron wire a 6.3 volt dial lamp across the secondary of the Scope transformer. You'll know that good contact is being made inside the iron and it is heating up by noting that ring. The effect is due to the voltage drop which occurs when the iron loads up the transformer. If the globe doesn't lose brightness then don't wait too long finding out that it wasn't heating. The tip thread is probably dirty and needs to be screwed in and out a few times.

Before soldering, clean the surfaces, wires, etc., with scouring pad rather than steel wool. The scouring pad is non-conducting and broken-off pieces won't create short circuits in wiring later on.

(From Zero Beat, September 1978.) ■

★ ★ ★

80 Mx ACTIVITY

Stations heard on Saturday p.m. 6/1/79 from Riddell's Creek (north of Sunbury) on 80m. Samples taken every five minutes from 8.15 p.m. until 9.45 p.m. Band divided into 3 segments, 3.500-3.525, 3.525-3.625, and 3.625-3.700.

	3.506-3.525	3.525-3.625	3.625-3.700
8.15	0	12	2
20	1	14	4
25	1	14	3
30	2	16	3
35	1	18	4
40	2	10	4
45	1	14	3
50	2	13	3
55	3	14	3
9.00	2	14	4
05	3	13	3
10	2	13	2
15	2	14	3
20	2	15	5
25	3	17	6
30	2	13	5
35	1	13	8
40	2	16	7
45	1	14	7
Average	1.7	14	4.2

■

★ ★ ★

PIRATES ON TEN METRES

As you may already be aware, several suppliers have a range of crystals for the 27 MHz *Marine* transceivers which are called "Hi-side" crystals.

These are specially made receive crystals which are higher in frequency than the transmit crystal. The receive crystals are normally on the low side of the transmit crystal, which puts the receiver's image frequency right into the 27 MHz chook band channels, causing no end of interference.

In order to help the poor 27 MHz Marine user, receive crystals for the high side of the transmit frequency are available, which puts the image out of the way of the chooks . . . and straight into the kilowatt alley section of ten metres. (But that's our problem, isn't it?)

Anyway, we now have a transmitter operating on or about 27880 kHz with a high-side receive crystal on or about 28335 kHz.

But then you take a second look at the frequencies in use for the crystals and you ask yourself: What if I reversed the crystals in the set so that the receive local oscillator is on 27880 and the transmitter on 28335, then I'd have a 28 MHz set operating on 28335. With the other crystals available, I could have 28345, 28355 and 28365 also.

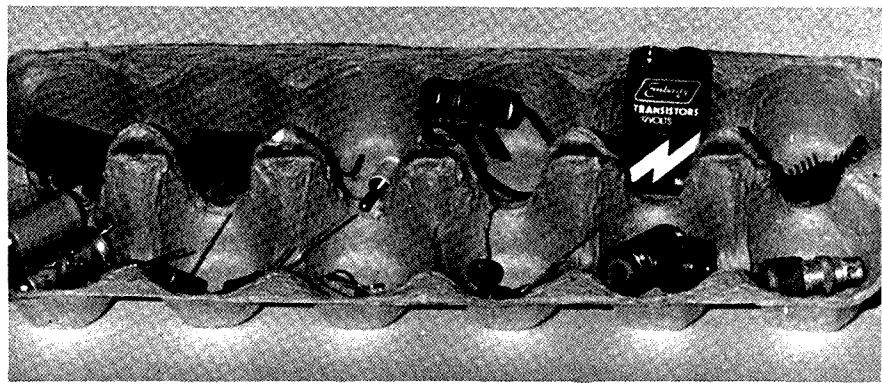
I ask you then: What Is to stop the pirate HFer buying these crystals and doing just what I have suggested. The answer is nothing, nothing at all. While these crystals are really only suited for AM equipment, the chook that "wanted to get away from it all" cheaply and simply could do so with them.

Perhaps it will never happen that way. Perhaps, too, it would be a good idea to scan through the above frequencies to keep an eye on what activity springs to life. (You may even be so lucky to catch my wife VK2NID on 28335 using her handheld rig.)

So there is an idea for amateurs to get on ten metres AM with old chook band sets, and maybe the above frequencies could become a sort of standard channel arrangement for this type of equipment. If there is enough legitimate activity on those channels, then let the pirate beware.

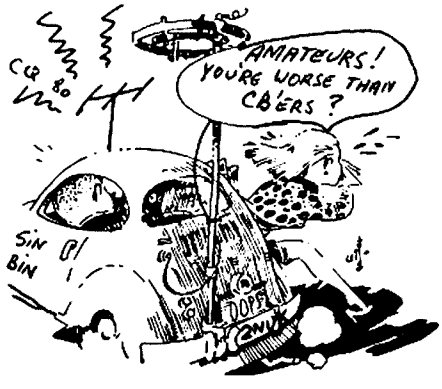
(Note: If you were on 28335 and required some assistance in a hurry and had no reply on that frequency, you could reverse the crystals and call on 27880. Another useful feature of the system.)

VK2ANF in QUA, Hornsby and Districts ARC, Vol 1, No. 4. ■



EGG CARTON STORAGE

What to do with that old egg carton. One suggestion is use it as a temporary component holder, helps to keep the workbench a little tidier. ■



(From "SWARS", Dec. '78)

TRY THIS

WITH THE TECHNICAL EDITORS

HOME-BREW QSL

Stephen Garner VK2AXM
69 Macmillan Street, Seaforth, 2092

Here is one method of home-brew QSL that may Interest those who operate QRF (low finance).

The heart of the system lies in the fact that most "plain paper" photo-copying machines will accept lightweight cardboard as well as paper.

The paper size the photo-copier at work will accept is such that six cards can be produced with every print. So my master copy has six cards on it, each one an individual.

The master copy can undoubtedly be as intricate as one desires. Mine was fairly straightforward, the basic information was typed on, and my call sign was made out of letters cut from the afternoon papers. Rather along the lines of the ransom notes seen in the movies.

The cardboard I used is lighter than that found in most QSL cards, which probably pleases the Bureau. I was lucky enough to find a large pile of it in our attic, so there is no money outlaid there.

The quality of the card produced by this method is not "world shattering", but it makes a useful stopgap if one is anticipating a change of licence, e.g., novice to full call, which is why I originally used this system. ■

To Radio Confirming QSO with

V K 2 A X M

on at GMT

Freq. MHz

Report, R S T

Rx/Tx,

Power, Watts In.

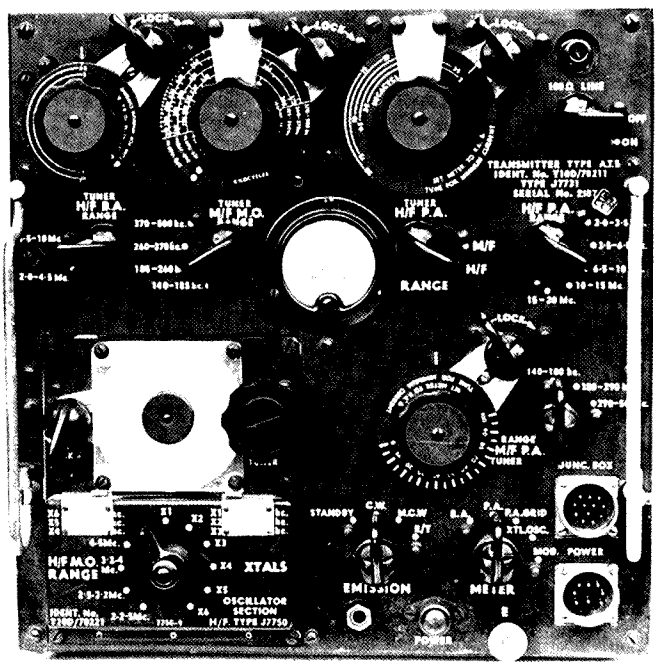
Antenna,

Stephen Garner
65-69 Kent Street,
Sydney, NSW, 2000
Australia
Pse/Tnx, QSL, 73's

PORTABLE ARMY WIRELESS SETS OF WORLD WAR II

Compiled by R. Champness VK3UG
Photos by Ken Reynolds VK3YCY

11. The AT5 transmitter is the companion to the AR8 communications receiver. In 8 frequency bands it covers 140 kHz to 500 kHz and 2 MHz to 20 MHz. It is VFO controlled on LF and MF and either crystal or VFO controlled on HF. The AT5 is designed to transmit AM/CW/MCW or pulse, with an output power of nominally 50 watts. Like its companion receiver it was used in aeroplanes, ships and on land, an extremely versatile transmitter. The output stage of the transmitter consists of 2 — 807 in parallel, which are grid modulated for AM and MCW. Not an easy set to service but patience and a copy of the handbook made the job possible. The set obtained power from 12 or 24 volt genemotors or from the type S 240 volt AC power supply. The current drain on 12 volts is of the order of 35 amps with the



ABOVE: Photo No. 11, the AT5 Transmitter.

RIGHT: Photo No. 12, AT5 Aerial Coupler

receiver and transmitter operating and the transmitter key down.

The AT5 proved to be a very popular transmitter with amateurs after the war of 1939-45. It had many modifications done to it, such as plate and screen modulation, operation on 160 metres, and so forth. They were used in the Antarctic and as bushfire brigade base stations in modified form. There are probably not many left operating now, but at one time were probably the most popular amateur home station transmitter in Australia.

12. Aerial Coupling Unit for AT5. This is used with the AT5 to match the transmitter to a rather wide range of aerials over a very wide range of frequencies. Like the transmitter it is arranged into two sections one section for MF and the other for HF so that things didn't become too complicated inside the unit. On the MF ranges the unit will match aerials which exhibit a resistive component of between 5 and 100 ohms and 95 and 500 pF reactive. On HF the unit will match end fed aerials much shorter than a quarter wavelength to considerably over a wavelength. A well designed unit of moderate efficiency. Not greatly used by amateurs as its features were not suited for most amateur aerials.

EDITORS NOTE:- This now completes the series in portable army wireless sets of WW II. Many thanks to Rodney VK3UG in collating the series and to Ken VK3YCY for the photography.

VK3UV ■

Channel No.	Address	Parameter	Measurement Limits	Decoding Formula
01	P	Calibration	01	— — —
02	C	Transponder Output Power (mW)	60-990	10 x N
03	F	Radiator Temperature (degrees-C)	—30 to +80	N
04 *	Z	Command/Telemetry Section Temp. (")	—30 to +80	N
05 *	L	Power source voltage (V)	11 to 18	0.2 x N
06 *	B	Regulated voltage No. 1 (V)	8.5 to 9.5	0.2 x N
07	H	Regulated voltage No. 2 (V)	7.0 to 8.0	0.2 x N
08	O	Illumination on panel No. 1 (*)	01 to 95	— — —
09	W	Illumination on panel No. 2 (*)	01 to 95	— — —
10	K	Illumination on panel No. 3 (*)	01 to 95	— — —
11	U	Illumination on panel No. 4 (*)	01 to 95	— — —
12	G	Calibration	01	— — —
13	R	Transponder Output Power (mW)	60-990	10 x N
14	D	Body Temp. (?)	01	— — —
15	S	Battery charging current (ma)	0 to 500	10 x (50-N)
End of Frame-1. Each telemetry channel will end in either U (when transponder is OFF) or W (when the transponder is commanded ON), with either RS (when transponder is OFF)or RS RS (RS twice) when transponder is ON.				
16	P	Battery No. 1 voltage (V)	11 to 18	0.2 x (N+12)
17	C	Battery No. 2 voltage (V)	11 to 18	0.2 x (N+12)
18	F	Battery No. 3 voltage (V)	11 to 18	0.2 x (N+12)
19	Z	Battery No. 4 voltage (V)	11 to 18	0.2 x (N+12)
20	L	Body temp. (?)	01	— — —
21	B	Power computing circuit temp. (deg. C)	30 to 80	N
22	H	Battery charging current (MA)	0 to 500	10 x (50-N)
23	O	Illumination on panel No. 1 (*)	01 to 95	— — —
24	W	Illumination on panel No. 2 (*)	01 to 95	— — —
25	K	Illumination on panel No. 3 (*)	01 to 95	— — —
26	U	Illumination on panel No. 4 (*)	01 to 95	— — —
27	G	Illumination on panel No. 1 (*)	01 to 95	— — —
28	R	Illumination on panel No. 2 (*)	01 to 95	— — —
29	D	Illumination on panel No. 3 (*)	01 to 95	— — —
30	S	Illumination on panel No. 4 (*)	01 to 95	— — —
End of telemetry Frame-2. Each channel ends with a K or an O. K when the transponder is commanded OFF, and O when is commanded ON. RS once when the transponder is OFF, and RS RS (RS twice) when it is ON.				
(***) by command, there is a SHORT version telemetry of ONLY seven (from 01 to 07) channels.				

AMATEUR SATELLITES

Bob Arnold VK3ZBB

AMSAT NEWSLETTER

I hear that the AMSAT Newsletter for December was delayed and therefore not completed until the end of January. This news letter may be sent by sea mail; if this is so receipt may not be expected before April. If you have any complaints regarding the delivery of the AMSAT News Letter please refer them direct to AMSAT.

OSCAR 7

The battery power of OSCAR 7 has now deteriorated to such a degree that all telemetry is unintelligible. As this satellite is now, unfortunately, unlikely to be worked again, no further predictions will be given.

OSCAR 8

This satellite is working well on both Modes and will probably remain our only satisfactory method of communication until Phase 3 is launched later this year.

From time to time AO8 has operated on Modes A and J concurrently, having been programmed to do so for special purposes such as DX operations and special educational studies on Wednesday evenings.

RUSSIAN SATELLITES

Apparently both RS 1 and RS 2 continue to be in proper orbit although it has been noted that RS 2 is falling further behind RS 1 as each week passes.

As at the end of January, RS 2 was thirty minutes behind RS 1 and 5° further West at acquisition.

We still have little information on these satellites although the orbit predictions do seem to be reasonably accurate. The transponders are rarely operating although VK4ZIL does report communication on late night passes (South to North).

On many days during January, neither the transponder nor telemetry was heard but the reason for this complete closedown was not known. One can only hope that by diligent listening, it may be possible to find one or more satellites in working condition.

As indicated last month I am pleased to provide information on the telemetry system of the R.S. satellites. This information is produced by courtesy of QST of January 1979. As previously mentioned the telemetry information can be in the form of 7, 15 or 30 channels, each channel being in the form of 1 letter, 2 digits and a concluding letter, e.g. C18U. The information given below will permit interpretation of the telemetry.

ORBIT PREDICTIONS — APRIL 1979

	OSCAR 8			RUSSIAN RS.1		
Date	Orb. No.	Eqx Z	Eqx °W	Orb. No.	Eqx Z	Eqx °W
1	5459	0130	66	1876	0052	124
2	5473	0135	67	1888	0056	127
3	5487	0140	68	1900	0101	130
4	5500	0002	44	1912	0106	133
5	5514	0007	45	1924	0111	135
6	5528	0012	46	1936	0115	138
7	5542	0018	48	1948	0120	141
8	5556	0023	49	1960	0125	144
9	5570	0028	50	1972	0129	146
10	5584	0033	52	1984	0134	149
11	5598	0038	53	1996	0139	152
12	5612	0044	54	2008	0144	155
13	5626	0049	56	2020	0148	157
14	5640	0054	57	2032	0153	160
15	5654	0059	58	2044	0158	163
16	5668	0104	59	2055	0002	135
17	5682	0109	61	2067	0007	138
18	5696	0115	62	2079	0011	141
19	5710	0120	63	2091	0016	144
20	5724	0125	65	2103	0021	146
21	5738	0130	66	2115	0026	149
22	5752	0135	67	2127	0030	152
23	5766	0141	69	2139	0035	155
24	5779	0003	44	2151	0040	157
25	5793	0008	45	2163	0044	160
26	5807	0013	47	2175	0049	163
27	5821	0018	48	2187	0054	166
28	5835	0023	49	2199	0059	168
29	5894	0028	51	2211	0103	171
30	5863	0034	52	2223	0108	174

RS.2 is 30 mins. later. ■

AUSTRALIAN VHF CENTURY CLUB AWARD

Rules as amended 1.1.79.

OBJECTS

1.1 This Award has been created in order to stimulate interest in the VHF bands in Australia, and to give successful applicants some tangible recognition of their achievements.

1.2 This Award, to be known as the "VHF Century Club Award", will be issued to any Australian Amateur who satisfies the following conditions.

1.3 Certificate of the Award will be issued to the applicants who show proof of having made one hundred contacts on the VHF bands, and will be endorsed as necessary for contacts made using only one type of emission.

REQUIREMENTS

2.1 Contacts must be made in the VHF Band (Band 8) which extends from 30 to 300 MHz, but such contacts must only be made in the authorised Amateur Bands in Band 8.

2.2 In the case of the authorised bands between 30 and 100 MHz, verifications are required from one hundred different stations, at least seventy of which must be Australian. The Amateur Bands 50 to 54 MHz and 56 to 60 MHz will be counted as one band for the purposes of the Award.

2.3 In the case of the authorised Amateur Band between 100 and 200 MHz, verification from one hundred different stations are required.

2.4 It is possible under these rules for one applicant to receive two certificates, one for each of the authorised Amateur Bands nominated in Rules 2.2 and 2.3.

2.5 The commencing date for the Award is 1st June, 1948. All contacts made on or after this date may be included.

OPERATION

3.1 All contacts must be two-way contacts on the same band, and crossband contacts will not be allowed.

3.2 Contacts may be made using any authorised type of emission for the band concerned.

3.3 Fixed stations may contact portable/mobile stations and vice versa, but portable/mobile station applicants must make their contacts from within the same call area.

3.4 Applicants, when operating either portable/mobile or fixed, may contact the same station licensee, but may not include both contacts for the same type of endorsement.

3.5 Applicants may only count one contact for a station worked as a limited licensee with a Z or Y call sign who is subsequently contacted as a full AOCP holder.

3.6 All stations must be contacted from the same call area by the applicant (except as below), although if the applicant's call sign is subsequently changed, contacts will be allowed under the same call area.
If the applicant moves to another call area, contacts must be made from within a radius of 150 miles of the previous location to qualify for award purposes. If the distance of the new location from the old exceeds a radius of 150 miles, a separate application for a new award must be made claiming only contacts made from the new location.

3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

41. It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.

4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.

4.3 Each verification submitted must show the call sign of the station worked, the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.

4.4 A check list must accompany every application setting out the following details:

4.4.1 Applicant's name and call sign, and whether a member of the WIA or not.

4.4.2 Band for which application is made, and whether special endorsement is involved.

4.4.3 Where applicable, the date of change of call sign and previous call sign.

4.4.4 Details of each contact as required by Rule 4.3.

4.4.5 The applicant's location at the time of each contact if portable/mobile operation is involved.

4.4.6 Any relevant details of any contact about which some doubt might exist.

4.5 In lieu of forwarding QSL cards or other written evidence as set out in Rules 4.1 to 4.4 above, a list giving the details set out in Rule 4.3, certified by the Awards Manager, Secretary or Council Member of a Division of the Wireless Institute of Australia, or two licensed amateurs known to the applicant, should accompany each application for membership or adjustment of verified country totals.

APPLICATIONS

5.1 Applications for membership shall be addressed to the Federal Awards Manager of the Wireless Institute of Australia, accompanied by the verifications and check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.

5.2 A nominal charge of $1, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.

5.3 Successful applicants will be listed periodically in "Amateur Radio". Members of the VHFCC wishing to have their verified totals, over and above the one hundred necessary for membership, listed will notify these totals to the Federal Awards Manager.

5.4 In all cases of dispute, the decision of the Federal Awards Manager and two officers of the Federal Executive of the WIA in the interpretation and application of these Rules shall be final and binding.

5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the WIA reserves the right to amend them when necessary.

WORKED ALL VK CALL AREAS (VHF) AWARD

Rules as amended 1.1.79.

OBJECTS

1.1 This Award has been created in order to stimulate interest in sustained long distance working in the VHF bands in Australia, and to give successful applicants some tangible recognition of their achievements.

1.2 This Award, to be known as the "WAVKCA (VHF) Award", will be issued to any Amateur who satisfies the following conditions.

1.3 Certificates of the Award will be issued to the applicants who show proof of having made contacts with Australian Amateur Stations in the areas shown in the attached Appendix. The number of contacts required in each area is also shown.

REQUIREMENTS

2.1 Contacts must be made in the VHF Band (Band 8) which extends from 30 to 300 MHz, but such contacts

must only be made in the authorised Amateur Bands in Band 8.

2.2 Verifications are required from all of the call areas in accordance with the details given in the Appendix. A total of 22 confirmations will be required.

2.3 The commencing date for the Award is 1st January, 1958. All contacts made on or after this date may be included.

OPERATION

3.1 All contacts must be two-way contacts on the same band and cross-band contacts will not be allowed.

3.2 Contacts may be made using any authorised type of emission for the band concerned.

3.3 Fixed stations may contact land portable/land mobile stations and vice versa, but land portable/land mobile station applicants must make their contacts from within the same call area.

3.4 Applicants, when operating either land portable/land mobile or fixed, may contact the same station licensee but may not include both contacts in the one application.

3.5 Contacts made with ship or aircraft stations or contacts made with the aid of repeaters or translators of any kind will not be allowed.

3.6 Applicants may only count one contact for a station worked as a Limited Licensee with a Y or Z three-letter call sign, who is subsequently contacted as a full AOCP holder.

3.7 All stations must be contacted from the same call area by the applicant (except as below), although if the applicant's call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area. If the applicant moves to another call area, contacts must be made from within a radius of 150 miles of the previous location to qualify for award purposes. If the distance of the new location from the old exceeds a radius of 150 miles, a separate application for a new award must be made claiming only contacts made from the new location.

3.8 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.

4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.

4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.

4.4 A check list must accompany every application setting out the following details:

4.4.1 Applicant's name and call sign and whether a member of the WIA or not.

4.4.2 Band for which application is made.

4.4.3 Where applicable, the date of change of call sign(s) and previous call sign(s).

4.4.4 Details of each contact as required by Rule 4.3.

4.4.5 The applicant's location at the time of each contact if land portable/land mobile operation is involved.

4.4.6 The call sign of the station worked.

4.4.7 Any relevant details of any contact about which some doubt might exist.

4.5 In lieu of forwarding QSL cards or other written evidence as set out in Rules 4.1 to 4.4 above, a list giving the details set out in Rule 4.3, certified by the Awards Manager, Secretary or Council Member of a Division of the Wireless Institute of Australia, or two licensed amateurs known to the applicant, should accompany each application for membership.

APPLICATIONS

5.1 Applications for membership shall be addressed to the Federal Awards Manager of the WIA, accompanied by the verifications and check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.

5.2 A nominal charge of $1, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.

5.3 Successful applicants will be listed periodically in "Amateur Radio".

5.4 In all cases of dispute, the decision of the Federal Awards Manager and two officers of the Federal Executive of the WIA in the interpretation and application of these Rules shall be final and binding.

5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the WIA reserves the right to amend them when necessary.

NOTES

1. In areas above, where more than one confirmation is required, contact may be made with any or all of the Territories grouped together.
2. Where a Territory is no longer under Australian jurisdiction, contacts up to the date of independence will be accepted.

APPENDIX

Territory	Call Area	QSLs required
Australian Antarctica Heard Island Macquarie Island	VK0	1
Australian Capital Territory	VK1	1
Lord Howe Island State of New South Wales	VK2	3
State of Victoria	VK3	3
State of Queensland Thursday Island Willis Island	VK4	3
State of South Australia	VK5	3
State of Western Australia	VK6	3
Flinders Island King Island State of Tasmania	VK7	3
Northern Territory	VK8	1
Admiralty Islands Bougainville Island Christmas Island Cocos Island New Guinea New Ireland Norfolk Island Papua	VK9	1

HEARD ALL VK CALL AREAS (HAVKCA) AWARD

Rules as amended 1.1.79.

OBJECTS

1.1 This Award was created in order to stimulate interest in the logging, by both Australia and overseas Short Wave Listeners, of the various call areas of the Commonwealth of Australia and its Territories, and to give successful applicants some tangible recognition of their achievements.

1.2 This Award, to be known as the "HAVKCA Award", will be issued by the Wireless Institute of Australia to any Short Wave Listener in the world who is a member of an affiliated society of the IARU who satisfies the following conditions. An SWL resident in Australia or its Territories may be eligible for the Award.

1.3 A certificate of the Award will be issued to the applicants who show proof of having logged stations in all the Australian call areas as listed in the Appendix. No endorsements are available.

REQUIREMENTS

2.1 Verifications are required from all the call areas of Australia and its Territories as shown in the Appendix. In all, 22 verifications are necessary.

2.2 The commencing date of the Award is 1st January, 1946. All loggings made on or after this date may be included.

OPERATION

3.1 Loggings may be made of Australian stations using any authorised frequency band or type of emission permitted to Australian amateurs.

3.2 Credit may only be claimed for logging stations using regularly assigned Government call signs.

3.3 Logging of ship or aircraft stations in Australia or Australian Territories will not be eligible, but land mobile or portable stations may be, claimed provided their specific location at the time of logging is clearly shown on the verification.

VERIFICATIONS

4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that specific loggings have been made.

4.2 Each verification submitted must be exactly as received from the station logged, and altered or forged verifications will lead to the disallowance of those items and may lead to the disqualification of the applicant.

4.3 Each verification submitted must show the date and time of transmission, type of emission and frequency band used and the location or address of the station at the time of logging.

4.4 A check list must accompany every application setting out the following details:

4.4.1 Applicant's name, SWL number, If any, and address.

4.4.2 Name of affiliated Society (see Rule 1.2).

4.4.3 Details of each logging as required by Rule 4.3.

4.5 In lieu of forwarding QSL cards or other written evidence as set out in Rules 4.1 to 4.4 above, a list giving the details set out in Rule 4.3, certified by the Awards Manager, Secretary or Council Member of an affiliated Society, or two licensed amateurs known to the applicant, should accompany each application.

APPLICATIONS

5.1 Applications for membership shall be addressed to the Federal Awards Manager, accompanied by the verification cards and the check list (Rule 4.4). Sufficient postage (International Reply Coupons are required from overseas applicants) must be enclosed to cover return postage of the cards to the applicant.

5.2 Applications will be examined by the Federal Manager, who will arrange for the Award to be forwarded direct or through the applicant's Society as required.

5.3 In all cases of disputes, the decision of the Federal Awards Manager and two officers of the Federal Executive of the WIA in the interpretation and application of these Rules shall be final and binding.

5.4 Notwithstanding anything to the contrary in these Rules, the Federal Council of the WIA reserves the right to amend them as necessary.

NOTES

1. in areas above, where more than one confirmation is required, contacts may be made with any or all of the Territories grouped together.
2. VK9: Where a Territory is no longer under Australian jurisdiction, contacts up to the date of independence will be accepted.

APPENDIX

Territory	Call Area	QSLs required
Australian Antarctica Heard Island Macquarie Island	VK0	1
Australian Capital Territory	VK1	1
Lord Howe Island State of New South Wales	VK2	3
State of Victoria	VK3	3
State of Queensland Thursday Island Willis Island	VK4	3
State of South Australia	VK5	3
State of Western Australia	VK6	3
Flinders Island King Island	VK7	3
Northern Territory	VK8	1
Admiralty Islands Bougainville Island Christmas Island Cocos Island New Britain New Guinea New Ireland Norfolk Island Papua Territory	VK9	1

WORKED ALL VK CALL AREAS (WAVKCA) AWARD

Rules as amended 1.1.79.

OBJECTS

1.1 This Award, to be known as the WAVKCA Award, is offered by the Wireless Institute of Australia as tangible evidence of the proficiency of overseas Amateurs in making contacts with the various call areas of the Commonwealth of Australia.

1.2 The Award may be claimed by any Amateur in the world who is a member of an affiliated Society of the IARU, but no Australian Amateur will be eligible.

REQUIREMENTS

2.1 A handsome Certificate will be awarded to any applicant who makes contacts with Australian Amateur Stations in the areas shown in the attached Appendix. The number of contacts required in each area is also shown, a total of 22.

OPERATION

3.1 Contacts between overseas stations and Australian stations must have been made on or after the 1st January 1946.

3.2 Contacts may be made using any authorised frequency band or type of emission permitted to Australian Amateurs, but crossband contacts will not be allowed.

3.3 No contacts made with ship or aircraft stations in Australian territories will be eligible, but land-mobile or portable stations may be contacted provided the location at the time of contact is shown on the confirmation.

VERIFICATIONS

4.1 The applicant must submit documentary proof, in the form of QSL cards or other written evidence, confirming that two-way contacts have taken place. Such verification must show the date and time of contact, the call sign of the station worked, type of emission and frequency used, signal reports and location (in the case of portable or land-mobile operation) of the stations contacted.

4.2 Verification must be submitted exactly as received, and forged or altered evidence may result in the disqualification of the station concerned.

4.3 A list, in accordance with the details required in Rule 4.1, must be submitted with the application for the Award.

APPLICATIONS

5.1 All claims for the WAVKCA Award must be made by the submission of

the confirmation (Rule 2.1), together with the list (Rule 4.3) direct to the Federal Awards Manager. Sufficient International Reply Coupons must be enclosed to cover return postage of the confirmations to the applicant.

5.2 Where a reciprocal agreement exists between the WIA and the applicant's Society, the appointed officer of that Society will carry out the check, and if correct, will forward a written application for the Award on behalf of the applicant, together with the list (Rule 4.3).

5.3 Applications will be examined by the Federal Awards Manager, who will arrange for the Award to be forwarded either direct or through the applicant's Society. The Federal Awards Manager's decision on the application and interpretation of these Rules will be final and binding.

5.4 Notwithstanding anything in the Rules to the contrary, the Federal Council of the WIA reserves the right to amend these Rules as necessary.

APPENDIX

Territory	Call Area	QSLs required
Australian Antarctica Heard Island Macquarie Island	VK0	1
Australian Capital Territory	VK1	1
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State of Victoria	VK3	3
State of Queensland Thursday Island Willis Island	VK4	3
State of South Australia	VK5	3
State of Western Australia	VK6	3
Flinders Island King Island State of Tasmania	VK7	3
Northern Territory	VK8	1
Admiralty Islands Bougainville Island Christmas Island Cocos Islands Nauru New Guinea New Ireland Norfolk Island Papua Territory	VK9	1

NOTES

1. In areas above, where more than one confirmation is required, contacts may be made with any or all of the Territories grouped together.
2. VK9: Where a Territory is no longer under Australian jurisdiction, contacts up to the date of independence will be accepted.

WORKED ALL STATES (AUSTRALIA) AWARD

Rules as amended 1.1.79.

OBJECTS

1.1 This Award has been created in order to stimulate interest in the VHF/UHF bands and is of a high standard to fully acclaim the proficiency of the recipients on their achievements.

1.2 This Award, to be known as the "Worked All States (Australia) Award", will be issued to any amateur in Australia or overseas who satisfies the conditions following.

1.3 A certificate of the Award will be issued to applicants who show proof of having made two-way contact with the specified areas of the Commonwealth of Australia. Additional credit will be given for proof of contact with overseas countries, viz., New Zealand or Papua New Guinea. Countries, for the purposes of this Award, are set out in the Australian DXCC Countries List.

REQUIREMENTS

2.1 Contacts must be made on the VHF/UHF bands 52 MHz and above (Bands 8 and 9). Contacts made on 50-52 MHz prior to 1/4/64 will count towards the 52 MHz Certificate.

2.2 One verification from each of the following areas of the Commonwealth of Australia is required —
(a) Australian Capital Territory.
(b) New South Wales.
(c) Victoria.
(d) Queensland.
(e) South Australia.
(f) Western Australia.
(g) Tasmania.
(h) Northern Territory.
In all, eight verifications are required.

2.3 It is possible under these rules for one applicant to receive one Award for each of the authorised bands between 30 and 3,000 MHz.

OPERATION

3.1 All contacts must be two-way contacts on the same band and crossband contacts will not be allowed.

3.2 Contacts may be made using any authorised type of emission for the band concerned.

3.3 Portable operation will be permitted provided that the portable location shall be in the State in which the licence was granted and in the call area in which the licence was granted in the case of overseas operation.

3.4 All contacts must be made in accordance with the Regulations laid down in the "Handbook for Operators of Radio Stations in the Amateur Service" or its successor for Australian stations, or in accordance with those Regulations applying in the country of the applicant in the case of overseas stations.

VERIFICATIONS

4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.

4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will lead to the disqualification of the applicant.

4.3 Each verification submitted must show the call sign of the station, date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.

4.4 A check list must accompany every application setting out the details for each claimed station in accordance with Rule 4.3. If any contacts were made whilst portable, this must be stated and the portable location given. The applicant must also state whether or not they are a member of the WIA.

4.5 In lieu of forwarding QSL cards or other written evidence as set out in Rules 4.1 to 4.4 above, a list giving the details set out in Rule 4.3, certified by the Awards Manager, Secretary or Council Member of an affiliated Society, or two licensed amateurs known to the applicant, should accompany each application.

APPLICATIONS

5.1 Applications for membership shall be addressed to the Federal Awards Manger of the WIA, accompanied by the verifications and check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.

5.2 A nominal charge of $1, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members.

5.3 Successful applicants will be listed periodically in "Amateur Radio". Members wishing to have their verified country totals listed over and above those submitted at the time of application for membership, will notify these details, in writing, to the Federal Awards Manager.

5.4 In all cases of dispute, the decision of the Federal Awards Manager and two officers of the Federal Executive WIA in the interpretation and application of these Rules shall be final and binding.

5.5. Notwithstanding anything to the contrary in these Rules, the Federal Council of the WIA reserves the right to amend them when necessary. ■

AMATEUR RADIO INTRUDERS

Following a more direct approach by your Intruder Watch Co-ordinator to our Administration they are becoming more sensitive and co-operative to our reporting.

Letters pointing out specific cases of persistent harmful interference to Amateur operators by intruding commercial stations have been sent, with the result that our official monitoring stations are looking into the intrusions and our Administration will file official complaints to the countries concerned.

Specific cases reported are as hereunder designated, but although such are in the limelight more reports would be appreciated —

Radio Tirana, broadcasting on 14330 kHz (now moved to 14320 kHz) at 0500 and 1100 GMT.

The A0 F1 signal on 14016 kHz which changes call signs almost daily, the latest being four letter with "2" inserted — e.g. "NTG2", "WU2H". This station is allegedly in the USSR but more reports are necessary.

The "Piccolo" signal on 21040 kHz needs more observations, as does a comparatively new one on 14080 kHz — VRQ. UMS an F1 signal on 21032 kHz transmits news and propaganda in English and other languages. MH22 an A1 on 21155 kHz has been a regular for many years. These all need further reports, bearing, traffic content, etc.

An excellent method of making the countries indulging In broadcasting and putting out harmonics In the 28 MHz band aware of the harmful QRM that they cause has been alerted to me. It brings Instant results, and Is a direct method that does not involve any official channels. After identifying the harmonic either by direct identification or by comparing it with the fundamental signal a QSL is made out on your normal QSL card, but crossing out "QSO" and Inserting "Confirming your harmonic of ..... kHz heard here at strength ..... on ..... (date) at ..... (time) on a frequency of ..... kHz. An excellent program causing harmful interference to amateur operators. Could you possibly remove the harmonic?" The second harmonic of Radio Paris on 14270 kHz was observed and a QSL sent. The result was a letter, a copy of which is hereunder reproduced. This is a translation from the French —

"Monsier,

I thank you for your letter regarding the frequency 14270, harmonic of the transmission on 7135. The power of the transmission on 14270 is very weak but we are doing what is necessary to eliminate the annoyance. I hope to hear from you again, best wishes,

Chief of Broadcasting Services."

A QSL was also sent to Radio Peking which resulted in the recipient receiving a lovely 1979 calendar. Thus, as well as official complaints there are other more direct methods that get results, so GO TO IT, and good hunting.

Harmonics already Identified are Radio Moscow on 28280, 28350, 28605, 28710; Radio Peking on 28308.

Alf Chandler VK3LC,
Federal IW Co-ordinator. ■

TECHNICAL CORRESPONDENCE

The Editor,
Dear Sir,

I refer to "Practical Hints", page 58 of December 1978 AR.

May I tactfully suggest that all aerial removal tests are Inaccurate, misleading, and in case their staff's credibility suffered, were banned by the Victorian Radio Branch (PMG) way back in 1942.

Originally there were two such tests. Yours appears to be a combination of each. All suffer from pre-suppositional weaknesses, and would have died a natural death years ago if the users had understood electrical interference propagation. Because of this, I will very briefly explain.

The first of the two tests (paragraph 3) used to determine if the complainant had a faulty receiver or not "fell flat" when we discovered many receivers had noise producing faults, the noise from which ceased when we removed the aerial.

We, in the Radio Branch, considered the pointless second test, so beloved by "Mains Filter" manufacturers, "Noise Reducing Antenna" salesmen, and some "Technical Editors", to be very amusing. The manufacturer's uncorrected misleading advertisements advised noise potential customers to first disconnect their aerials. If the noise ceased, the interference was being received by the antenna, if the noise continued then it was mains-borne, etc.

I grinned every time I read them. The joke is that nearly all electrical interference is mains-borne, the odds against it being otherwise would be about one hundred thousand to one (100,000 — 1). To carry the joke further, all mains-borne interference (including TV line oscillator interference) ceases when the antenna is removed. If the noise continues you *almost* certainly have a faulty set. (Glad you almost agree with us.—Ed.)

Obviously, the noise has to get from the mains into the aerial system. Most of it enters your home via the SEC service wires. It is then induced from your house wiring Into your aerial system. Understanding mains-borne interference, or to give it its original name, "Radio Inductive Interference", enabled us not only to find and fix the 40 per cent audible noise heard at the complainant's premises, but the 60 per cent which we never heard. This was standard practice, every man was expected to use this simple system.

Noise investigation, as many people imagine, is not a perpetual series of "Fox Hunts". Like water flowing through a pipe, noise propagation is predictable. By phase transposition, low voltage noise can be diverted from a complainant's premises. Indeed officers of the SEC did this for me at least one hundred times, after unsuccesfully dealing with disagreeable owners of B & W TV sets, causing line oscillator interference. Noise generated in any phase of a three phase low voltage supply will normally confine itself to its own phase and will not "pass through" the transformer to which the three phases are connected. I know of one exception to this rule but I believe it, the device, died an evolutionary death.

If you have an outdoor antenna In the noise induction field of a HV line (usually 22 kV) the noise will not only be induced into your antenna, but will be in your house wiring as well. Listeners connected to all three low voltage phases will be affected, but remember that the actual HV noise source need not be nearby.

In Victoria (22 kV) this noise source might be up to seventy metallic miles away from a complaining B/C listener (case history). Luckily, because of harmonic attenuation, few amateurs, unless on 160 metres, would hear it at that distance. Noise from a HV fault has no boundaries. Although, In the true sense of the word, it does not radiate, it will, unlike a normal low voltage noise, "pass through" transformers, annoying people connected to all associated three phase low voltage reticulation.

Years ago, before most telephone lines were placed underground, it was not uncommon for a noise voltage, generated by a serious 22 kV HV fault, to be induced into adjacent telephone trunk lines. If these telephone lines were diverted across country eventually to run parallel to another HV line even 10 miles away from the first HV line, the original noise would then be induced into HV line number two. (Never underestimate a 600 ohm line.)

Cliff Manning VK3CJ ■

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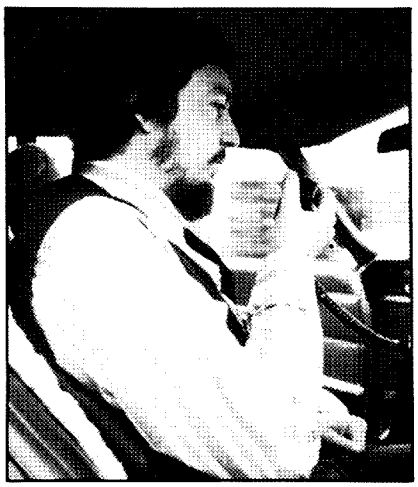

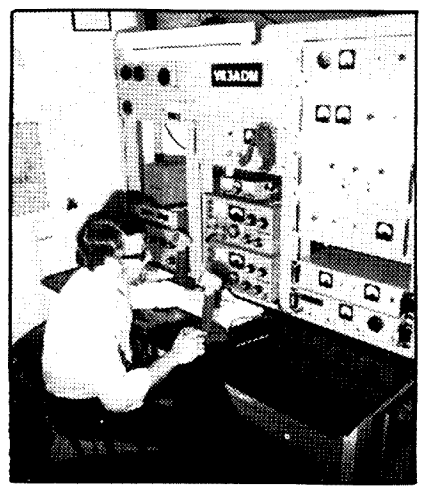

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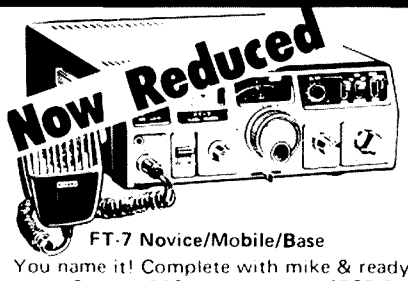

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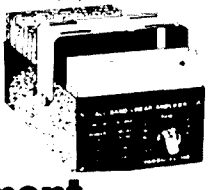

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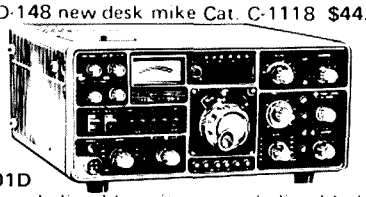

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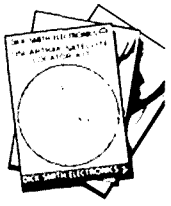

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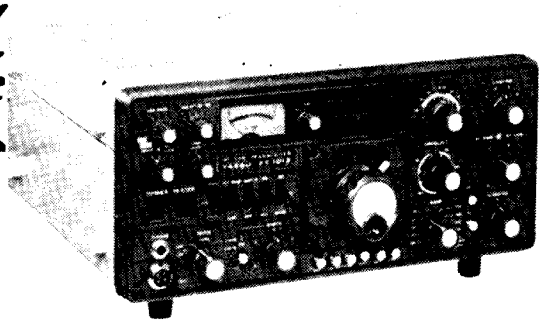

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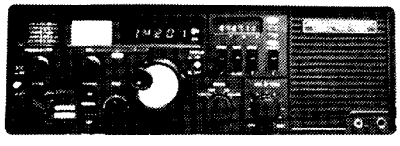

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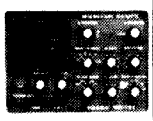

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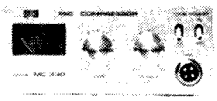

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(WE GET LETTERS!)

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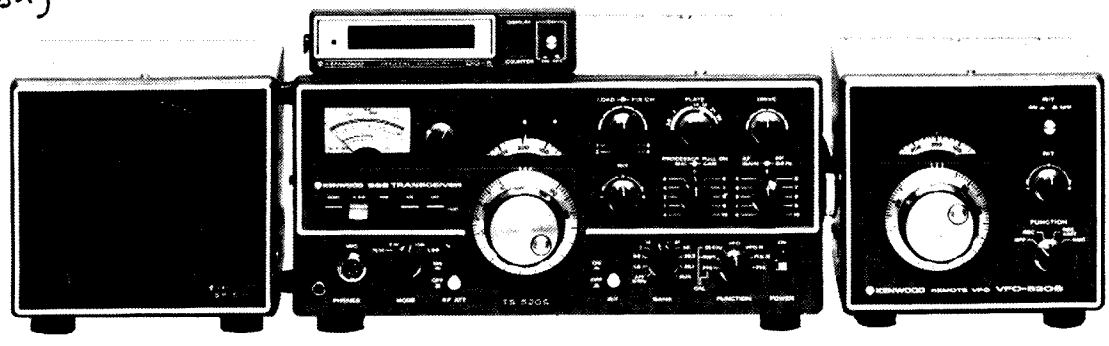
The TS-520S is nearly 18 months old, & is used for at least 4 to 8 hours per day. During this period, the equipment has performed faultlessly — not the slightest problem has been experienced."

VK7NOW M.W.I.A



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Federal Educational Co-ordinator.
Graeme Scott VK3ZR

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1. Amateur Radio Operator's Certificate,
2. Amateur Radio Operator's Advanced Certificate, and
3. Amateur Digital Radio Operator's Certificate.

EXAMINATIONS

Candidates for the Amateur Radio Operator's Certificate, Amateur Radio Operator's Advanced Certificate or the Amateur Digital Radio Operator's Certificate are required to qualify in various sections as shown in Table 1.

The holder of an Amateur Radio Operator's Advanced Certificate may obtain an Amateur Digital Radio Operator's Certificate by qualifying in Section 2, Part IV, of that certificate.

The holder of an Amateur Digital Radio Operator's Certificate may obtain an Amateur Radio Operator's Advanced Certificate by qualifying in Section 3 of that certificate.

TABLE 1

EXAMINATION CONTENT

Type of Certificate	Radio Regulations (Section 1)	Theory (Section 2)	Morse Code (Section 3)
AMATEUR	Multiple choice 60 minutes Part I (a)	Written 60 minutes Part II	10 wpm for 3 minutes
ADVANCED AMATEUR	Multiple choice 60 minutes Part 1 (b)	Written 60 minutes Part III	15 wpm for 3 minutes
DIGITAL	Multiple choice 60 minutes Part 1 (b)	Written Part III Advanced 60 minutes Part IV Digital Technique 60 minutes	Not Required

STUDY GUIDES

The following publications are suggested for the guidance of candidates preparing for examinations and may be obtained direct from the publishers or from book stores, except where otherwise indicated.

FOR AMATEUR AND ADVANCED AMATEUR

"The Canadian Amateur Radio Regulations Handbook" —
CARF,
Box 356,
Kingston, Ontario.
K7L 4W2.

"The Canadian Amateur Certificate Study Guide" —
CARF,
Box 356,
Kingston, Ontario.
K7L 4W2.

"The Canadian Amateur Advanced Certificate Study Guide" —
CARF,
Box 356,
Kingston, Ontario.
K7L 4W2.

"Ham Handbook for Beginners" —
ARTA Publishing Co.,
PO Box 571,
Don Mills, Ontario.

TRC-25 "Extracts from General Radio Regulations, Part II", obtainable from the
Department of Communications,
Ottawa, Ontario.
K1A OC8, or
from any district office.

"Radio Act — General Radio Regulations, Parts I and II", obtainable from —
Department of Supply and Services,
Printing and Publishing Division,
270 Albert Street,
Ottawa, Ontario.
K1A OS9.

"Elements d'Electronique pour le Certificat de Radio Amateur", par —
Normand Bourgouin,
Librairie Beauchemin Ltee.,
450 rue Beaumont,
Montreal, Que.

"Comment Devenir Amateur", par —
Guy Cadieux VE2BTG,
4585 10e rue,
Laval Ouest, Laval,
(Quebec).
H7R 2V9.

"The Radio Amateur's License Manual" —
The American Radio Relay League Inc.,
Newington, Connecticut,
USA 06111.

"The Radio Amateur's Handbook" —
The American Radio Relay League Inc.,
Newington, Connecticut,
USA 06111.

FOR AMATEUR DIGITAL

"Systems Analysis for Data Tranmissions", by James Martin —
Prentice-Hall, Inc., 1974.

"Future Developments in Telecommunications", by James Martin —
Prentice-Hall, Inc., 1977.

"Computer-Communication Network Design and Analysis", by Mischa Schwartz —
Prentice-Hall, Inc., 1977.

"Queuing Systems II", by Leonard Kleinrock —
Wiley-Interscience, 1976.

"Elements of Queuing Theory", by Thomas Saaty —
McGraw-Hill, 1961.

"An Introduction to Microcomputer — Volume 0 — The Beginner's Book", by Adam Osborne —
Adam Osborne & Associates,
PO Box 2036,
Berkeley, CA, USA,
94702.

"Data Communications: Facilities, Networks and Systems Design", by Dixon R. Doll —
John Wiley & Sons, 1978.

"Computer-Communications Networks", by N. Abramson and F. Kuo —
Prentice-Hall, 1973.

"Advances in Computer Communications", by W. W. Chu —
Artech House,
Reprint Volume 1975.

"IEEE Transactions on Communications" —
Special issue on Computer Communications,
January 1977.

"Principles of Data Communications", by R. Lucky, T. Salz and E. Weldon —
McGraw-Hill, 1968.

"Error Correcting Codes", by W. Peterson —
MIT Press, 1961.

"Handbook of Pulse Digital Devices for Communications and Data Processing", by Harry E. Thomas —
Prentice-Hall Inc., 1970.

"Basic Techniques in Data Communications", by Ralph Glasgal —
Artech House, 1977.

"Home Computer Primer" —
Dilithium Press,
PO Box 92,
Forest Grove, OR 97116,
USA.

"Microcomputer Primer" —
Howard W. Sams & Co.,
4300 West 62nd Street,
Indianapolis, IN 46206,
USA.

"An Introduction to Microcomputers — Volume I" —
Adam Osborne & Assoc.,
PO Box 2036,
Berkeley, CA 94702,
USA.

MAGAZINES AND JOURNALS

Byte: The Small Systems Journal. ■

AROUND THE TRADE

VICOM EXPANDS PROFESSIONAL DIVISION

Vicom International Pty. Limited has appointed Mr. Max Pietruschka to head up its expanding Professional Products Division.

The Division handles high quality specialist communications and security equipment together with a wide range of test instrumentation for defence and other governmental agencies. ■

QSP

USA CB SERVICE AT 900 MHz?

Yes, this is under consideration by the FCC in replacement of the possible re-allocation of 220 MHz to the CB service according to a report in OST December 1978. ■

SCARCITY VALUE OF THE SPECTRUM

QST December 1978 contains articles relating to a possible new USA Federal Communications Act to replace the 1934 Act. One aspect of the new proposals relates to the possibilities of assessing licence fees on users of the spectrum in two ways: (1) the cost of processing the licence, and (2) the scarcity value of the spectrum being assigned. It is said that non-commercial radio services would be exempt from the "scarcity value" provisions of the licence fee.

NEW CALL SIGNS

The following call sign series have been allocated provisionally by the ITU according to IARU R1 Newsletter January 1979 — T2A to T2Z Tuvalu, Y2A to Y9Z German Dem. Republic. ■

AWARDS COLUMN

Brian Austin, VK5CA

P.O. Box 7A, Crafers SA, 5152

Allen Smith VK2AIR has sent me a copy of the "Canadian Amateur Radio Awards Directory". This is a very useful aid to any award hunter, and I can thoroughly recommend it. Copies are available from VE3HLL, E. S. Walden, Gowanstown, Ontario, Canada, for $3 Australian currency. I am including details of two Canadian awards herewith:

TRANS-CANADA AWARD

Club: Canadian DX Assn.

Requirements: Work each of the 8 VE call areas with 5 contacts in each area (total of 40 contacts). Also work 5 stations in VO1 and VO2, any combination. Also work 1 VE0 maritime mobile station. Of the 5 VE8 contacts one must be in the Yukon Territory and one must be on an offshore Island of the North-west Territories. Stations must work and confirm a total of 46 contacts as outlined above to qualify.

Application: Send log data and $1 to Canadian DX Assn., PO Box 717, Station O, Toronto, Ontario, M4T 2N5.

CALGARY AMATEUR RADIO ASSN.: STAMPEDE CITY CERTIFICATE

Requirements: Work any ten Calgary, Alberta, stations.

Application: No charge. Send log data only to Calgary Amateur Radio Assoc., Box 592, Calgary, Alberta, T2P 2J2.

Allen Smith VK2AIR of 111 Northcott Road, Seven Hills, N.S.W. 2147, has been appointed Secretary-Treasurer-Custodian-Editor of CHC Chapter (66) Australia, replacing Jack Gutcher VK3APU. Any enquiries should be directed to Allen.

THE DARWIN AWARD

The Darwin DX Working Group announce the Introduction of "The Darwin Award". This award is available to amateur operators and SWLs for contacts with radio stations in the Greater Darwin area after 1-1-78.

Requirements: DX stations, work/hear 5 stations in the Greater area of Darwin. Any band or mode may be used.

VK and ZL stations work/hear 8 stations in the Greater Darwin area. Any band or mode may be used.

VK8 stations in Greater Darwin work 20 stations looking for the award or 15 VHF contacts with other Darwin stations.

Applications for this award to be sent (GCR) to The Awards Manager, PO Box 40986, Casuarina, NT 5792, Australia, with 5 IRCs to cover cost of postage.

This is my last contribution to AR as Federal Awards Manager. I hope that in the last five years I have provided some items of interest to you and that some of you, at least, have acquired some wallpaper as a result of the notes.

Your new Federal Awards Manager is Bill Verrall VK5WV, whose address is 7 Lilac Avenue, Flinders Park, SA, 5025.

Please forward all correspondence to him.
Good hunting.

EDITOR'S NOTE: Thank you, Brian, for all of your assistance in the past. We welcome Bill Verrall as the new Federal Awards Manager (VK3UV). ■

BOOK REVIEW

"HOW TO IDENTIFY AND RESOLVE RADIO-TV INTERFERENCE PROBLEMS"

(Published by the FCC — available via MAGPUBS.) This booklet is aimed at informing television viewers, broadcast listeners, radio servicemen and amateur radio and CB operators of the various types of interference encountered by receivers in common use.

The first four pages are devoted to showing television viewers what the various types of Interference look like on their TV screens.

The next four pages deal with the elimination of this interference.

Audio equipment and telephone interference is then dealt with.

Pages 10-20 deal with various remedies open to amateur and CB operators who have interference problems.

The last half of the booklet is an appendix listing the sources for assistance in resolving interference problems available in the USA. These sources are not necessarily available in Australia.

Interference to television and radio reception is handled in Australia by the Postal and Telecommunications Department whose addresses and telephone numbers are listed in capital city telephone directories.

VK3ASC. ■

VHF-UHF
AN EXPANDING WORLD

Eric Jamieson, VK5LP
Forreston, 5233

AMATEUR BAND BEACONS

Freq.	Call Sign Location
50.023	HH2PR — Haiti*
50.025	6Y5RC — Jamaica
50.050	WA1ENX — Maine
50.080	TI2NA — Costa Rica
50.087	WA6MHZ — San Diego
50.088	VE1SIX — New Brunswick
50.085	WA6JRA — Los Angeles
50.092	W7KMA — Oregon
50.098	KG6JIH — Guam
50.100	ZK1AA — Cook Island*
50.101	FO8DR — Tahiti*
50.104	KH6EOI — Pearl Harbour
50.110	HL9WI — Seoul
50.110	KG6JDX — Guam
50.110	JD1YAA — Marcus Island
50.110	KH6HK — Marshall Island
50.500	5B4CY — Cyprus
51.999	YJ8PV — New Caledonia
52.110	HL9WI — Seoul
52.200	VK8VF — Darwin
52.300	VK6RTV — Perth
52.350	VK6RTU — Kalgoorlie
52.400	VK7RNT — Launceston
52.440	VK4RTL — Townsville
52.450	VK2WI — Sydney.
52.500	3D2AA — Fiji
52.500	ZL2VHM — Palmerston North†
52.510	ZL2MHF — Mt. Climie‡
52.500	JA2IGY — Nagoya
52.800	VK6RTW — Albany
53.000	VK5VF — Mt. Lofty
53.100	VK0MA — Mawson
144.101	VK2WI — Sydney
144.400	VK4RTT — Mt. Mowbullan
144.475	VK1RTA — Canberra
144.500	VK6RTW — Albany
144.700	VK3RTG — Vermont
144.800	VK5VF — Mt. Lofty
144.900	VK7RTX — Ulverstone
145.000	VK6RTV — Perth
145.100	ZL1VHF — Auckland
145.150	ZL1VHW — Waikato
145.200	ZL2VHF — Wellington
145.250	ZL2VHP — Palmerston North
145.300	ZL3VHF — Christchurch
145.400	ZL4VHF — Dunedin
432.400	VK4RBB — Brisbane
432.450	VK3RPX — Ballarat
432.475	VK7RTW — Ulverstone

NOTES:

* New beacon according to Bill Tynan of QST.

† Change of call sign from ZL2VHP to ZL2VHM and operating from a new location near Palmerston North, 175° 44' east, 40° 26' south, height asl 492 metres, 8 watts to turnstile antenna with FSK 800 Hz shift. This information is contained in a letter from Harry ZL2BFR, who also mentions a 6 metre beacon being commissioned by Upper Hutt Branch to be located on Mt. Climie 175° 29' east and 41° 13' south, 860m asl on 52.510, FSK every 10 seconds, call sign ZL2MHF and the antenna a vertical (?) dipole. This one is included in the present list as il could be operating by the time you read this. Thanks for the information, Harry.

‡ ZL2MHF, the new beacon referred to above.

There is also a beacon operating on Gibraltar, signing ZB2VHF, frequency unknown, and has been heard as far away as PY1 and KZ5.

SIX METRES

The sporadic E (Es) season has been and gone to a large degree. The season was a relatively short one, with some good openings at times, but largely in the earlier part, rather poor around Christmas and New Year. However, this is not entirely unexpected with rising sunspot numbers and one can probably expect similar conditions for the next two or three years. Compensation of course are the increased number of long distance openings to Japan and other Pacific areas. As was outlined in last month's notes many areas have been worked from various States of the Commonwealth, although H44DX from Guadalcanal seems to have been rather elusive to many operators. A very good opening of some 4 hours to ZL from VK5 occurred on 14-1-79 with ZL1, 2 and 3 mainly being worked between 0800 and 1030Z, with signals to 5 x 4+. The New Zealand contacts followed a rising MUF the day before when very strong FM signals were observed on the PRC10 on 38.3, 38.8, 39.3, 40.25, 41.9, 42.5, 43.6, 44.4, 44.7, 47.00. Weaker signals on 48.7 and 49.75 finally culminating in the first carrier being noted from Japan on 50.072 at 0328Z weakly. JA8RKC was observed on 50.100 later at 0428Z at 5 x 2 at this QTH. This again shows how the band can often be open up to 50 MHz and slightly above but not reaching 52 MHz at all. So we miss out on contacts!

VK5RO reported weak signals on 52 MHz all day on 15-1 from JA and YJ8. David VK5KK reported similar conditions on many of the following days, but the mainly strong signals were to be found on 50 MHz. It seems likely such conditions will prevail until March when TEP type conditions should return, and it is hoped continental USA will be worked from VK once more. I would expect many outstanding contacts to be made from Australia during March, April and May, but we will not be helped greatly by what has been arranged for northern hemisphere working, as outlined in the next paragraph.

JAPAN/AMERICA 6 METRE ARRANGEMENTS

From QST "During his November trip to Japan, WB6NMI discussed with several prominent and active JA six metre operators the question of frequencies to watch when conditions look favourable for US to JA work. The consensus was that on SSB we should call on 50.110, which is not particularly heavily used in Japan. The JAs will transmit around 50.135. In Japan, as here, the first 100 kHz is restricted to CW. For that mode Louis suggests we call on 50.1 and listen on 50.090. This does not mean QSOs should not take place on a single frequency; these are merely the suggested places to monitor for signals from across the Pacific." So now VK stations can sit back and listen to the JA/W contacts on 50 MHz during March and April, and biting your fingernails, wondering whether you should go down there and invite anybody up to 52 MHz, and be promptly investigated for doing so!

SIX METRES IN ZL4

Stan ZL4MB writes to say 6 metres was rather poor in ZL4 this year, as in VK. Contacts don't come easy from his place due to Flagstaff Hill, 2200 feet high, and effectively blocks all westerly contacts.

Active stations in ZL4 are Geoff ZL4HR, Peter ZL4LV, Bill ZL4KB, Gordon ZL4PQ, Ken ZL4NR, Stan ZL4MB, Chris ZL4OY and Bernie ZL4IS, with Barry ZL4IP, Bill ZL4LT and Keith ZL4AI only able to listen at present. So it appears if the right conditions prevail there should be plenty of opportunities to work ZL4! Stan mentions also a 6 metre net which uses 52.050 on Sunday mornings 1000 NZ summer time, 2300Z. Thanks, Stan.

THE TASMAN EPIC

More news is coming to hand outlining the magnitude of the opening between Australia and New Zealand from 7th to 10th January on 2 metres and 70 cm. Jamie VK2YCJ must have been bleary eyed after working almost 200 ZLs on FM. Rod VK2BQJ sends a rather comprehensive outline of the happenings, and although the main details were reported last month, a few more points are worthy of note.

CROSSING THE TASMAN

Not clear how far inland the conditions extended in VK2, only one station in Blue Mountains area seemed to do much good. Most signals FM/SSB, to about S5, odd outstanding at times. Most gear at ZL end low powered, with vertical antennae for local workings! Very few afterburners, few beams, only a couple larger than 5 elements. No large stacks it seems. ZL2 rare (at VK2BQJ anyway), heard one ZL2 repealer, worked one ZL on 144 SSB and one way 432 MHz.

ZLs seems to prefer odd frequencies for SSB. No real calling channel except perhaps 145.2! Seemed to avoid in general terms going much below 145 MHz. Most preferred 145-146, some 146-147. 700 kHz split a problem, unless you had two rigs.

Did not at any time hear the ZL beacon. As far as I know none heard VK2WI either. (Possibly elevation of beacons too high for type of opening . . . 5LP.) At one stage could key up four Channel 4 repeaters, including Gold Coast. Heard only one VK4 all the time. Week-end before massive Inversion north/south, repeaters in VK2 and VK4 a shambles, many long haul repeater and simplex contacts.

This is how it went. 7-1-79: First contact ZL1DR/VK2AYC 0652Z via ZL repeater D. VK2AYC had first simplex 0920Z. (Also an ISD call from ZL to confirm if VK2AYC legitimate!) From 0900Z conditions better. My log: 1152Z ZL11HP via Ch. D. ZL1NT. 0935Z: ZL1TPB, ZL1TPJ, ZL1AQF, ZL1TWC. 0945Z: 2 x SSB to ZL1BPW 144.150 5 x 4, portable on hill, generator, 100W. Next two hours numerous VK/ZL through Channel 6 repeater at Newcastle, including Barry VK2ZAY.

8-1-79: 0815Z: VK2BBR Lismore 2 z SSB, was mobile in car, 5/8 vertical whip 5 x 3, about 400 miles! 0822Z: ZL1AVZ broke in on SSB 144.2 off side of my beam, 5 x 8. 0825Z: ZL1AOX using FT200 and vert. ant. 5 x 6. ZL1AQF 80W 3 el. collinear at 10 feet. ZL1TVR 9W to 2 x ½ waves at 15 feet! ZL1AOX. ZL1BPU: 40W to 4 el. al 24 feet. ZL1TFP: TS700S 5 x 3. ZL1TGS: IC245 to collinear. All these contacts were SSB both ways. At 0900Z repeater F came in to make numerous ZL contacts. About 0930 repeaters B to F inclusive all in. 1027Z: ZL1BPW via repeater C, also ZL1THZ. 0940Z: ZL1TGC on repeater B, no go on 432.190. 0945Z: VK2ZRT via repeater B, also ZL1TGC. 1100Z: VK2ZQQ SSB solid, about 150 miles. 1204Z: ZL1TAB FM simplex. 1255Z: ZL1TTU, 100 miles from Auckland, Rep. B IC215 3 watts. Also ZL-THZ, ZL1TTE, ZL1TMY, VK2ZRT and ZL1AQF. Went to bed 1420Z.

9-1-79: 0737Z: ZL1TEE 2 x SSB 5 x 6. 0747Z: ZL1THZ. 0805Z: ZL1BDO 2 x SSB 5/8 vert. 10W. 0835Z: Channel 6 Newcastle. ZL/VK shambles! 0840Z: Repeater B in. 0850Z: ZL1TAB Channel 6 calling for 432 signals. 0851Z: ZL1TAB 432.250 2 x SSB 5 x 2 to 5 x 5 to nothing. Received report 5 x 5 to 5 x 6. Continued this contact until 1025Z! 1100Z: ZL1TAB 432 MHz on sked, weak, but 2 way copy. 1125Z: Repeater B, numerous ZL. 1132Z: ZL1TUX 2 x SSB. 1138Z: Repeater D. 1140Z: Assorted VK/ZL via Ch. 6 Newcastle. 1304Z: Repeater F in, runs 2 watts ERP! ZL1TUX. 1320Z: D in again. QRT 1400Z.

10-1-79: 2012Z: ZL repeater B, to 9+ working assorted VK. Worked ZL10I, ZL1BEZ, ZL1AAZ and ZL1ACI. 2107Z: ZL1ACI 2 x SSB 144.150 to 5 x 7 at best, 10W 100 feet coax to 5/8 ant. up 80 feet, 2 watts out! 2120Z: ZL2TAL. QSY to 432.190. 2135Z: ZL2TAL heard my CW and carrier 432.190, sigs. from nothing to S3/4/5 over next hour, with various checks on 144, which was going down fast. 2230Z: Locals! Repeater B still in QRT at 2300Z to work!

Information for the future. ZL repeaters as at 7-1-79:

A—146.200 (input), 145.500 (output); B—146.225, 145.525; C—146.300, 145.600; D—146.350, 145.650; E—146.400, 145.700; F—146.450, 145.750; G—146.500, 145.800.

Note 700 kHz downshift. During January openings B and D best and most consistent. F heard at times. E antenna wrong side of mast for VK. Did not hear A at any time, heard rest at some time. F runs 2 watts ERP. Simplex 146.000 popular, also 145.45, 146.050, 146.100, 146.150 and 146.500.

A letter a few days later from Rod VK2BQJ outlines a few more interesting points and are noted as follows: Thursday, 11-1-79, band nearly dead, couple worked mid-afternoon. Nothing after 0700Z 11-1-79. On Wednesday, 10-1, ZL1 mostly into Gosford repeater and best direct contacts were to the north of Sydney or Blue Mountains. One station west of Sydney in mountains worked two ZL2s during session. ZL2 rare here, but not so it seems in Gold Coast/Brisbane areas. A VK1 said a ZL heard briefly via Mt. Ginini repeater but not worked.

432 MHz

There have been many false rumours about the 432 MHz contacts I made, so to set the record straight, here are the details for everyone to read: Contact was arranged via Ch. 6 Newcastle. He (ZL1AAB) heard me first running carrier on his nominated frequency, both went to SSB. Contact started 0851Z, concluded 1½ hours later. Reports were 5 x 6 at best, Ray copied me better than I copied him, copy here 90 per cent Q5. Have 10 minutes on tape, noise free at times.

ZL1TAB used Belcom Liner 70A with MA501 masthead pre-amp, and a 15 element log periodic yagi, about 15 watts SSB. The 70A is a 10 MHz 10 x 1 MHz tuneable all mode 432-442 MHz device. VK2BQJ used a 432 MHz Microwave Modules transverter running 9½ watts to 11 over 11 W1HDQ style yagis fed with 7/8th Inch Cu2y cable — a bit better than FHJ5 cable at 70 feet.

A further sked for 1100Z SSB, heard both ways but signals weaker. On 10-11 arranged 144 MHz SSB sked with ZL2TAL, then OSY to 432 SSB. He copied my CW and carrier, but I only heard his carrier breaking at the appointed time. 144 was going down fast and eventually lost liaison. This attempt started 2130Z. The ZL repeater had been 9+ at 2000Z so we may have been too late. Lot of QSB. His signal not formally identified.

Thanks, Rod, for going to the trouble of outlining events, it was a great occasion for many stations, some will have done better than others, some will be cursing their luck for not making it for a variety of reasons. Again congratulations to you, Rod for making it both ways on 432 MHz SSB.

A few lines included with the VK2BQJ letter gives some outline of events from VK4. 9-1: 0800 to 1200Z 144 VK4/ZL. 10-1: 0700 to 1200Z same. ZL2 worked from Gold Coast, and ZL repealers copied. Rod VK4ZRQ had worked five ZL2s direct. Only one ZL1 heard — a marked distinction to VK2 efforts. VK4 also heard a ZL3. ZL2ARW working from a mountain lop had an enormous signal on SSB in Brisbane, but he had left his 432 gear home! (See "News from Queensland" at end.— Ed.)

Lionel VK3NM was rather a fortunate traveller, arriving in Newcastle during the big two metre opening, and promptly got amongst the ZLs himself. He used a TR7400A and a 5/8 whip to work direct ZL2BFJ, ZL2TVY, ZL1TWA, ZL1AZB, ZL1UD, ZL1TLQ, ZL2BAF, ZL1BEX and ZL1TUX. Via repeaters he worked ZL2BJO and ZL1HP. No ZL3 or ZL4 heard. Signals from most of the stations were incredibly strong, Lionel reports, pinning the S meter at times. Stations running 10 watts or lower to simple ¼ wave whips were S9 with little or no QSB. So you can be lucky sometimes, Lionel, being in the right spot at the right time! Thanks for writing.

To finish up the news on this big opening, perhaps it is ironical to read in the VHF notes in "Break-In", the New Zealand counterpart of AR, in the December 1978 issue, a report of the Christchurch Branch 05's VHF Group which considered proposals to change from the present 700 kHz offset in NZ to 600 kHz, which would be compatible with VK, but a clear vote against the proposal was carried! I wonder if there will be any further discussion on the matter in view of what has just happened. I wonder how many contacts were actually not made as a result of many shacks not having additional equipment with which to accommodate the different offsets of the VK and ZL repeaters. Probably some never made it at all despite hearing one side of the conversations!

FIFTY MEGAHERTZ

I see by the VK6 VHF Group Bulletin that discussion was to be undertaken on the possibility of negotiating operation on 50 to 52 MHz. As good a thought as this might be, I still believe a fragmented approach by various groups to P. and T. will gel nowhere. The matter needs to be initiated at WIA level via the VHF Advisory Committee whom we would believe would be working towards this end. (They most certainly are.—Ed.)

It is my earnest hope P. and T. will not drag their feet to the extent that ultimate permission may be granted for some form of operation on 50 MHz at a time when it is too late for any worthwhile contacts to be made. There still seems to be really no worthwhile reason why 50 MHz operation cannot be permitted on a non-interference basis — that situation exists already on 52 MHz — you try to continue to operate at present on 52 MHz whilst interfering with your neighbours and see how far you will get, whether your equipment is blameless helps very little when the crunch comes.

Initially there seems no reason why we cannot be allowed to go down to 50 MHz area and call an overseas station, and invite him to move up to 52 MHz. If he cannot do this then a short QSO should be permitted with an OVERSEAS station on 50 MHz. There are plenty of areas outside Channel 0 territory which will not interfere with television viewers, and those in Channel 0 territory would probably continue to operate on the limited scale they do at present, but at least would be permitted to have QSOs outside television hours, and let's face it, late night contacts will be part of the TEP situation as the peak of the present cycle approaches. Such an arrangement could well suffice for the time being whilst the total implications are studied by P. and T. and others. it will help to keep all contacts fully legal whilst permitting VK stations to participate in the world wide contacts which will probably be available in the near future.

THE PRC10 RECEIVER

The paragraph I ran recently on the ex-Army 38 to 55 MHz transceiver type PRC10 has caused quite a degree of interest, If the number of interstate phone calls I have received for further information is any indication. Those purchasing such an instrument to monitor the MUF may be interested in the socket connections lor feeding power into the unit. The 8 pin socket at the bottom of the unit are connected as follows: A and B: 1.5+ volts; C is earth; D 135+ volts; E 67.5+ volts; F not connected; H —6 volts; J is A—, B— and C+ which are connected to earth, but A— should be isolated in your power supply for switching purposes. 135 volts is used for the transmitter and requires 27 mA. 67.5 volts is used for the transmitter also at 12 mA and for the receiver at 26 mA. This voltage is critical for the receiver, anything below 67 volts and the receiver performance falls off rapidly, 67 to 75 volts would be Ideal. 1.5 volts at 0.48 amps for the filaments. This is dropped to 1.25 volts internally for the filaments. This voltage also supplies the dial light and the calibrator. The —6 volts at 300 mA is used for the transmitter valve filament and the squelch relay. Well filtered DC is required for 67.5 volts for the receiver and 135 volts for the transmitter, and exceptionally well filtered and/or regulated 1.5 volts for the filaments. A PMG type cell could possibly suffice here if you are only going to receive. The unit is a wide band FM device and readily resolves the television audio; transmitter output power 800 mW, audio output power about 30 mW. To raise the level of the audio I extracted the two leads which connect to the headphone and connected these to the audio end of a cheap $4 AM transistor radio from K-Mart, and this gives ample output for listening. The antenna as, mentioned previously, is a Hills TL3/01 which is a colour TV antenna for use in Channel 0 areas. Fed with ET10M 75 ohm coax it provides probably 4 to 6 dB of gain over the frequencies covered in the unit, and in my case this antenna can be rotated and is about 58 feet high.

The PRC10A is a later version of the PRC10 but is a little different inside, it appears to have one less IF stage and a few other changes, but I see no reason why it should not be a good monitoring receiver as well. The PRC10 is terrific for monitoring, I have extremely strong signals here from the local TV stations, but no signs of any rubbish between 38 and 55 MHz. Every signal heard on the PRC10 comes from somewhere else, mainly the north! There is also a PRC9 which covers from about 27 to 38 MHz, but is not so suitable for our present use, but would be a useful adjunct to the PRC10.

REPEATER

Ian VK5IK at Eudunda, some 70 miles NNE of Adelaide, seems to enjoy another set of reception conditions which seems to elude those living further south. He reports in another letter this month the reception of various FM repeaters and some simplex operation, e.g. 5-1-79: 1230Z: Channel 4 Bendigo, Channel 8 Mildura both audible, with Channel 7 Mt. William very strong. 6-1: 1448Z: Channel 3 Ballarat. 2252Z: Channel 3 fair, Channel 4 Bendigo and Channel 6 strong. VK3BM S9+ on direct path. Channel 8 3MRA strong. 9-1: 1312Z: Channels 3, 4 and 7 audible increasing to 9+ late evening and early morning. 13-1: Channel 7 3RWZ audible. 14-1: Channel 4 and Channel 7 audible. 15-1: 1013Z: Channel 3 2RWG Wagga 9+ for most of morning, Channel 7 3RWZ 9+, Channel 7 1RGI S6. This latter reception apparently was not following the usual set of conditions, as the south repeaters were not being favoured, as 3RWZ normally captures any signals transmitted. Channel 8 3RNE and 3RMA also good strength. 2335Z: VK2ZI in Broken Hill worked on Channel 40 and he was able to access Channel 5 Adelaide.

With this sort of capability, Ian, we hope you will in time be able to stir up some interest in VK3 via the repeaters to try some contacts around the country on SSB on 144 MHz. Suitably equipped stations in the areas mentioned should be able to make contact from time to time.

EME REPORT

"The Propagator" reports for December 1978 that a meeting of the University of Wollongong staff, attended by Lyle VK2ALU, affirmed that the 432 MHz dish at Dapto should be shifted to the new site if costs are satisfactory. A secure building would be erected next to the dish by the University, and the EME Group would only have to install the EME equipment and associated wiring and cables. So it looks as though in due course the project will once again be operational, this time we hope secure from the stupidity of vandalism.

NEWS FROM QUEENSLAND

Rod VK4ZRQ has written with news of VHF happenings on behalf of the Brisbane VHF Group.

As far as 6 metres is concerned, it has not been particularly outstanding, especially as far as multi-hop Es, F or TEP are concerned. Quite a bit of interest has been stirred up by the increased YJ8, FK8 and VK9 activity. One interesting observation is that since the YJ8PV beacon has been installed it would seem the Brisbane-Port Vila path is more reliable than the Brisbane-Melbourne-Launceston-Adelaide paths. FK8AB and FK8AX report working JA and KH6 and hearing KR6, UK, UM, LZ2 (weak CW) all on 50 MHz, which makes one wonder what could be done if TVQ-0 didn't exist!

So far one JA opening for 1979 at 2300Z on 7-1, which looks as though it could be F2 rather than class 1 TEP.

On 2 metres tropo has been fairly prevalent during January. Areas concerned extend from Newcastle north to Rockhampton and west to Moree. Country stations particularly active include VK2BXT Moree, VK2PU Kingscliff, VK2ZXC Newcastle, VK2ZCV Port Macquarie, VK4FU Rockhampton, VK4RH near Warwick, VK4LE Springsure, VK4ZBI Rubyvale and VK4ZWH at Bundaberg, plus of course many Brisbane and Gold Coast stations. Notable contacts include VK4RH to VK4FU, VK4LE and VK4ZBI. VK2BXT to VK4ZWH, and heard by VK4ZBI. VK2ZCV to Brisbane.

ZL stations have also been worked from this area recently, with ZL 2 metre beacons being heard from time to time. Most eventual contacts were made on 9-1 and 10-1, with ZL2 area being the most prominent, but ZL1 was also worked and ZL3 heard. The actual number of contacts made from SE Queensland do not appear to be nearly as many as from Sydney area and signals appeared to be geographically selective. Stations close to the coast and further south had stronger signals. The other interesting point is that original polarization of the signals was maintained. Some new DX records from Queensland have been created, e.g. VK4VC Nambour to ZL and VK2PU Kingscliff to ZL, both on 2 metres. As the actual locations of the various ZLs is not known, exact calculations of distances at this stage are not possible, but it is fairly obvious existing records have been broken. Despite many calls nothing was heard on 432 MHz. Thanks, Rod, for writing.

GENERAL

The usual January openings on 144 and 432 MHz have been taking place between Albany and VK5, with some very strong signals at times. Two metres has also been good into VK3, especially the northern parts. Col VK5RO has been having constant contacts with Frank VK2ZI in Broken Hill.

Letters are continuing to come in response to the two part article in AR on the return of the six metre band to amateurs. Whilst most consolidate the thoughts already expressed, it is pleasing to know the article hasn't gone unnoticed. The letters are filed for the future.

As there is not a lot of specific information this month, and we have had some good coverages of recent times, it seems appropriate to close at this point, wishing you all plenty of DX for the equinoxial period of March and April.

Thought for the month: "It is impossible to defeat an ignorant man in argument".

73. The Voice in the Hills. ■

NEWS FROM THE BRISBANE VHF GROUP

Further to the many enquiries received concerning the Group's range of YAGI antennae, this article lists full details of the range and prices. All orders from the Brisbane Metro area will be supplied pre-assembled, while those from other areas will be supplied dissembled, FOB rail.

To order any of the above antennae please write to: The Brisbane VHF Group, PO Box 911, Fortitude Valley 4006, stating (1) centre frequency (or frequency for crossed versions) and (2) the number of elements.

Band/elements	Bandwidth MHz	Boom length (metres)	Gain (dBd)	Price ($)	Price ($) (crossed)
2m/5	4	1.7	9.2	20	32
2m/7	3	3.1	10.7	25	40
2m/12	2	4.6	12.2	32	55
70cm/6	8	0.9	10.2	15	27
70cm/12	6	1.6	12.2	25	45
70cm/15	4	3.0	14.2	30	52
In addition to the above range, a number of combination antennae can be ordered. For example:—					
2m/5 and 70cm/12		3.7			40
2m/7 and 70cm/15		3.1			47

—From "QTC" February 1979 (VK4 AR Insert). ■

YOU AND DX

Mike Bazley VK6HD
8 James Road,
Kalamunda, W.A. 6076.

The "art" of DX is a declining one. Like everything in this "Modern World", DX has to be instant. The emphasis seems to be on power (look at the advertisements in this Journal, those big linears must be selling) and the subscription to a DX Bulletin that tells you if you are on such and such a day on such and such a frequency then AB 12 ZZ will be waiting for you.

Once upon a time you had to hear them to work them! This is now not necessarily true! If you do not agree with this statement then I suggest you listen to some of the DX nets (not all) and some of the DX operations controlled by an MC. In these cases first the "DXer's" call is put across and then he is asked "did he get his 5 and 9 report!!!?" All he has to say is yes and send the OSL with the necessary "green stamp".

Perhaps the above view is being a little bit cynical. This writer can never understand why someone will pay $1000 plus for an amplifier, when with a little bit of patience and know-how a very efficient radiating system can be made at a fraction of that price, with the added advantage of being able to hear the DX!!

JANUARY DX

Stations mentioned below as being heard were all heard or worked from VK during the month of January.

FR7ZL, Guy, told this writer that he would be on Tromlein, FR7ZL/T, from the 2-2-79 to 4-4-79. Guy hopes to be active on both 15 and 20 CW and SSB. If you need Tromlein it might be worth checking the French net that is regularly active around 14110 kHz at approximately 1100-1200 GMT.

4U1UN is active usually one day (a week day) a week on 15 metres either around 21020 or 21270 to 21300 between 2200 to 2400 GMT.

Did you work TL9CC? Sorry to tell you he is Central African Slim, operating from around JA. He has also been heard to sign TT8 and TN8.

HS1ABD, Fred Laun, has been active lately dishing out the 5B WAZ QSOs. He has been heard on all bands and for those who need Zone 26 on 80 metres he is regularly on 3515/16 at about 1200 GMT onwards.

At the present time there is a large number of W stations active signing portable SU. For example WD5AJE/SU has been heard on all bands from 80 to 10m.

ST0RK, operator Hans, is still active from Southern Sudan and has been heard with good signals around 28600 at 1000 GMT. OSL via DL7FT.

TF3CW is trying to get his 5B WAZ. He is looking for Zones 29 and 30 on CW all bands. Happy to make skeds. Has been worked on 15 metres.

BOUVET

What has happened to the Bouvet DXpedition? Lots of stations have been heard calling them, a few working them, but this writer has not heard of any QSOs with the genuine article by a VK station. Yes, this one has been pirated extensively on CW and it is believed that up to January 24th there had been no CW activity. Rumour also has it that the operators have not been able to be very active because of their heavy work load. (It is supposed to be a scientific expedition!!!)

Do you get confused with these USA calls that start with AE, AG, AH, KB, or Guam stations that either sign KG6 or KH2? You do? Well join the club. Seriously, if anyone has a complete list of prefixes and the countries they represent could it be forwarded to me and we will get it printed in the column. Thanks

5 BAND WAZ

Those chasing the new five band WAZ should note that UA0YT is very active on 10 and 15 CW worked on 15 at 1200Z) and is happy to move up to SSB on request. Vlad uses 75 watts to a Ground Plane.

LACCADIVES

If you were looking for the Laccadives (VU4ABC) in January, this DXpedition did not take place due to problems in getting authorization to operate from the Islands. Rumour has it that these problems may be overcome in February or March. Watch — CW 7010, 14050, 21050, 28050 kHz; SSB 7090, 14250, 21250, 28600 kHz.

NOTES FROM THE WEST COAST OX BULLETIN

D4CBS should be active from S9, SAO THOME from approximately March 1. HB9TL will be active from the Maldives for one week-end only, either 2/4, 10/11 or 17/18. CW on 14020, 21020, 18020 and SSB on 14195, 21295, 28595 kHz.

This writer does not believe that a list of exotic call signs worked is of much value to the reader unless it contains information that details the operating habits of a particular station. To compile such a list will involve the co-operation of readers. If you feel that it is of value to you please let me know. For example under the heading of 160 metres G3IGW, 25, 1930, 2 would indicate that G3IGW was worked on 1825 at 1930Z from N.S.W.

Well that's it for this month, remember comments good, bad or indifferent are welcomed. This is your column, if you want it to be.

OTHs YOU MAY HAVE MISSED

VS6FI — Box 541, Hong Kong.
VR1AE — Box 239, Tarawa.
VR1AY — Box 431, Tarawa.
W7JRL/SU — Via the WZ Bureau.
TA1ZZ — Via K4BC.
SU1ER — Via YU1OFY.
SU1ER — Via YU10FY.
WD5AJE/SU — Via N5RM.
K7CA/HC1 — Paris 1107 Quito. ■

STOP PRESS

601FQ operative hopefully 10th February to 15th March CW 14025 14051 SSB 14205 14282 kHz. YV1AA Aves Island 7th to 14th April usual DX frequencies. ■

MAGAZINE INDEX

Syd Clark, VK3ASC

HAM RADIO September 1978
Efficient Broadband Balun; 20 Metre Delta Loop Array; T-Network Impedance Matching to Coaxial Feedlines; 75-Ohm CATV Cable for Amateur Installations; Matching 75-Ohm CATV Hardline to 50 Ohm Systems; RTTY Modulator-Demodulator; Integrated Circuit Arrays; Tracking Down Repeater Jammers; High Performance RF-AGC Amplifier; Modified Quad Antenna; Phased Locked Loop FM Demodulator; Calibrating Meter Amplifiers; Digital Keyboard Entry System.

QST November 1978
A Baseband Communications System, Pt. 1; Frequency Measuring Tests Using a Product Detector SSB Receiver; The Two-Tone Tester; Shoes, Size 220 A, B or C; A Logic Circuit for Phasing the Telefax; Calculating Component Values; The Aerial Performers of the Radio Circuits; QRM and ORN; You've Heard It; Now You Can See It; UTC: The Right Time; Results: Field Day 1978; June VHF QSO Party; Rules ARRL 10m Contest and 160m Contest.

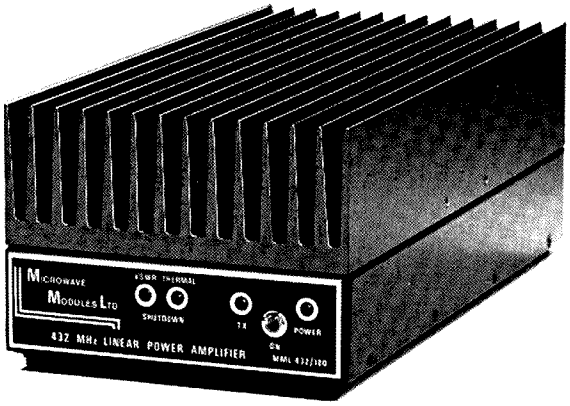
RADIO COMMUNICATION November 1978
The Microwave Associates Gunnplexer 10 GHz Transceiver Front-End; Microwave Modules 1,296 MHz Converter; Radio Communications and Tie ITU; Sporadic-E Observations in 1978.

73 September 1978
Four-Wheel Frenzy; T-R Exotica; The Autodialler Revisited; Watergate Special; Be Legal; Another IC-22S Scheme; Improving the SWTOC UDI; Graduate to a Better Operating Desk; The SWL Bible; The Mobile Dream Machine; Be a Surplus Survivor; Tracking the Wild Turkey; High Q Antennas; When in Doubt, Improvise; Relief for the Rockbound; Power Supply Magic; DVM Scrapbook; Meet Mr. Blizzard; The Blizzard of '78; How Do You Use ICs; Relax and Unwind; Nuclear Attack; Computerized QSO Records; RAM Checkouts a Snap; The Case of the Missing Offset; What Do You Do with a Cube Timekube; Gourmet Guide to Capacitors; The ARC Tuner; Home-Brew Circuit Boards; 73 Reveals Bias; CB to 10; Kerchunk . . . Kaboom; Be Mr. Clean; Build the Triple Threat Keyer; The Ten Metre AM Antenna Special; Buddy, Ya Got a Match; Another Trick for the 22S; Stop Timeouts Revisited; Maintain Control; CB to 10; Active Voltage Divider; Charge; Light Righ; Micoder Magic; Build the IC Experimenter; A New Type 10 GHz Receiver; Two Metres at the Summit. ■

QSP

SSTV

John VK2XY (ex YFX and NAR) has been talking regularly to Tom Christian VR6TC on Pitcairn Island. Tom is now very interested in SSTV and hopes to be on air in that mode in the near future. He makes regular visits to the Novice subband on 15 metres. ■



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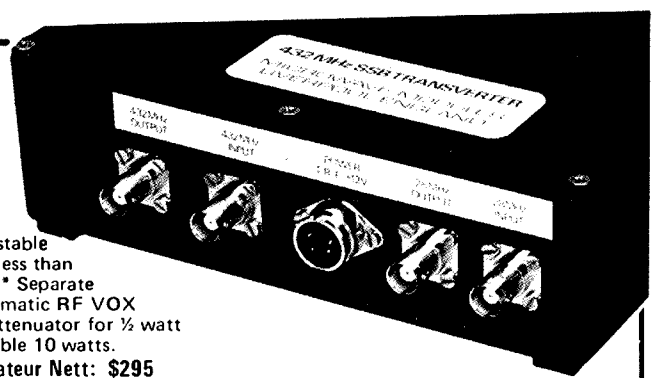
UTILIZING an IF of 144MHz * 10 WATTS DRIVE of ½WATT * VOX OPERATED, TWO SELECTABLE RANGES 432 - 434/434 - 436 MHz. FEATURES EXTENDED COVERAGE FOR OSCAR 8



FEATURES: High quality double-sided glass fibre printed board * Highly stable zener controlled oscillator stages * PIN diode aerial changeover relay with less than 0.2 dB through loss * extremely low noise receiver converter, typical 3 dB * Separate receive converter output gives independent receiver facility * Built-in Automatic RF VOX with override facility * Built-in 10 watt 144 MHz termination, selectable attenuator for ½ watt * Use of the latest state of the art Power Amplifier transistors provide reliable 10 watts. continuous output.

MODEL MMT 432/144 'S' Price Amateur Nett: $295

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FEATURES EXTENDED COVERAGE FOR OSCAR 8

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10 METRE MOSFET CONVERTER: Input frequency range 28 - 30 MHz * IF output frequency 144 – 146 MHz * Overall gain 15 dB min * Overall noise fig. 1.8 dB * DC Power requirements 11 – 13.8V at 50 mA. **PRICE AMATEUR NETT: $45.00**

6 METRE MOSFET CONVERTER: Featuring 24 MHz local oscillator output for transverter use. Input frequency 52-54 MHz. I.F. Output frequency 20-30 MHz. Typical gain 30 dB. Noise figure 2.5 dB. Typical image rejection 65 dB. Crystal Oscillator frequency 24 MHz. Power requirements 12 volt ± 25% at 35 mA. **MODEL MMC52/28LO PRICE AMATEUR NETT: $49.00**

2 METER MOSFET CONVERTER: Noise figure typ. 2.8 dB. Overall gain typ. 30 dB. IF: 28-30 MHz. 9-15 V 20 mA. **PRICE AMATEUR NETT. $45.00**

DUAL RANGE 432 – 434 MHz & 434 – 436 MHz Converter. Type MMC 432/28 'S' & MMC 432/144 'S' Input frequency ranges 432-434 MHz (low), 434-436 Mhz (high). I.F. output frequency 28-30 Mhz or 144/146 Mhz. Typical gain 30 dB. Noise figure 3 dB maximum. D.C. Power requirements 11-13.8 volts, 12.5V nominal. Current consumption 50 mA maximum. **PRICE AMATEUR NETT: $67.00**

1296 MHz CONVERTER; Mircostripline, Schottky diode mixer. IF: 28-30 Mhz or 144-146 MHz. Noise figure: typ. 8.5 dB. Overall gain 25dB. Power requirements: 12 volts DC ± 25% at 50 mA. **PRICE AMATEUR NETT: $65.00**

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YC-500S Counter 500 MHz **$499**
YC-500E Counter 500 MHz **$656**
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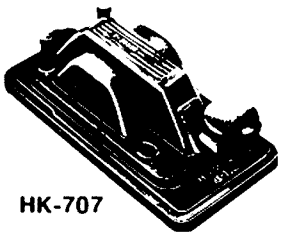
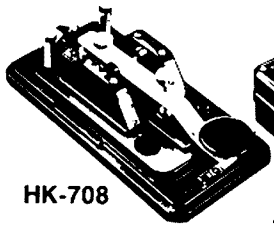
Prices incl. ST/Freight and Ins. extra/Prices and specifications subject to change.

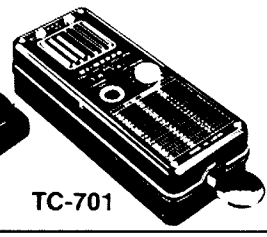
Model TC-701. Morse practice oscillator with built in key and speaker. Including battery and earphone. Copy of morse code on case. Two can be wired together to form a practice communication set. Price **$19.50**

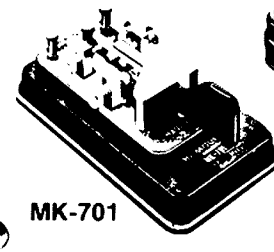
Model MK-701. Manipulator (side swiper) for an electronic keyer. Accurate and restful keying operation are assured owing to a heavy metal plate and a frictional rubber belt beneath the periphery of the main base. **$39.00**

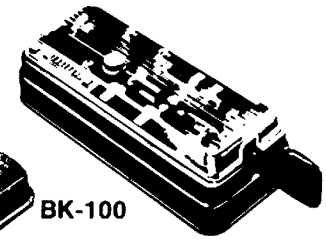
Model BK-100. Semi-automatic (bug) key, with standard adjustments, wide speed range, protective plastic cover, on heavy non-skid base, beautifully finished. Base dimensions 175mm x 75 mm. Price **$49.00**


HK-707


HK-708


TC-701


MK-701


BK-100

YAESU

bail

a decade of research in HF transceivers brings you the FT-101Z series ... at $799 basic price it's a steal!!

Today's technology, backed by a proud tradition, is yours to enjoy in the all-new FT-101Z (and FT-101ZD) high-performance HF transceiver from YAESU and BAIL. A host of new features are teamed with the FT-101 heritage to bring top dollar value.

Rcvr includes variable IF bandwidth with two 8-pole crystal filters and a highly effective all-new NB circuit with front panel blanking level control. Also included are 10 and 20 dB attenuators, and offset tuning for transmit and receive.
Trans. section uses two 6146 final tubes with RF neg. feedback. An RF speech processor is built in. Available options include DC-DC converter, cooling fan, dig. display/counter unit (for FT-101Z), hand or desk mic., and CW filter. CW filter may be used in addition to SSB filter in CW mode. Write for our full colour brochure today.

Photo shows **FT-101ZD** transceiver with Digital display, **FT-101Z** Analog Model (without digital display) available at **$799** and you add the optional extras if desired. (Accepts 901 series acc. e.g. multiscope, transverter, ant. cplr., etc.)

Prices quoted are recommended retail and include 90-day warranty except power valves and semi-conductors. As the authorised Yaesu agent and factory representative since 1963, we provide complete after sales service and spares.

JAS7879-38

bail

Bail Electronic Services, 60 Shannon St., Box Hill Nth, Vic. 3129. Tel. (03) 89 2213
Branches in all States and A.C.T.

FRED BAIL VK3YS
JIM BAIL VK3ABA

SIDEBAND ELECTRONICS IMPORTS

P.O. BOX 23, SPRINGWOOD, N.S.W. 2777
WAREHOUSE 78 CHAPMAN PDE., FAULCONBRIDGE
TELEPHONE (047) 51-1394 A.H. (047) 54-1392

Only three months ago in our December 1978 advertisement we gave a bouquet which has all too quickly wilted and faded! KENWOOD AUSTRALIA has meanwhile raised their prices to the level of or above the equivalent retail prices in JAPAN at the present 1 February 1979 YEN-Dollar exchange rate. Replacement cost of our stock of TS-520-S and TS-820-S transceivers is now higher than we still have been selling them for! Talking about bargains?

Further, AUDIO-TELEX, the local branch of TELEX INC. U.S.A. who last year took over HY-GAIN ELECTRONICS CORP. is now offering Hy-Gain antennas to dealers at higher prices than we are selling them for. Again, talking about bargains? We have no secrets and don't sell at a loss but of course this cannot last. We are actually gambling on an improvement of the YEN-Dollar exchange rate for future KENWOOD supplies.

HY-GAIN ANTENNAS:

18-AVT/WB 10-80M vertical 23' tall	$125
TH6-DXX 10-15-20M senior 6 el. Yagi 24' boom	$300
TH3-MK3 10-15-20M senior 3 el. Yagi 14' boom	$240
TH3-JR 10-15-20M junior 3 el. Yagi 12' boom	$175
204-BA 20M 4 el. Tiger Array 26' boom	$230
HY-QUAD 10-15-20M full size Cubical Quad	$260
2M 5 el Yagi with balun 6'3" boom	$25
2M 8 el Yagi with balun 12'6" boom	$30
2M 14 el Yagi with balun 15'6" boom	$40
BN-86 Balun for HY-GAIN beam buyers only	$20
BU-5 Balun suitable for 10M beams	$14

ANTENNAS SUITABLE FOR 10M:

11M 5 el. Yagi 17' boom	$70
11M G.P. with 3 radials	$20
CLR-2 11M ⅝ wave vertical w/3 radials 19'10"	$40
CLR 11M ⅝ wave vertical w/4 radials 22'9½"	$50

ACCESSORIES & COAX CONNECTORS:

SWR-50A Twin meter 3.5-150MHz 1KW SWR/Pwr meter	$26
Bumper Mount with ⅜" 24 thread antenna mount	$7
Gutter Mount with ⅜" 24 thread antenna mount	$4.50
5M length RG-58U with PL-259 one end	$3
M-ring body mount	$3
GLP Right angle RG-58U to SO-239 w/lock nut & weatherproof cap	$3.50
MLS Right angle RG-58U to PL-259	90c
PL-259 standard & solderless, RG-8U & RG-58U	75c
In-line splice RG-8U & RG-58U	75c
SO-239 chassis connector 2 & 4 hole mounting	75c
Right angles & T-connectors	$1.50
Double female connectors	80c
Mic. sockets, chassis & in-line, 3 & 4 pin	85c
3 circuit microphone jacks	85c
Crystals for QUARTZ-16 2M transceiver:	
Channel 51 T/R 146.55 — pair	$5
Channel 64 T/R 147.20 — pair	$5

ROTATORS & CABLES:

KEN KR-400 rotator with 28V AC control box	$125
CDR HAM III rotator with 28V AC control box	$175
No. 14 hard drawn copper wire — per meter	10c
¾" H.D. foam coax extra low loss — per foot	$1
Type RG-8U foam coax cable — per yard	80c
Type RG-58U coax cable — per yard	30c
8 core rotator cable — per yard	65c

KENWOOD PRODUCTS:

TS-520S 10-160M SSB/CW transceiver 240V AC	$700
TS-820S 10-160M SSB/CW w/Digital readout	$1100
TL-922 10-160M Linear Amplifier	$1200
TS-700SP 2M all-mode transceiver	$850
TR-7400A 2M transceiver	$500
TR-7500 2M transceiver	$350
DG-5 Digital display for TS-520S	$250
TV-506 6M transverter	$250
TV-502 2M transverter	$300
AT-200 Antenna matchbox	$175
DS-1A DC-DC converter	$75
DK-520 adaptor for DG-5 to TS-520 use	$20
LF-30A low pass anti-TVI filter	$30
VFO-820 external VFO for TS-820S	$185
VFO-520S external VFO for TS-520S	$160
SP-820 external speaker for TS-820S	$60
SP-520 external speaker for TS-520S	$30
YG-88C CW filter for TS-820S	$55
YG-3395C CW filter for TS-520S	$55
MC-10 hand held microphone	$20
MC-50 desk microphone	$45
HC-2 Ham clock	$35
BS-5 (TS-520S) & BS-8 (TS-820S) pan adaptors for SM-220	$65
TS-120V 12V DC mobile transceiver with NB, VOX, IF Shift & digital readout, 30W PEP	$600

NOVICE SPECIALS: Still available at these low prices

Transceivers for 10M coverage, AM/USB, 15W PEP:

(a) SIDEBAND SE-502 240V AC/12V DC w/inbuilt SWR/RF meter 28.3-28.6 MHz $150

(b) UNIVERSE 224M 12V DC 24 ch. 28.480-28.595 in 5 KHz steps Clarifier operates on both transmit & receive $125

Set of Crystals for Amateur license holders for converting 23 ch. 27MHz CB units to 28MHz, suitable SIDEBAND, UNIVERSE, KRACO, HY-GAIN etc. SSB/AM units:

Sets of 8 crystals converts to 28.480-28.595MHz .. $40

SUNDRIES:

FRG-7 .5-30MHz General coverage receiver	$350
FT-7 10-80M 12V DC transceiver	$475
ICOM IC-202 2M SSB portable transceiver	$175

All prices quoted are net, ex Springwood NSW, cash with order, subject to change without prior notice. All risk insurance is free: freight by air, road, rail or post at cost. All orders cleared on a 24 hour basis after receipt with payment.

Arie Bles (VK2AVA) Proprietor **Roy Lopez (VK2BRL) Manager**

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

In a recent issue in this column I included the outline of a WICEN training course and one of the topics was formal message writing. This was included because WICEN operators need to be able to do it to assist and guide their clients, the SES, the police or other emergency official. This month I am including a reproduction of a message form with a text to guide the reader in its compilation. In a later issue I will describe how to send the formal message by radio.

The pre-printed message form is not essential, but it is a very valuable guide to make sure you do not forget some important piece of information. ■

Introduced Mar 77
Formerly
CM109, F Sigs 52-1, A224

MESSAGE FORM

Note: Shaded areas are for Comcen/Sigs use only.

LINE 1	SECURITY CLASSIFICATION AND SPECIAL HANDLING INSTRUCTIONS
LINE 2	UNCLASSIFIED
LINE 3	
LINE 4	
LINE 5	

PRECEDENCE – ACTION	PRECEDENCE – INFO	DATE – TIME GROUP	MESSAGE INSTRUCTIONS
ROUTINE	ROUTINE	050130ZDEC78	

ROUTING INDICATORS		SIG/ORIG NO
	FROM WICEN FEDERAL CO-ORDINATOR	
	TO ALL INTERESTED AMATEURS (Write only one addressee per line)	WICEN 3
	INFO FEDERAL EXECUTIVE	
		GR

HOW TO WRITE A MESSAGE.

1. THE PRECEDENCE INDICATES THE DRAFTER'S DESIRED URGENCY FOR MESSAGE TRANSMISSION - CHOICES ARE FLASH, IMMEDIATE, PRIORITY, ROUTINE, DEFERRED. THE FIRST TWO ARE RARELY USED.

2. DATE TIME GROUP IS DATE IN TWO DIGITS PLUS Z TIME (GMT) WITH MONTH AND YEAR OPTIONAL.

3. SECURITY CLASSIFICATIONS CAN BE TOP SECRET, SECRET, CONFIDENTIAL, RESTRICTED, UNCLASSIFIED. PROBABLY ONLY THE LAST TWO WILL BE SEEN BY WICEN.

4. ORIG NO IS THE ORIGINATOR'S UNIQUE NUMBER, OFTEN ALPHA NUMERIC, EG WICEN 3 ABOVE.

5. FROM IS THE ORIGINATOR'S NAME.

6. TO IS ADDRESSEE(S) NAME(S).

7. INFO CAN BE USED BEFORE INFORMATION, NOT ACTION, ADDRESSEES.

8. TEXT IS USUALLY WRITTEN OR PRINTED TELEGRAM STYLE IN PARAGRAPHS.

9. ORIGINATORS SHOULD SIGN MESSAGE TO AUTHORIZE RELEASE THE SIGNATURE IS NOT TRANSMITTED.

PAGE NO	DRAFTER'S NAME AND TITLE	PHONE NO	REF FILE NO
1	R. HENDERSON, FED COORD	663145	AR FEB 79
NO OF PAGES	RELEASER'S NAME AND TITLE	SIGNATURE	DATE
1	R. HENDERSON, FED COORD	R Henderson	5 DEC 78

FOR OPS USE	R	DATE	TIME	SYSTEM	OPERATOR	D	DATE	TIME	SYSTEM	OPERATOR	SECURITY CLASSIFICATION
											UNCLASSIFIED

INTERNATIONAL NEWS

What is the standing of amateur radio internationally? Here is the text of an address by Mr. M. Mili, the Secretary-General of the ITU to the IARU's Region 26th triennial conference held in Panama 8th September, 1978. The report is reprinted from IARU Region 2 News of November 1978.

"May I begin by offering, on behalf of the International Telecommunication Union, my warmest congratulations and sincerest wishes for a prosperous future to the International Amateur Radio Union which is celebrating its fifty-third anniversary this year.

You can now look back on more than fifty years of intense activity which, through disinterested research and sound scientific studies embracing the entire radio frequency spectrum, has made an appreciable contribution to the progress of radio communication.

This half-century of international co-operation has forged a chain of human brotherhood between all those who, by inclination or through dedication, have devoted or are devoting the greater part of their leisure time to seeking human contact over continents and seas, and beyond differences of language, nationality, religion and political systems.

The millions of chance contacts which have occurred during this period have been instrumental in saving many lives, thus making the International Amateur Radio Union one of the most useful and dynamic organizations when it comes to helping to save individual lives or the lives of many in natural disasters and catastrophes.

You will, therefore, readily understand, Mr. Chairman, how much I, as Secretary-General of the ITU, appreciate the pleasure and honour of taking part with you today in this closing meeting of your triennial Conference.
Ladies and Gentlemen,

It is hardly necessary to remind you that the amateur service is one of the oldest radio services, for there have been radio amateurs since the very beginnings of radio. In 1925, amateur radio was organized as a service in connection with the first regular sound programme broadcasts, at a time when the use of radio links for the Maritime Mobile Service was already widespread.

Thus considering the very special place which the amateur service enjoys in the general body of radio services recognized by the ITU, the pleasure I feel at being among you is perfectly understandable.

Your amateur service is defined in the Radio Regulations as 'a service of self-training, intercommunication and technical investigations carried on by amateurs, that is, by duly authorized persons interested in radio techniques solely with a personal aim and without pecuniary interest'.

This service is, hence, recognized as having two lofty missions:

First, to instruct, that is to say to take part in the training of those who, in any capacity, bear responsibility for the operation of radio services.

Second, to engage in disinterested research, in order to deepen our knowledge of such matters as the mechanisms of wave propagation.

It is therefore with the greatest satisfaction that we acknowledge the fact — and a most important fact — that radio amateurs have followed very closely the various developments brought about by the use of every higher frequencies or by new techniques, such as space communications. Several thousand amateur radio enthusiasts have already made use of satellites (in particular, OSCAR 6 and OSCAR 7) and their observations will undoubtedly help to enhance our knowledge of the phenomena involved.

I will mention briefly, since it is well known (I would even say it is perhaps the aspect best known

to the general public), the part played by radio amateurs in emergency communications, especially in the event of natural disasters or catastrophes; the use of high frequencies in this sphere is so much a matter of common knowledge that there is no need to dwell upon it.

But the role of amateurs in technical training seems to be little known for all its great importance. As you may be aware, the ITU is engaged on a vast programme of technical co-operation to aid developing countries to expand their telecommunications. In this programme training plays a predominant role. There is no doubt that the development of amateur radio networks in the countries concerned makes a substantial contribution to the execution of this immense task and a contribution, moreover, that costs governments so little.

All this certainly explains the importance of the amateur service in the life of our Union, which, as I imagine you all know, has its own amateur radio station in the headquarters building, the call sign of which is 4U1ITU.

In this connection, I am happy again to express my warmest thanks to the IARU for the very up-to-date equipment and beautiful furniture they recently offered to the International Amateur Radio Club. This equipment and furniture, added to what our club already had, have raised the Union headquarters amateur station to the standard that befits it.

As in the case of TELECOM 75, radio amateurs will be given an opportunity of taking an active part in the third World Telecommunication Exhibition, TELECOM 79, to be held in Geneva from 20 to 26 September, 1979. So you are all invited to participate in one way or another in this great event and I earnestly hope to be able to welcome the largest possible number of delegations of radio amateurs from all over the world. During TELECOM 79, the 22nd of September will be specially set aside for a world-wide gathering of amateur radio fans.

I would not like to conclude this brief list of the activities carried out at ITU Headquarters in connection with amateur radio without mentioning that many ITU staff members and a large number of delegates to our conferences are radio amateurs too.

I have noted with pleasure, when looking through the technical reviews, of amateur radio societies, that they have already embarked upon active preparation for the World Administrative Radio Conference to be held in 1979. We cannot, in my view, begin too early to give serious thought to the problems concerning the amateur service, and indeed all the other radio services, which will be raised at that conference.

This administrative conference will be a particularly important one, since it will be the first since 1959 to deal with the radio frequency spectrum as a whole. All the administrative radio conferences since that date have had a limited agenda relating specifically either to space radiocommunications, the Aeronautical Mobile Service, the Maritime Mobile Service or broadcasting.

You will readily understand that it is impossible for me to make the slightest forecast as to the way this conference will go. One thing is pretty sure, however, namely, that the problems it has to face will be highly complex. It would therefore not be amiss for me to emphasize the care you should take to present to your national administrations any wishes or requirements you have to formulate in the most convincing manner possible. Nobody can tell what will come of it; the very most I can say is that more often than not when people describe radio regulations or a table of frequency allocations as "good" they mean that the degree of dissatisfaction is roughly the same for the users of all the different services. But I am convinced that the half-century that has gone by has amply demonstrated the importance of the part played by radio amateurs and that once again you will have the sympathy of the conference on your side."

It is understood that Mr. Mill will be attending the special CCIR Region 3 Seminar in Sydney early in April. ■

Join the I.W. net at 2300Z on Thursdays on 14165 kHz when you have intruder information. ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

14 Scott Street,
Sefton Park, S.A. 5083.
4/1/79.

The Editor,

Dear Sir,

Congratulations on the publication of your December special Novice issue, which I am sure will be more than appreciated by all past and future successful Novices. The more technical advice given in your AR the more it will assist the Novices in gaining their full AOCP in the very near future. So we say thank you and keep up the good work. Your article on Harry Alderson VK5NSR, December issue of the AR, impressed me very much, as we both have something in common, being around the same age group. Also being a retired ex-serviceman and a wireless operator during the Second World War. My army life began by being called into the army as a volunteer signal specialist, as I was capable of Morse speed around 20-25 words a minute and could also read the sounder used by the PMG Department. We had to instruct women (AWAS) and men how to send and receive Morse code, so therefore I became a W/T instructor and operator.

Now that there seems to be more ex-servicemen wireless operators getting their Novice licences, one may wonder if it is possible for us to set up a home defence communications unit in each State. This would set up a network of communications around Australia. Most of the ex-servicemen are retired and this would give them some satisfaction in life. Something could be organised as we have the equipment and know the procedure with a little polishing up, and we would not be wasting good talent that has taken years to obtain. Ex-servicemen in each State should get together and form a club with the aid of the AR. What do you think? Is it worthwhile?

Kindest regards and congratulations on a fine AR journal.

Yours sincerely,
H. C. Harmer VK5NHH. ■

P.O. Box 173,
Prahran, Vic. 3181.
12/1/1979.

The Editor,

Dear Sir,

I would like to thank the Tasmanian Division, Launceston Branch, of the WIA for the kind hospitality they extended to me while I was in Launceston holidaying at Chrisimas time. I took my converted CB rig over to see what was doing on 10 metres, but my operating was very limited due to local area and poor antenna set up and only made two contacts New Year's Eve, one in the morning and one in the afternoon. The latter, Ian VK7IC, invited me to the local WIA New Year's Eve barbecue, which I gladly accepted as I was on my own and looked like having a pretty quiet New Year. Ian called at the hotel for me and took me out to the barn where the barbecue was being held; he also provided me with food. He introduced me to Tony VK7CCC, who made me very welcome, and I was soon introduced around. I had a very enjoyable time. It made my day and although I only had two contacts it certainly was worth carting the rig over. They seem to be very active and well organized, the Launceston Branch, and I would like to take this opportunity of wishing them all the best for the New Year. If you are ever down Launceston way, look them up, they'll make you very welcome. Thanks again, Ian and Tony.

Yours sincerely,
Frank Robinson VK3NHJ. ■

13 Bowler Street,
Holbrook, N.S.W. 2644.
22/12/78.

The Editor,
Dear Sir,

I am a regular listener to the nightly CW transmissions to further my knowledge to obtain the NOACP.

I would like to thank the people who make this possible and the effort they put into this.

However, in short, I would like to make a suggestion. Like myself, many others have sat in previous exams and have failed because of ITU Morse being used, as the nightly Morse is meant for the learner.

I would like then to suggest if at all possible that at least half the transmission put to air be in ITU Morse.

Yours faithfully,
Peter Dor. ■

12 Bailey Street,
Bairnsdale 3875.
21st January, 1979.

The Editor,
Dear Sir,

I am writing to correct certain rumours about production of the Atlas 350XL Amateur Band Transceiver. One of our so-called reputable dealers for multifarious brands of equipment has seen fit to state that the 350XL has been withdrawn from production. As an Atlas dealer I must state that this is simply not true. Earlier this month I received two 350XLs from California and by the time this goes to print they will be in their owners' hands. Atlas are, however, concentrating on production of a new, third, and cheaper model and, being a small company, have delayed production of the Atlas 350XL while building up stocks of the small new model. All three models will continue to be available in future.

Another matter deserves clearing up. There is no sole Australian distributor for Atlas. The company has appointed only dealers in Australia all with equal buying rights.

It is notable that this misleading and deceptive publicity did not appear in "Amateur Radio" magazine.

Yours sincerely,
Edwin R. Rooms, B.Comm. (Melb.) VK3NRR/Z??,
Yachtsman, Dealer for Atlas Radio. ■

9 Tallara Avenue,
Mt. Gambier, S.A. 5290.

The Editor,
Dear Sir,

Some time ago I started a collection of postage stamps specialising in electrical and electronics. This includes radio, television, computing, telephones, telegraph, cables and of course ITU stamps.

I have now arrived at the stage where my collection is becoming difficult to add to from the sources available to me in the country.

If any of your readers could help me it would be most appreciated.

Ivan Huser VK5QV. ■

Bank Lane,
Ourindi, N.S.W. 2343.

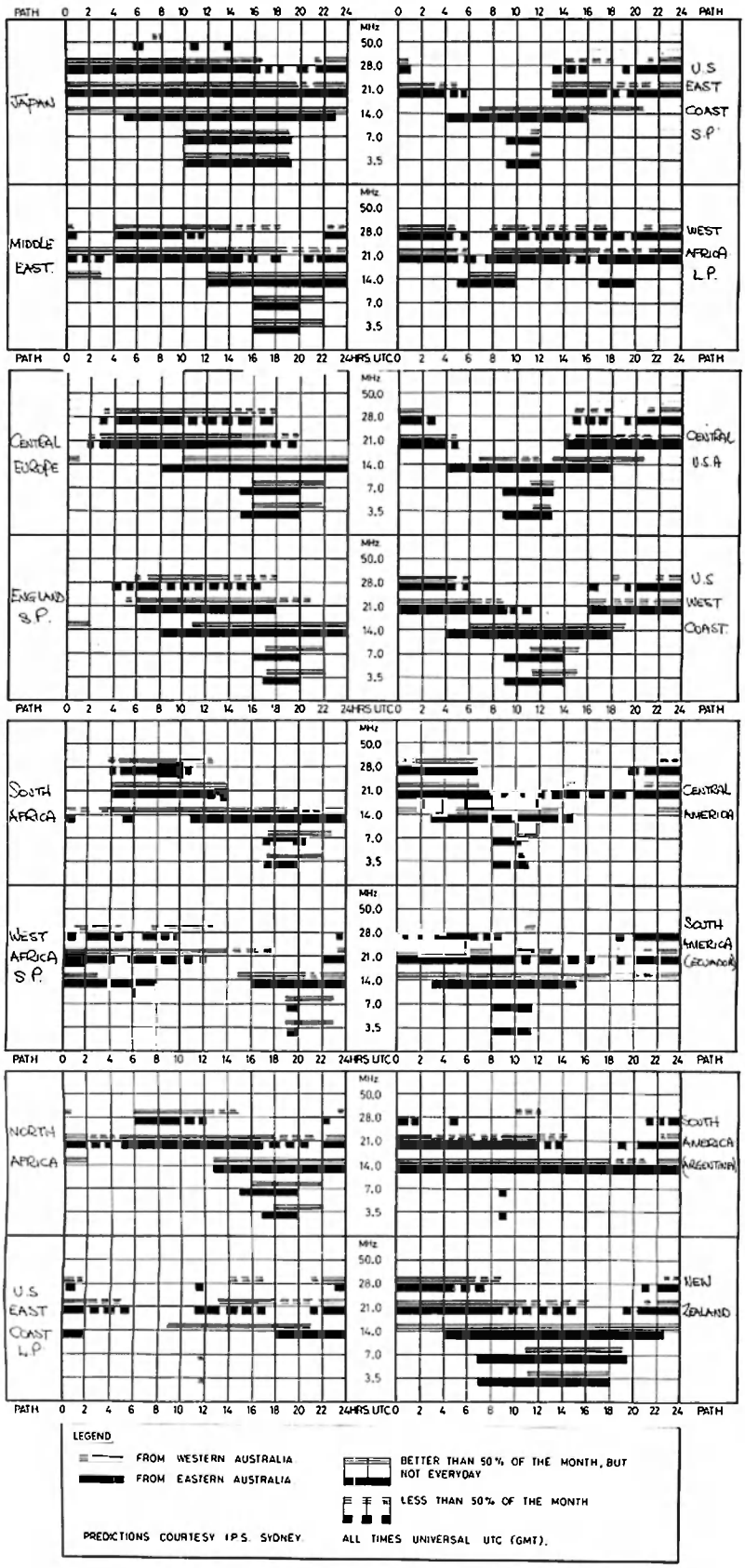
The Editor,
Dear Sir,

In view of the very crowded conditions prevailing on 80m at present, and the fact that CB is now going UHF, how about our Novices being permitted to use a portion of the 2m band, instead of going UHF with the CB crowd. Let us keep our Novices active and on the right track.

Yours kindly,
B. Emerson VK2NSE. ■

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



CONTESTS

Wally Walkins VK2ZNW/NCU
Box 1065, Orange 2800

March:

3/4	ARRL OX PHONE CONTST
10/11	COMMONWEALTH CONTEST
17/18	ARRL DX CW CONTEST
24/25	CQ WW WPX SSB CONTEST
24/25	BARTG RTTY CONTEST

April:

7/8	POLISH "SP" CW CONTEST
21/28	POLISH "SP" SSB CONTEST
28/29	DUTCH "PACC" CONTEST
28/29	SWISS "H 26" CONTEST

HELVETIA 26 CONTEST

April 28-20, 1500-1700 UT.

Rules: All bands 1.8-28 MHz. CW or phone. Exchange: RS(T) + serial from 001. Swiss stations add the Canton abbreviation, e.g. 57(9) 001 ZH.

Score: Each contact with a HB station counts 3 points. Each station can be worked once per band, either on CW or phone. The multiplier is the sum of the Swiss Cantons worked on each band, making a possible of 26 per band.

Logs to: TM USKA K. BINDSCHEDLER, HB9MX, Strahleggweg 28 8400 Winterthur, Switzerland, postmarked not later than 30 days after the contest. ■

1979 CALL BOOK

The next issue of the WIA Amateur Call Book is now under consideration. Up to date information of the various clubs are required urgently. Kindly forward details to the Editor (Call Book), P.O. Box 2611W, Melbourne 3001, by 30th April 1979. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

Urgent Shack Cleanout, Mosley TA 33 Jnr., as new with instruction sheet, 52 ohm cable, $150; Hallicrafters HT37 10-80m, SSB/CW, AM Tx, uses pair 6146B tubes, complete with dynamic mike and owner's manual, 100W PEP output, excellent cond., $150; Hallicrafts FPM-300 250W PEP input, 240V AC or 12V DC, SSB, CW Tx, 10-80m Rx, all solid state — this transceiver is made in USA and is very cheap at $450 (owner's manual included). John Berry, 40 Grosvenor St., Woollahra, NSW 2025. Ph. (02) 389 6455 Bus.

Pye FM738D, 25W, FM low-band VHF Carphones, fully solid state except Tx finals, suit commercial service or conversion to 6 FM, mics and finals missing otherwise complete, $40 each. Jeff VK3ZJS. Ph. (03) 337 1536 A.H.

Swan 500C Single Sideband Transceiver, operates on 80, 40, 20, 15, 10m, input power 520W PEP, complete with power supply and matching external VFO, also complete set of spare tubes, as new, the lot $450. VK4KS. Ph. (07) 353 1968.

FT7, as new, complete with Yaesu gutter grip HF whips for 40, 20, 10m, $550, ONO; Kenwood TR2200 2m portable Txcr rocks for R2, R7, R8, SIM 40 charger, new nicads, $200, ONO; Yaesu YD-844 desk mike, $30. VK2BJP, QTHR. Ph. (060) 21 1929 Bus., (060) 25 4580 A.H.

Icom IC201 2m Tcvr, originally designed to operate 146-146 MHz but modified to cover 144-145 and 146-147 MHz, has 600 kHz offset for repeaters and operates on FM/SSB/CW, $300; Astro 200 digitally tuned 80-10m tcvr, fully solid state with power output approx. 100W, impeccable, in original carton, $700; KP202 2m FM Tcvr in pieces with RX working, xtls for 6 channels, $70. Ph. Michael (03) 62 4941 Bus.

432 MHz 10W SSB Transceiver, Belcom 430, as new, $285. VK1VP, QTHR. Ph. (068) 48 5882 A.H.

FT 901 DM Transceiver, 6 months old, original packing, English handbook, wired 240V AC, v.g.c., $1300, ONO. Brinsden VK3YFJ. Ph. (03) 870 0640 A.H., or (03) 560 5233 Bus.

Dentron Linear MLA2500, $875; Daiwa processor RF550, $110. Both slight use only, as brand new. J. Moyle VK4ZT, QTHR. Ph. (079) 73 6580.

Yaesu SSB Rx FR100B, ham bands 3.5 to 29.5 MHz, $200; SSB Tx FL100B, $150; with manuals in English. Note: This equiment uses valves. VK1ML, QTHR.

Trio TS500 80-10m Transceiver, S/S PSU 2 x 6146 finals, in good condition, $375; Kenwood TV402, 2m transverter for TS520 or 820, as new, $200, ONO; AWA MR20B on 52.525 MHz FM, goes well, with remote control unit, $45. VK3NG. Ph. (054) 82 2023 A.H.

Yaesu DC 200, power supply for FT200, complete with cable, manual, purchased new and few hours use, $100. VK3BW. Ph. (052) 59 2322.

Kraco 30 ch. SSB Radio, fully converted to 10m, slider, etc., $100; Hygain 18 AVT/WB 80-10m trap vertical, few months old, $100. Mike VK2NOW. Ph. (02) 371 9063.

FT75B Transceiver, complete with mic. and manual, good condition, little used, 30W PEP-100 W PEP, 240V AC, 3.5, 7, 14, 21, 28 MHz, crystals for Novice bands, cost $450, sell $300. VK4NHW, QTHR. Ph. (07) 356 4296.

Icom 202E SSB Trx, as new, complete in packing, used 3 times, now have TS700, extra xtal price $160. Peter VK2DAB. Ph. (02) 069-62 5001 Bus, (02) 62 5163 A.H.

Kenwood TS-820S, inc. DC-DC converter, service manual, $950; AT200 aerial tuner, $150; SP820 external speaker, $50; Hidaka VS-33 tri-band Yagi, 3 el., 14 ft. boom, $240, inc. balun; Shure 444 50k ohm mic., $50; Shure 401A 50k ohm mic., $25; Palomar engineers' Rx noise bridge, 1-100 MHz, $70; Hustler MO-2 mast, BM-1 bumper mount, 80m, 15m, 10m, resonators, lot $95; Yaesu TVI filter FF-50 DX, $25; Kenwood TVI filter LF-30A, $25; all in excellent cond. VK5NPM, 8 Macintosh St., Mt. Gambier. Ph. (087) 25 2407.

Shack Clearance, going overseas, lots of items. VK2ZGF, QTHR. Ph. (02) 487 1353 week-ends.

Drake C-line T-4XC 160-10m, xtals fitted, spare tubes, Drake AC4 power supply, Shure 444 desk mic., R-4C Rx 160-10m xtals fitted, plus 10 extra, 3 CW filters, noise blanker, MS-4 speaker, W4 RF watt meter, Swan 1200-X linear 4X 8950 grounded, all first class cond., all manuals, $2000 complete; Drake TR3 Tcvr, Drake power supply, mic. and manual, $350; GDO Delica transdipper WB-200, cost $119, sell $75, used 4 times; Realistic DX-150B solid state comm. Rx with speaker, $100; Matsunaga voltage slide regulator, 0-280V, 50-60H, 4.2A, first class, $50. Must sell, offers considered. Alick VK2EF, QTHR. Ph. (02) 918 3560.

FT301D Transceiver with microphone and 5A power supply, operating perfectly in 20W mode, 100W linear needs servicing, $600. VK2PV, QTHR. Ph. (02) 371 7681.

Crystals for Ken KP202 Transceiver, forward repeaters 2 to 8 and reverse 8, $6 per pair or $40 the lot. VK5KT, QTHR. Ph. (08) 79 4262 A.H.

Johnson Viking CB Transceiver, mod. to 10m, immac. cond., coverage 28.300 to 28.620, 20 PEP, $150, ONO; also linear amplifier, 80-10m, solid state, with 12 dB pre-amp 250W PEP output, excellent cond., $150, ONO. Ph. (03) 743 6708.

TEN-TEC Century 21, Model 570, CW Transceiver, in perfect condition, features 70W input all bands 3.5 to 28 MHz with full CW break-in, $350. VK3XU, QTHR. Ph. (03) 725 0824.

Kenwood TR7400A, with Hustler 5/8 whip and trunk lid mount, with operator's and maintenance manuals, less than one year old, in excellent cond., $370. John Proctor. Ph. (02) 624 6075.

Comm. Rx RAAF AR21, AM, SSB, NBFM, CW, 22 tubes, var. AGC, NB, 1.4-26.3 MHz cover, 240V, $55; Novice 80m Tx 10W DC AM, good audio, 2 xtals, 1 x CW, 1 x Ph., 240V AC, $50; 40-80m Rx board, just add PSU and audio for complete unit, 455 kHz IF, $20; 2m PA, diecast box, 10W up to 45W, 12V DC, uses 2N6084 trans., $45. VK2QF, N. Mattick, Hargraves, NSW 2850.

TV Sayo DeLuxe, Model 12-T2241-1, 12V DC, 240V AC, 12 in. screen, 300 ohm and 75 ohm ant., I/P and whip, never used, as new, provision for VHF tuner, must sell, $80; 5 el. 2m Yagi, brand new, 5y/2m, J beam, assembled with balun, $35 ($43 present retail price). B. R. Kendall VK3ZDM, QTHR. Ph. (03) 741 2382 A.H.

4½ in. IO TV Camera Chain complete, working, spares, $400, ONO; also garage sale of surplus amateur equipment, mainly ATV. Barry Gerdes VK2ZAH. Ph. (02) 47 4421.

OBITUARY

Mr. ERIC E. CORNELIUS VK6EC

It is with deep regret that we record the passing of another OT — Eric Cornelius.

Eric passed away peacefully at home on the 7th of January and his storehouse of knowledge and advice will be sadly missed.

Eric obtained his AOCP (No. 1635) in 1938 and was often heard pre-war from his QTH in Nedlands. As well as his deep interest in electronics, Eric was keenly interested in photography, music and high quality sound (long before the hi-fi era began) and, in the early 1940s, was busy building his own sound equipment and processing his own films — his passion for technical excellence being reflected in this work. An electric organ built in the late 1940s was a source of joy to him and his family.

Around the 1950s Eric combined his talents in sound and photography in a new-found interest — Television. With his converted cameras and technical know-how he produced a complete home grown closed circuit TV system, which was a monument to his ingenuity and amazed his many friends. This work was culminated in a series of articles that appeared in AR in 1958.

Eric has a distinguished record of over 40 years with the PMG engineering department (now Telecom), commencing in November 1938. His career encompassed broadcast studio, transmitter and telephone engineering and, at the time of his passing, he was in charge of the Trunk Service Tech. Centre — an organisation charged with the sorting out of the hard technical problems in multi-channel trunk line systems for the whole of WA.

His cheerful disposition, his willingness to help and his technical counsel will long be remembered by his workmates and amateur friends alike.

To his wife Ruth, and his daughters Jocelyn and Leslie, we extend our deepest sympathy.

Contributed by Frank Beadle VK6FW.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. P. R. ALDRIDGE	**VK2NZA**
Mr. E. E. CORNELIUS	**VK6EC**
Mr. W. C. BLAKELEY	**VK3ABD**

WANTED

Wanted for AOCP candidate, comm Rx, Ken KP202, Icom IC22S. Enquiries to Peter Willmott. Ph. (03) 772 1802.

SSTV Robot 70A Monitor with E26 or similar long-persistence CRT, ham built or imported, in good working order. Details to George, PO Box 366, Surfers Paradise, Qld., or ph. (075) 39 9111.

Mobile Transceiver, HF (at least 20-80m), for use in August on expedition retracing Forrest's crossing of Kimberleys 1879. Typical gear required is FT7 or Icom, Kenwood mobile, near new and reliable, all or nearly all solid state; whips and associated hardware required. L. Peasley VK2BLP (ex WW2 RAAF), QTHR. Ph. (049) 54 9488 (school hours).

2m or FM Transceiver and beam antenna, also slow and fast scan TV equipment. John VK2BYK, Box 167, Penrith 2750. Ph. (047) 21 2822.

Parts from or a partly wrecked RCA AR88D Rx. Colin Gracie, PO Cavendish 3408.

Barlow Wadley Loop XCR30 Mk. 2 communication Rx in good cond. VK5NDT, L50703. Ph. (085) 64 2159.

Ken KP202, Icom 22S or 22A. G. White VK2YJO. Ph. (02) 55 1793 A.H., or (02) 50 9328.

Q-Multiplier KW110, plus instruction sheet, for use with KW2000E. VK3SV, 40 Hardwicke St., Balwyn, Vic. Ph. (03) 80 2330.

Circuit Diagram and conversion info for a Plessey-Vinten MTR30A to 2m FM. Frank Brockbank VK2AFZ, 180 St. Johns Rd., Cabramatta, NSW 2186.

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QSL Cards, Log Books, Contest Log Sheets. Send a 20c stamp for samples and prices to Linda Luther VK4VV, PO Box 498, Nambour, Qld. 4560.

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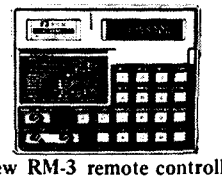

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amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 4 APRIL 1979

FEATURED IN THIS ISSUE:

- ★ GETTING ON TO 160 METRES
- ★ 10/11 Mx DIRECTION FINDING LOOP AERIAL
- ★ EQUIPMENT REVIEW: THE ALPHA P76 LINEAR AMPLIFIER
- ★ OSCAR 8 MODE "J" PRE-AMP
- ★ THE IMPORTANCE OF AMATEUR REPRESENTATION AT WARC

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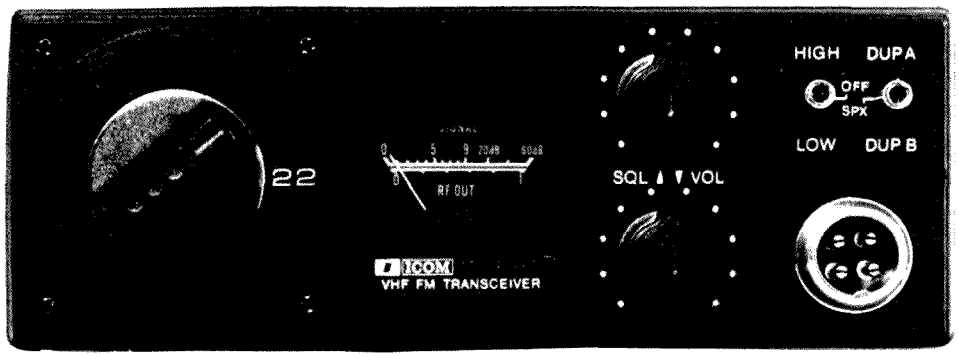

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DEPARTMENTS

COVER PHOTO

EASTERN AND MOUNTAIN DISTRICT RADIO CLUB WARC DONATION

David Werdlaw VK3ADW(L), the WIA Federal President, scarcely believes his eyes when receiving a cheque for $1000 from Tony King VK3IO, President of the EM & DRC. It is pleasing to record this most generous donation, and note the Club's recognition of the WIA effort at the conference.

Photo by Bill Rose VK3ZMI.

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Broadcasts— 1825, 3595, 7146 kHz, 28.47, 52.1, 52.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and ch. 3 and 6).

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QSP — FINANCE: ONE OF THE KEYS TO AMATEUR PARTICIPATION IN THE WARC

The WIA, mindful of the proximity of the WARC, has launched, in addition to members of the Institute and individual non-member amateurs, an appeal to those suppliers of amateur equipment advertising in "Amateur Radio", asking them to give us assistance towards bearing the financial burden of the Amateur Service WARC expenses.

The WIA has urged its members to support our advertisers. We are now asking them to support the Amateur Service's WARC effort. An effort aimed at preserving a future viable Amateur Service.

We are sure that direct representation at the Conference itself, and at all the preparatory meetings, is the most effective way to support the cause of Amateur Radio, and as a consequence have been deeply involved.

From experience I know that no matter how favourably disposed, and how well meaning any administration is, there is no substitute for an actual representative being present.

He can make sure the position as agreed by the Administration is pursued and extolled to the utmost.

I know that you as members of the WIA agree as can be seen by your financial backing and also your messages of support.

Again, it is this presence at the Conference, at meetings before the Conference, and probably at meetings after the Conference, that is the single most important factor in providing support for the Amateur Service.

Expenses have already been incurred with the participation of amateurs as members of the Australian delegation to the Special Preparatory Meeting of the CCIR.

It has been said that if Australia had not presented a paper, and if no amateur had been a member of its delegation, the satisfactory result obtained might well have been different.

It is therefore heartening to be able to report in this issue the early generous support of five of our advertisers.

Each month for the next twelve months, an updated list of our commercial advertising "WIA WARC Fund Supporters" will be published in "Amateur Radio".

I would also like to thank the Eastern and Mountain District Radio Club of Melbourne for their magnificent donation of $1000 to WARC funds, made at their annual general meeting early in March.

It is support like this that makes those involved in preparations for the Conference feel that all those hours of work are being appreciated.

DAVID WARDLAW VK3ADW
Federal President. ■

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DONATIONS TO WIA WARC FUND

LIST No. 1

The Executive wishes to acknowledge with grateful thanks the following donations:—

EDUCATION PURPOSES

Dick Smith sale of equipment — net proceeds	$3500.00

WARC 79, from members

VK2ZQ	$10
VK2ALZ	2
VK2ZAA	2
VK2PN	2
VK2BYS	2
Tumut and Dist. ARC	2
Bundaberg ARC and some members	44
Townsville ARC and members	139
VK2BXI	25
VK8ZBC	5
VK3AJT	77
VK2ARP	5
VK2BUL	40
VK2BWE	20
VK2BOT	6.67
VK3HE	10
Y60132	2
VK3DZ	10
VK3NVP	7
VK2KI	10

■

ADVERTISERS' DONATIONS

The Federal President wishes to extend grateful thanks to our advertisers for generous donations towards the expenses of WARC representation

MARCH 1979	$
Dick Smith Electronics	500
Vicom International	1000
Ralt Electronics	500
Chirnside Electronics	100
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These are entitled to the use of the WIA emblem and the words: "WARC Amateur Supporter" in their advertising displays.

QSP

PENSIONERS

Not many changes requested by members, when faced with paying annual subscriptions, cause problems in the Executive office. One particular change, however, is guaranteed to cause maximum trouble — and that is a request to change a member's grading to pensioner status at this time of the year. In the first place ONLY THE MEMBER'S DIVISION can approve a re-grading to pensioner. All such requests therefore have to be sent forward to the Division concerned. If there is any delay in approving the re-grade the member's name might be suppressed for his AR address label because of being unfinancial. Secondly, some problems can arise with recording payments and resulting credits or debits, when any re-grading is subsequently approved after the member had paid the full amount due prior to being re-graded. Best advice is to pay the pensioner rate and forthwith ask your Division for a re-grade. ■

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1979 CALL BOOK

Attention Secretaries of Divisions, Clubs, Repeater Groups, etc., etc.

The 1979 Australian Amateur Call Book is now being processed. If your group, club, etc., desires publicity in the 1979 Call Book, please forward relevant information to the Editor (Call Book), P.O. Box 2611W, Melbourne, Vic. 3001, by 30th April, 1979.

The following is required: Repeater information and up-dates, radio clubs, address and phone number of secretary, meeting dates, etc.

Material received after this date WILL NOT be included in the 1979 Call Book.

ACT NOW TO AVOID DISAPPOINTMENT.

Are you checking our bands for

INTRUDERS

AND REPORTING SAME TO THE INTRUDER WATCH CO-ORDINATOR?

WIANEWS

The meetings of Executive during February were taken up largely on 1979 Federal Convention business.

The following Agenda Items (reported very briefly) for this Convention had been received up to the time of writing this —

FROM VK4

(1) Executive to report on progress of negotiations for official morse tests at higher than 10 w.p.m.
(2) Executive to ask P. and T. for 2 monthly morse code exams for ail grades.
(3) Executive to ask P. and T. lor 3 monthly theory and Regs exams for all grades.
(4) Executive to ask P. and T. tor "out of hours" exams it the need arises.
(5) Executive to report on TV Ch. 5A and 0 situations.

FROM EXECUTIVE

(1) Discuss draft regulations for affiliation of Australia-wide amateur organisations.
(2) Discuss a standardised membership proposal form.
(3) Discuss best methods of disbursing or using the $3500 proceeds from Dick Smith's sale.
(4) Discussions on WARC 79 progress and IARU matters.
(5) Discuss 10 metre beacon situation.
(6) Outstanding repeater items.
(7) Examine the future of AR, Exec. office and related matters.
(8) Discuss "Handbook" revision.
(9) Discuss a Position Paper on the Fed. Constitution.

The Executive decided to invite the Minister for P. and T., Mr. A. A. Staiey, to address the Convention. It was also decided to invite Mr. Ron Henderson VK1RH, the Federal WICEN Co-ordinator, to attend the Convention as part of the Executive group.

CHANNEL 5A

Letters from the Minister of P. and T. to other Parliamentarians towards the end of last year indicate that TV Ch. 5A "is currently allocated to four television stations and seven translators throughout Australia". He recognises that the use of this channel does not accord with international practice but its more extensive use in recent years was due to increasing demand for TV services and re-allocation arising out of FM broadcasting.

As far as the Institute is concerned this is 4 stations and 7 translators too many. The point was made by the Minister that interference to amateur radio operations had been able to be resolved by means of special technical arrangements. Nothing was said about the reverse situation and it is this point which is exercising the VHFAC as well as the post WARC 79 situation.

In his opening speech for the Queensland 1978 Convention in mid-October, Mr. D. Jull, M.P., Member for Bowman and Secretary of the Communication Committee in Federal Parliament, is reported as saying that the decision for Ch. 5A to be used in metropolitan areas has been completely shelved and won't happen. He is also reported as saying that a Departmental investigation is under way to eliminate those areas using Ch. 5A for translators in some country areas. In regard to Ch. 0 he did say that Melbourne Ch. 0 will soon be going to Ch. 10 and a similar announcement about Brisbane 0 was also expected. The former has now been verified correct.

Nothing was known about the use of UHF for TV except for ethnic television as set out in the Media Release 78/18 of 20th September, 1978.

For us it is fortunate that Ch. 5A affects some other services, not only the amateur service.

JOINT COMMITTEE

A meeting of the Joint P. and T./WIA Committee was held on 21st February. An AOCP Theory exam syllabus was announced as ready for discussion with the Institute.

If this is to be adopted early, the expectation was that the August AOCP Theory exam would be multi-choice.

Revised sample papers of the multi-choice Regulations Exam and the Novice Theory exam were ready for incorporation in the new Handbook. Copies were handed to the WIA.

Clarification was given about corrections made in amateur morse sending exams. A total of 10 seconds extra is granted where a candidate properly corrects any errors. Indications are that there were some problems associated with the Novice morse exam in February.

The introduction of a lower licence fee for pensioners is still held up in Canberra. A review is to be undertaken of the Amateur Advisory Committee Service. An examination of the input material for the Call Book is being made. The WIA proposal for longer term (and it is hoped cheaper pro rata) amateur licences is still held up awaiting the new Radio Act which might possibly see the light of day later this year.

According to reports, the relusal to permit amateurs to use the 50-52 MHz portion of the 6m band outside Channel 0 areas stems directly from the broadcasting service.

Nothing further appears to have happened about the suggestions of controls over the acquisition by anyone of transmitting equipment although this question is understood to be in the hands of the Department of Business and Consumer Affairs which relates to the Trade Practices Commission. Without a visit by Royalty no consideration will be given to the use of the "AX" suffix by VK6s during their 150th anniversary celebrations.

SAA

The Institute is now represented by Mr. K. C. Seddon for the WIA, on the Draft Standard tor Public Review DR78102 meetings. This relates to the siting of radiocommunication equipment.

WARC 79 DONATIONS

A panel elsewhere in this issue commences the list of donations most gratefully received.

LIFE MEMBERS

It is with great pleasure that news of Dr. David Wardlaw's Hon. Life Membership of the Victorian Division was received. Another very hard worker for the amateur cause was likewise deservedly honoured — Mr. Keith Roget.

MEETINGS

EXECUTIVE

On 8th Fberuary — almost wholly on Federal Convention matters. EXECUTIVE, again on 22nd February — noted apology advertisement in local newspaper, discussions on Federal Treasurer vacancy, appeal for WARC79 donations from commerce, Convention Agenda Items, Joint Committee and Handbook matters, 1979 RD Contest opening address by President of IARU, CCIR Seminar in Sydney, inability to express an opinion without members' views on sale of alpha membership computer records, inserts into AR by mailing service.

PUBLICATIONS COMMITTEE

On 6th February — continuing dearth of photographs, especially front cover photographs, discussions on production of Great Circle Maps, WIA stickers, new Log Books and other routine matters.

PROJECT ASERT

Proceeding satisfactorily as reported elsewhere. Meetings held 18th January and 7th February. ■

QSP

PREFIXES

Provisional allocations by the ITU have been made for Tuvalu as T2A-T2Z and German Democratic Republic Y2A-Y9Z.—Radio Commun., February 1979

AMATEUR RADIO DIRECTION FINDING CHAMPIONSHIPS

Want to join in the IARU R1 AR direction finding championships in Poland 3rd to 9th September next? Competitions will be held on two amateur bands — 3.5 MHz and 144 MHz. Rule 2.3 says "It is forbidden to give or take any assistance from or to any person including competitors, and also use of any means of transport — under pain of disqualification". Obviously an event for joggers. ■

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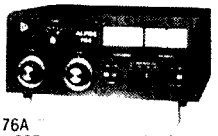

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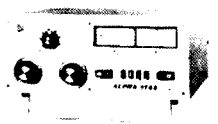

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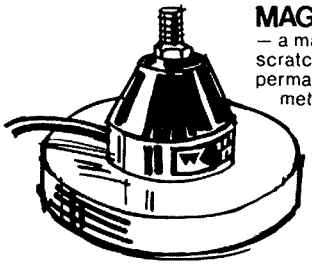

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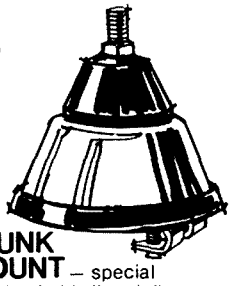

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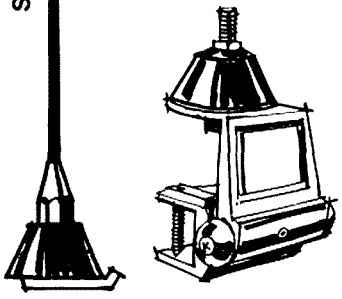

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GETTING ON TO 160 METRES

Sam Voron VK2BVS
2 Griffith Ave., East Roseville, N.S.W. 2069

Remember the saying, "We will stick them on 200 metres and below — they will never get out of their backyards with that".

Well, that was in the early era of amateur radio — sometime around the 1910s — an era when amateurs were able to use the entire unwanted range of frequencies called the medium and short waves.

Here only 60 kHz remains on the only Medium Frequency allocation available to amateurs In Australia today. From 1.8 to 1.860 MHz — the lowest frequency available for amateur exploration — it's still possible to experience the thrills and conditions which many of our original amateurs encountered in days gone by.

THE UNIQUE CHARACTERISTICS OF 160 METRES

Being the lowest frequency available for amateur use, the 1.8 MHz band is least effected by the ups and downs of the 11-year sunspot cycle which is responsible for the extensive variability common at higher frequencies.

Occasionally, when solar activity is particularly low, it may not be possible to contact stations within several hundred kilometres during the evening or night-time hours on the 80 metre band.

During such times, when skip zones exist on 80 metres, 160 metres becomes the only band available to maintain short-skip night-time contacts say between Sydney and Canberra.

1.8 MHz has been known to provide more effective communications within limestone caves than any other amateur band.

One of the most unique day-time aspects of 160 metres is the excellent groundwave coverage which can be achieved using fairly low power. In the United Kingdom, even though power is restricted to 10 watts on AM and 26 2/3rd watts PEP on SSB, 160 metres (or "top band" as it's known) has become as popular for local day-time communicating as is the 2 metre band here in Australia.

A coverage up to 150 miles can be obtained with significantly less mobile flutter than one would experience on 2 metres VHF (direct). Groundwave coverage on 80 metres (i.e. the useful range of waves following earth's curvature) is only around 90 miles.

160 METRES OR AROUND THE WORLD

In Australia, we are lucky in that there exists no power restriction on 160 metres.

But we are unlucky in that we only have use of 60 kilohertz, whereas countries such as the United Kingdom and the United States have the use of 200 kHz from 1.8 MHz right up to 2 MHz.

New Zealanders only have 35 kHz from 1.803 to 1.813 MHz and from 1.875 to 1.900 MHz.

Would you believe the Japanese have just 5 kHz from 1.9075 to 1.9125 MHz?

Yes, — once you get involved in 160 metres — it is easy to understand why amateurs around the world are keen to retain even a few valuable kilohertz in this part of the radio spectrum.

WHAT'S DIFFERENT ON 160m FROM THE OTHER BANDS?

Home-made equipment for one. Yes, on 160m it's possible to take your old mantel radio apart and build up your own transmitter and adjust your broadcast radio receiver to work on 160 metres.

AM for another. This reflects the sprinkling of home-made sets which operate on this band.

In Sydney small transistor radios are often modified to allow people to tune into the regular WIA 160 metre news broadcasts which can be heard twice each Sunday at 11 a.m. and 7.30 p.m. on 1.825 MHz. AM — so Short Wave, or should we say Medium Wave, listening is another aspect of the 160 metre scene.

The challenge of making up small 4 or 6 foot mobile antennas for 160 metres or trying to fit a 250 foot half-wave dipole in your backyard is another.

Facing the DX challenge as did Marconi — you'll have fun trying to work the United States in the early evenings or the Europeans just before sunrise.

How often do you find home-brewing, AM, active SWLing, challenging DX existing today as it did in years gone by?

In many ways 160 is a fascinating remnant whose history goes back to the beginning of our hobby. When you get on to 160 you'll soon sense through your contacts as well as in the various overseas magazines that dedication which 160 metre enthusiasts share the world over.

WHAT GEAR TO USE ON 160 METRES

Several multiband transceivers only cover 80 through to 10 metres. How can 160 metres be added?

For the mobile explorer where can one get a 12V transistorized 160m transceiver?

For the novice who just got his or her *full* amateur licence, what's the easiest way to get on to 160?

The answer . . .

MODIFY THE DICK SMITH 80 METRE TRANSVERTER ON TO 160 METRES

The Dick Smith transverter was designed to be connected on to any CB radio, allowing the new novice an inexpensive way of getting on to the 80 metre band.

The transverter, which comes in the form of a kit, can be built up in a few hours and allows you to transmit or receive on 3.5 MHz with the use of any 27 MHz transceiver. Power output is 10 watts AM and 30 watts on SSB.

Lots of novices now have upgraded to a commercial multiband transceiver and are wondering what to do with that transverter? Easy, modify it for 160.

Need a mobile for 160? Build up the transverter!

Want to add 160 to your home station? Then you'll find that the transverter will work just as well from 10 metres as it does using an 11 metre source (simply change the crystal in the transverter).

HOW DOES THE TRANSVERTER WORK?

As well as modifying this transverter for the 160 metre band, novices who have just got their full licence should be able to experiment with capacitor and coil values to add 40 and 20 metres.

Novices wanting some gear for 15 metres can likewise experiment to come up with an inexpensive set-up on that band.

Those wanting a small mobile on any of the **HF** bands may also find this information suggests possibilities.

The ultimate, one would imagine, would be to work all HF bands using this transverter to a simple CB unit — this would surely be the most inexpensive multiband transceiver out! Adding a VFO to the CB unit would make it comparable to commercial tuneable systems. Maybe home-brewing can still be an economic proposition!

THE 80 METRE RECEIVER SECTION OF THE TRANSVERTER

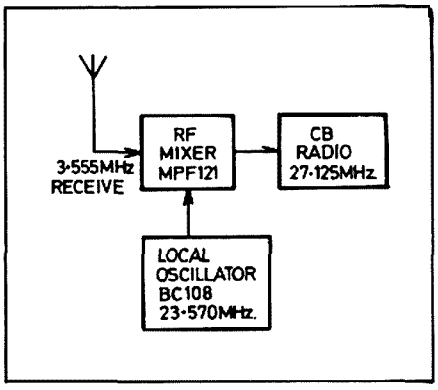


FIG. 1: Signals on the 3.5 MHz band are converted up to 27 MHz band on the Dick Smith 80 metre transverter.

In the mixer stage (see Fig. 1) (3.555 is added to 23.570 to produce the signal at 27.125 MHz). In this way it is possible to receive on 2.5 MHz by selecting different channels on the CB radio.

THE 80 METRE TRANSMITTER SECTION OF THE TRANSVERTER

In the mixer stage (see Fig. 2) (27.125 is subtracted from 23.570 MHz to produce 3.555 MHz). In this way it is possible to transmit on 80 metre frequencies by selecting different channels on the CB radio.

MODIFICATION DETAILS FOR 160m

To get the transverter on to 160 metres we must first change the crystal in the local oscillator.

The new crystal required is 25.3 MHz if you are using a CB transceiver.

On Receive

1.825 + 25.3 produces 27.125 MHz.

On Transmit

27.125 — 25.3 produces 1.825 MHz.

The new crystal required is 26.635 MHz if you are using a 23 channel 10 metre or multi band 80 to 10m transceiver on the 10 metre band tuned to 28.460 MHz.

On Receive

1.825 + 26.635 produces 28. 460 MHz.

On transmit

28.460 — 26.635 produces 1.825 MHz.

The 5 channels obtained on 160 using CB or 10 metre channelized sets are:

23 channel numbering system	18 channel Australian CB No. system	160 metre Frequency MHz
12	8	1.805
13	9	1.815
14	10	1.825
15	11	1.835
16	12	1.855

This channel system is centred on 1825 kHz which is where most of the WIA broadcasts are conducted as well as being a popular listening and calling channel.

The transverter kit contains two printed circuit boards — the exciter/receiver board and the power amplifier board.

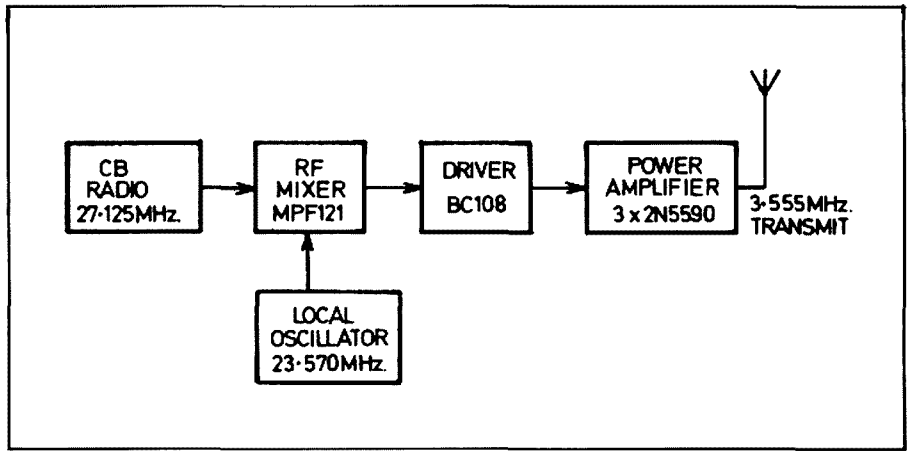


FIG. 2: 27 MHz is converted down to the 3.5 MHz band on the Dick Smith 80 metre transverter.

MODIFYING THE EXCITER/RECEIVER FOR 160 METRES

(1) You have replaced the crystal. Tune oscillator coil L5. One or two coil turns can be removed if this is found necessary. (See Fig 3.)

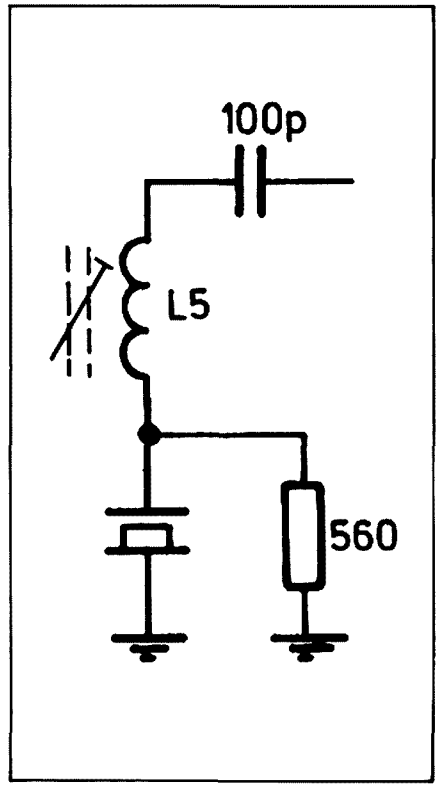


FIG. 3: Location of L5 in the Oscillator Circuit of the 80m Transverter.

MODIFYING THE RECEIVER FRONT END

(2) Add 300 pF across the existing 330 pF capacitor which is part of the 0.0022 uF divider network located at the input of L2 and the MPF121 (TR1) mixer. (See Fig. 4.)

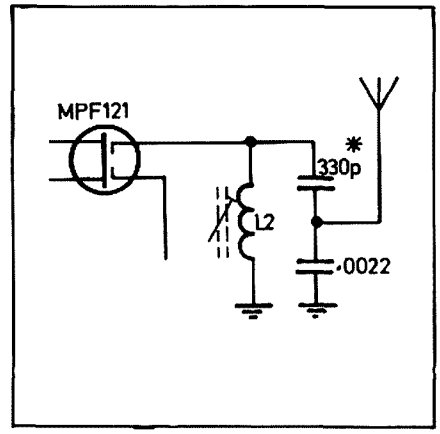


FIG. 4: Existing 330 pF Capacitor in the 80m transverter.

Set your receiver to 1825 kHz and, with a signal generator tuned to that frequency, adjust L2 and L1 (the 27 or 28 MHz receiver output coil) for maximum reading on your strength meter.

TUNING THE EXCITER

(3) You should be able to adjust coils L4 and L3 for maximum power output as indicated by the current panel meter on the transverter. (See Fig. 5.)

No change was found necessary to the 470 pF capacitor associated with L3 or to the 330 pF capacitor associated with L4. These could be increased in value if your coils do not peak fully.

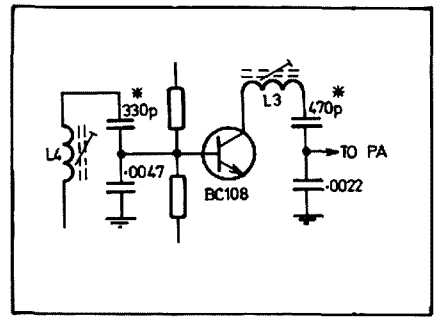


FIG. 5: Capacitors referred to above as located in the 80m transverter.

MODIFYING THE POWER AMPLIFIER FOR 160 METRES

(4) Add one more turn to the primary of coil T4 (i.e. 7 turns instead of 6). This is the PA output toroid. (See Fig. 6.)

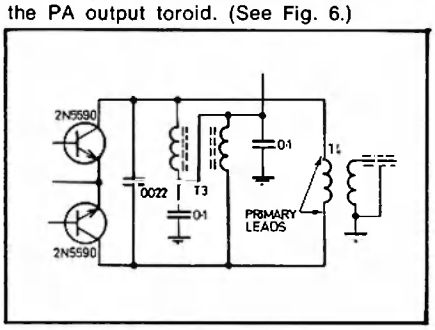


FIG. 6: Location of Coil TA in the 80 metre transverter.

USING THE TRANSVERTER ON BOTH 80 AND 160 METRES

The modifications above will still permit you to operate on 80 metres.

An on-off switch with several rows of three contacts can be added to the front panel of the transverter just next to the manual transmit-receive switch.

With a flick of this switch you can switch in your new 160 metre local oscillator crystal, coil L2 and coil L3 both peaked for maximum performance on 160 metres. (See Fig. 7.) Both these coils can be mounted on tag strips just next to the original coils L2 and L3, which are tuned to 80 metres.

One end of each pair of coils and crystals is connected together. The other connections go to each end of the multi-contact switch. The common connection goes to the centre position on the switch.

Now you can operate on either 80 or 160 metres at the flick of a switch.

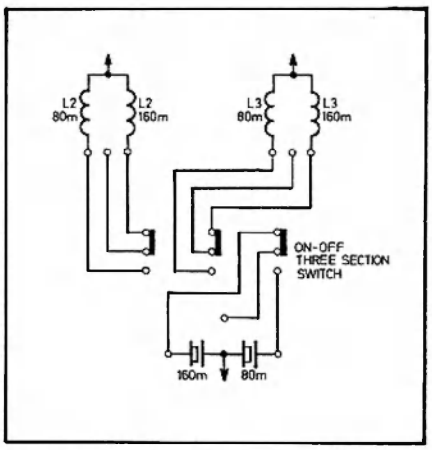
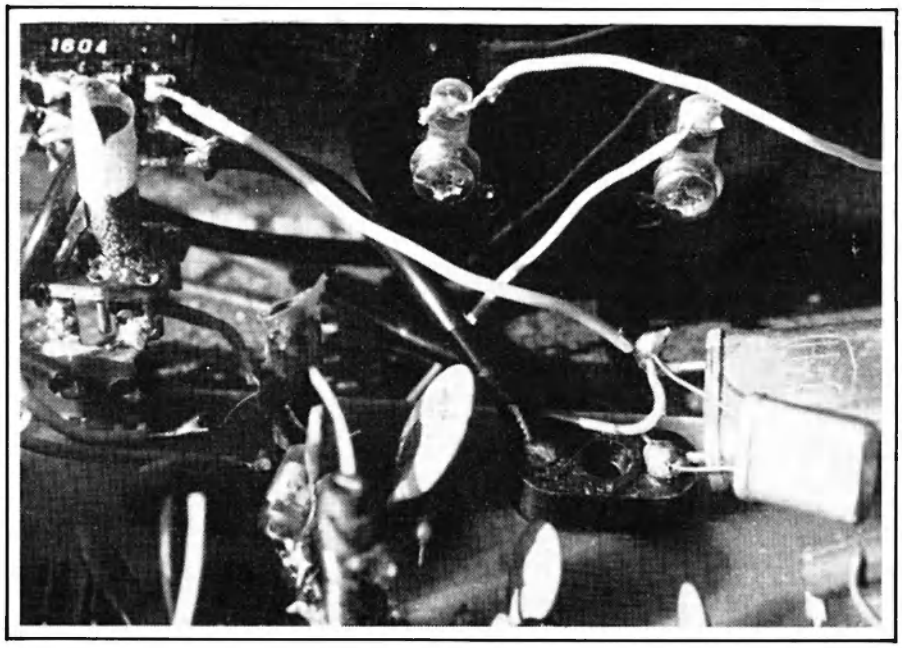


FIG. 7: Connecting Coils L2, L3 and Crystals to allow Switch selection of either 160 or 80 metre operation.

Coil L4 can be tuned for maximum output on 160 metres. The output on 80 metres should be quite reasonable.



A close-up of the two crystals in the crystal oscilltaor circuit used to select 80 and 160 Mx on the switch contacts shown.

Front view of transceiver. Notice that 160 and 80 Mx can be selceted at the flick of a swicth.

RESULTS

For about a year I have been using a 23 channel Hygain V on 11 metres feeding the Dick Smith transverter modified on to 160 metres to relay the WIA broadcast around Sydney in the mornings and interstate in the evenings on AM.

It is certainly quite a reliable and exciting type of set-up. It is great not to have to say "the rig here is a 101 into a . . . etc.". I can always be assured of interesting contact on 160 when I say "the rig here is a modified CB set".

ANTENNAS

It is easy to put up an antenna on 160 metres! What! You say you can't fit a half wave 250 foot length of wire in your backyard!

Well, that's what I thought, but when I made my first QSO with Queensland using an 80m dipole I thought "I wonder — if I only had a 1.8 MHz dipole — I wonder".

Make up the dipole and run it up and down trees, along your fence, don't worry about having ninety degree bends or turning sharply. My antenna is full of all of

these! It's only an average of 12 feet off the ground and lots of it lies on my house roof (actually 6 inches above it).

The results. Would you believe S6 in Canberra and Victoria and Queensland using only ½ a watt PEP! That is my consistent report at different times with different stations. And on full power it is an S9 (no worries!).

So I have discovered the secret why even though 160m is the only band in the UK with a severe power restriction it is so popular. It's a matter of low power into a decent antenna equalling excellent coverage.

To adjust the SWR just take a foot at a time off both ends of the dipole. Using no balun I have consistently bettered 1.5 to 1.

160 METRES AND TVI

There is no TVI or other problems. In fact using the TV Isolation transformer in the December 1977 issue of AR on my TV set, I find that 160m is about the only band which won't give me any TVI problems (even driving my linear to 400 watts PEP). Whereas, using the same set-up on 80m, I get TVI with only 5 watts of RF!

If you want to get away from TVI —

(1) Try the AR isolation transformer.

(2) Move as far away from the TV frequencies as you can.

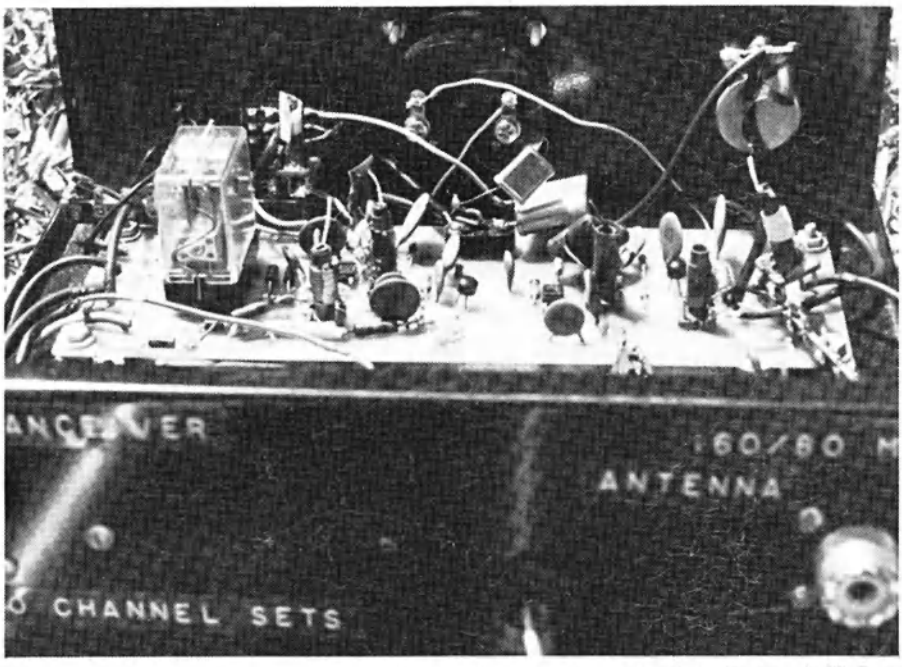
(3) Avoid the frequencies which resonate with the wire length interconnecting stereo gear.

(4) Join us down on 160m. It is as low as you can get riding that giant 160 metre long wave.

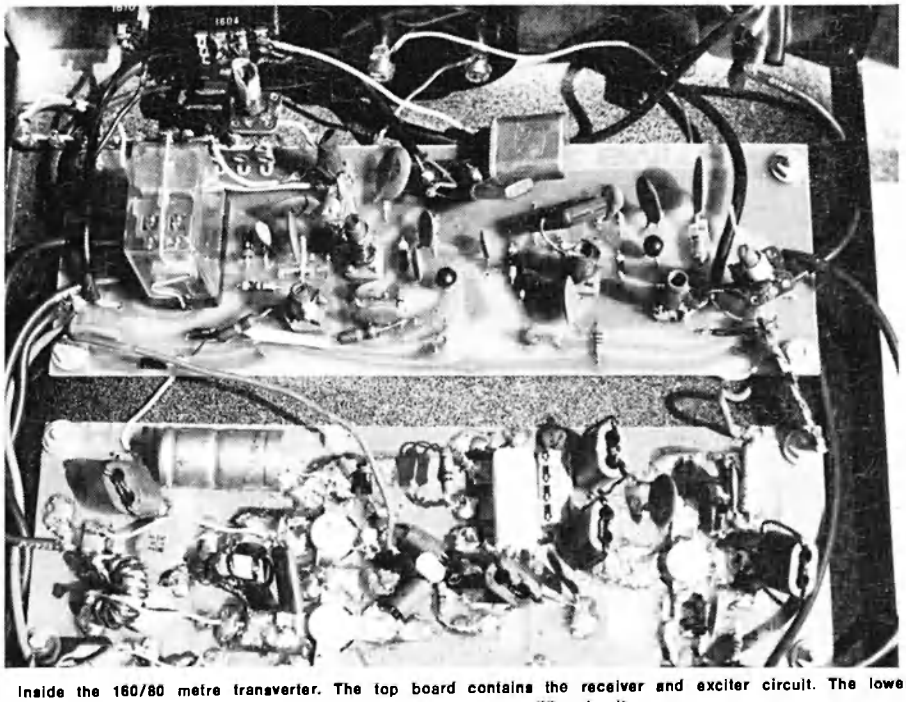
See you on the Medium Waves!

FOR MORE INFORMATION

See the article entitled "A solid state 27/3.5 MHz transverter" in Electronics Australia, April 1976.



Rear view of transceiver. On the left hand side you simply connct any 18, 23 or 40 channel CB Txcvr. The 80 or 160 Mx antenna is connected to the right hand side.



Inside the 160/80 metre transverter. The top board contains the receiver and exciter circuit. The lower board contains the power amplifier circuit.

QSP

DIGITAL

"The mere mention of the word in promotional literature for a piece of gear suggests state of the art and associated high sales. Unfortunately, digital readout offers only greater precision as opposed to analog readout systems. The accuracy of a readout is determined by the scheme used for the measurement and the quality of the measurement equipment, not by the medium (digital or analog) itself. What good are five digits of readout if the accuracy is low enough that the last two digits don't mean anything?

If a highly accurate means of measurement is employed in a digital readout system, a totally different situation exists. Full advantage of the greater readout precision can be taken, and readings "down to a gnat's eyebrow" are possible, with far greater ease than with an analog system." —From QST September 1978.

YU PREFIXES

According to RI News of October the Yugoslav Administration has allocated YU and YT for regular use by amateurs and YZ, 4N and 40 for special occasions. YU1 is the prefix for the Serbian Soc. Republic, YU2 for Croatia, YU3 for Slovenia, YU4 for Bosnia and Herzegovina, YU5 for Macedonia and YU6 for Montenegro. YU0 is allocated for SRJ (the amateur radio society) HQ and special stations. The autonomous provinces of Vojvodina and Kosovo use the YU1 prefix. Up till 1974 foreign visitors were allocated call signs in the YU7 series with three letter suffixes, commencing with the letter L. Now, foreign visitors use their own call signs with the addition of the prefix of the Republic in which they are operating. Suffixes AAA-KZZ are allocated to club stations.

THE Q CODE

Reading a short article in July 1978 QST triggered the thought of how we amateurs use the Q code. Yes, we do use many of the Q signals to indicate a condition rather than strict adherence to the rule book, which says that QRP? means "Shall I decrease power" and QRP simply means "Decrease power". To use QRP means low power and QRO high power in much the same way that we have adapted the Q code for our own use in such examples as QRM meaning interference, QRN static and other noise pollution, QSO being a contact, QTH a location, QSP a message, QRT closing down, QSY frequency change, QRZ call again, and so on. These are the day to day practical applications of the Q code which you could hear on any band from anywhere, but such answers might not get you many marks in an exam question. ■

A 10/11 METRE DIRECTION-FINDING LOOP AERIAL

Gil Sones VK3AUI
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The DF loop is a reasonably simple antenna system which exhibits a figure of eight pattern in the horizontal plane together with vertical polarisation. For receiving purposes it is not necessary to match the very low radiation resistance of the loop. The induced signal voltage is the principal interest and this may be maximised by resonating the loop and feeding the receiver via a high impedance amplifier.

The loop shown in Fig. 1 uses an FET push-pull amplifier, whose output is passed through push-pull emitter followers and a small ferrite balun. During early experiments a dual source FET stage was used, but this was discarded due to its inherent instability under certain tuning conditions. The output of this DF loop is very little less than for a full quarter wave whip.

The loop is constructed from a piece of PT29 75 ohm coaxial cable. The shield of the cable is split in the middle so as NOT to form a shorted turn. The shield forms a Faraday Screen as well as performing as a balanced tuning capacitor. Using 75 ohm coax with its lower capacitance as compared to 50 ohm coax enables a larger loop to be made.

The PT29 is ½ in. OD and is self supporting. To make the loop a length of 3 feet or 1 metre is obtained. The outer jacket is cut back 1½ in. to 2 in. at each end and a 1 in. length is removed from the centre of the cable. This 1 in. piece must be symmetrical about the middle of the length. Tin the exposed braid, taking care not to melt the insulation. When cool cut away the last inch of tinned braid and polythene insulation from each end of the cable, thus exposing the inner conductor. Rotate the cable under the knife when cutting so as to get a clean even cut. Mark the exact centre of the cable and cut around the circumference so as to remove the centre 1/16 in. of the braid. As the braid has been tinned a hacksaw may be used. Be careful not to cut too deeply into the insulation.

A piece of insulating tubing should be slid over the centre and taped in place so as to exclude moisture from the break in the sheath. The loop is now formed into a circle and put aside until the amplifier and its housing have been completed.

The amplifier may be built on either a printed circuit board or a scrap of veroboard or matrix board. The layout should be reasonably symmetrical as the device depends on symmetry to work well.

The loop is tuned by the electrostatic screen and a small trimmer capacitance to give a convenient peaking adjustment. Trimpot R3 in the source circuits of the push-pull amplifier is used to balance the operating point of the two FETs. Earlier versions used twin balanced FETs but the present system is more convenient. Adjust the drain voltages to equality.

The balun is relatively non-critical and a trifilar winding of 7 turns on a small Q2 toroid has been found to be satisfactory.

The amplifier must be mounted in a small metal or plastic box to protect it from the weather. Small plastic soap boxes, diecast boxes or plastic electrical junction boxes are all suitable. The loop is passed through two holes in opposite sides of the case, secured and connected to the amplifier.

When power is applied it should be possible to tune up on receiver noise or on a signal.

In use an attenuator between the loop and receiver is useful as it is necessary to reduce the signal considerably in the final stages of a hunt. Both RF and IF gain controls in the receiver will be found extremely useful.

A simple field strength meter can be connected to the loop for use on the final pedestrian part of a hidden transmitter hunt.

A protractor may be used for direction readout and should be mounted as accurately as possible. An accuracy of better than 5 degrees is possible — much better than is usually possible on 2 metres.

To obtain sense information and thus remove the ambiguity of the loop bearings a sense whip should be connected as shown in Fig. 2. This scheme is rather touchy on this frequency and the pattern tends to vary somewhat. The author prefers to take several bearings from different spots and plot them on a map. ■

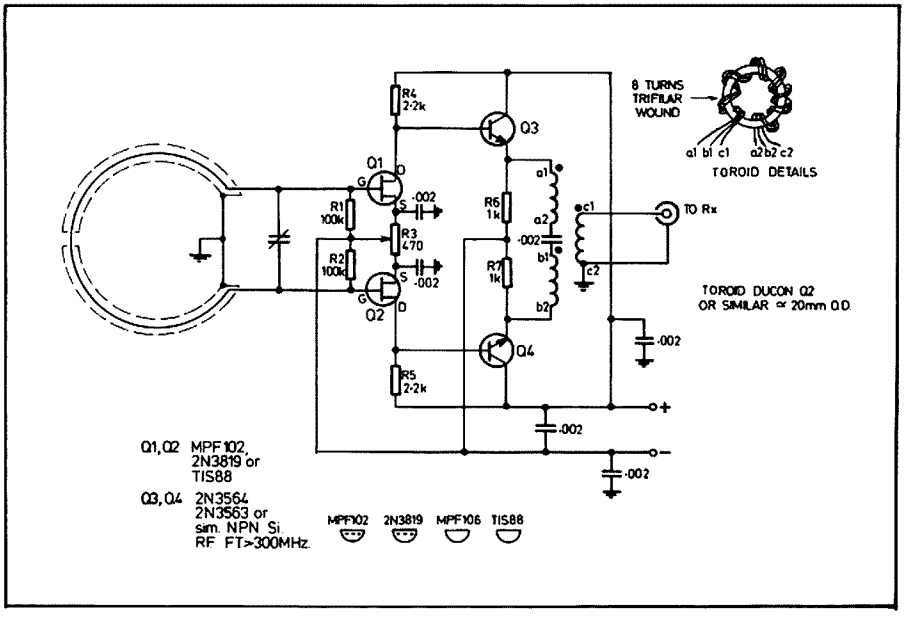


FIGURE 1

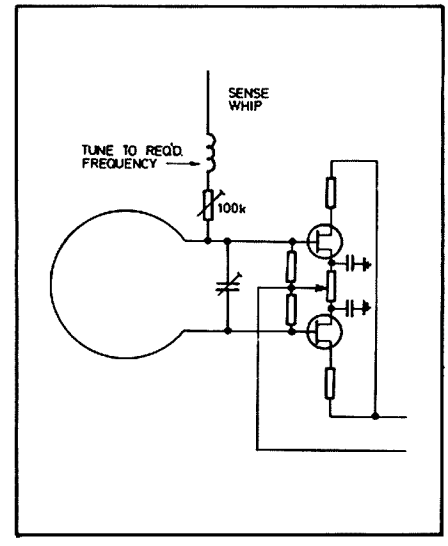


FIG. 2: Sense Coupling

AN INEXPENSIVE AMSAT OSCAR 8 MODE 'J' RECEIVER PRE-AMPLIFIER

Joe Reisert W1JR
17 Mansfield Drive, Chelmsford MA 01824

Many users of OSCAR 8 are discovering that their receiving converters lack sufficient sensitivity (have poor noise figures) to hear the Mode J signals. Most of this deficiency can be overcome with a low-noise pre-amplifier added ahead of the existing receiving converter. Such a unit, which is inexpensive, easy to build and will compete quite favourably with more expensive devices and circuits will be described herein.

PRE-AMPLIFIER DESCRIPTION

This article will not dwell on the AMSAT-OSCAR 8 Mode J output, etc. Suffice it to say that a reasonable 435 MHz antenna gain of 10-15 dB, a feedline loss of 2-3 dB maximum, and a noise figure of less than 3 dB should be sufficient for most operation. A lower noise figure will further improve performance, but a point will be reached when it will no longer be "cost-effective".

The pre-amplifier to be described is an inexpensive version of the "Ultra Low-noise UHF Pre-amplifier" (Ref. 1), a unit which has been used world-wide, especially on 70 cm EME. The original circuit used a $46.00 transistor which is no longer available but yielded a 1.25 dB typical noise figure with 15-16 dB gain. By making a few small circuit changes, a less expensive transistor can be used. The Motorola MRF 904 costs approximately $2.00 and in the modified circuit will yield a typical gain of 12 dB with a noise figure of 1.75 dB. The Motorola MRF 901 (and probably the BFR 91) now cost approximately $1.50 and will yield a typical gain of 14 dB with a similar noise figure. The latter device used to cost between $6.00 and $9.00.

Looking at the circuit in Fig. 1, you will note the similarity to the original circuit; the zener diode and biasing, hot carrier diode input protection and the simple matching. The MRF 901 and MRF 904 transistors did not require any input inductor for noise figure matching. By using an output network as shown, the gain on these devices was increased and the frequency response was shaped for a broad (350-450 MHz) peak response, but with essentially ϕ dB gain at 144 MHz (the original circuit had almost a flat respone from 20-450 MHz).

As in the original article, the pre-amplifier should be constructed with the components as shown. Failure to use the hot carrier diode (do not substitute germanium or silicon switching diodes) limiter will increase the noise figure and could lead to destruction from stray RF or electrical discharge. A simplified RF choke is also shown. The 5.0 pF output capacitor is tailored with the 20 ohm resistor and L2 for peak performance at 420-450 MHz and substitution of other values is not recommended if adequate gain and stability are to be attained.

Note the lead configuration on the MRF 901 and 904. Do not ground these devices with extremely short leads. The extra lead inductance as shown will improve stability and input VSWR and will be described in detail in a forthcoming article. Other transistors may be used, but the author will not guarantee similar performance. Don't forget the 0.1 MF bypass on the +12 volt line since it bypasses any stray RF (such as a local HF kW transmitter) which could lead to catastrophic burnout.

CONSTRUCTION

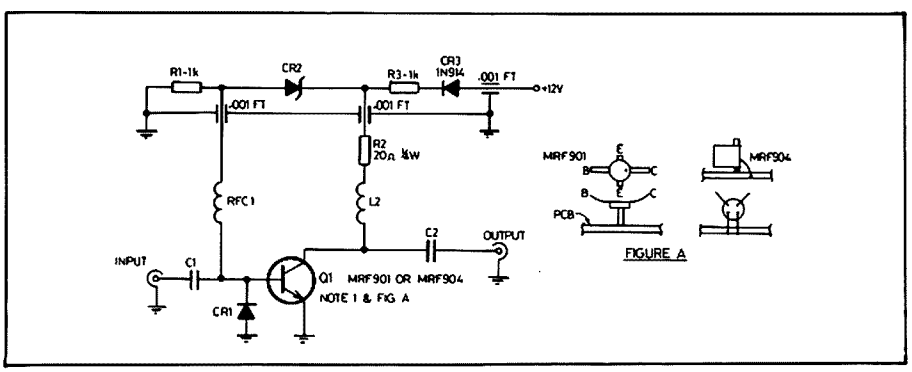
The pre-amplifier should be built into a small (2½ in. x 1¼ In. x 1¼ in.) shielded box such as the Pomona 2417 type. Since extremely low noise figure is not required, BNC coaxial fittings are usable but "UHF" or "RCA Phone Jack" are undesirable. Use of a double-sided printed circuit board held to the box cover with the coax connectors is recommended for construction. Additional details are provided in the original reference.

PERFORMANCE

From the response of those who have duplicated this pre-amplifier, the improvement in reception is overwhelming. Generally speaking, no additional filtering is required. However, if you live in a high RF environment such as UHF television transmitter, etc., an input filter may be required and the one in the original article is recommended. Also, never use a power supply which also serves as a source supply for relays since the spikes can destroy the transistor.

One final note: If correspondence with the author is required, an SASE or IRCs with a minimum of questions would be appreciated If an answer is desired.

Ref. 1. "Ultra Low-noise UHF Pre-amplifier", by J. Reisert W1JAA, "Ham Radio Magazine", March 1975.



INEXPENSIVE 70 cm LOW-NOISE PRE-AMP WITH MRF901 OR MRF904

Gain: 12-14 dB typical.
Noise figure: 1.75 ± 0.25 dB.
C1 — 50 pF dipped Mica.
R2 — 20 ohm, ¼ watt.
C2 — 5.0 pF dipped Mica.
CR1 — Hewlett Packard 5082-2810 or equivalent.
L1 — Deleted.
L2 — 3T No. 24 on 1/10 in. ID Space Wire diameter.
RFC 1 — 0.47 uH Nytronics decIductor or 15T No. 32 AWG enamel covered copper wire on 1/10 in. ID Spaced Wire diameter.

Notes:

1. **Mount transistor as shown in Fig. A with leads just touching PC board (see text).**

Reproduced from the "AMSAT Newsletter" June 1978. ■

WICEN OPERATIONS IN SOUTH AUSTRALIA

Ian J. Hunt VK5QX
Vice-President/Federal Councillor,
South Australian Division

The VK5 Division has, in common with the other States, for quite a number of years supported and encouraged the activities of the Wireless Institute Civil Emergency Network (WICEN).

This organisation is made up of volunteer amateur radio operators who are prepared to make available both their equipment and operating expertise for assistance in any emergency requiring radio communication which may arise in the community.

Needless to say, in implementing a scheme such as this a fair amount of organisation and training of members of the WICEN group is necessary if such a group is to be really useful. To this end training classes in such subjects as message handling procedures, map reading, observation, etc., are carried out from time to time. Regular weekly nets or "call-backs" are also instituted both on high frequency and very-high-frequency channels to keep members in touch and pass on items of interest.

EXERCISES

Some operations within the WICEN group are carried out from home stations, however when considering the nature of emergencies which are likely to arise it becomes immediately evident that in many cases the requirement exists for portable and mobile operation.

To supplement the previously mentioned training field exercises are arranged as convenient.

Such exercises may take the form of simulated message handling, some times in conjunction with a State Emergency Service (SES) exercise, however it has been found, at least in this State, that members of WICEN react more favourably and feel that they are pursueing a more useful role if the exercise can be allied to a definite purpose.

To this end It has been possible to obtain permission from the authorities within the Postal and Telecommunications Department to conduct exercises as communications support for other deserving community activities such as "The Walk Against Want" and the "Good Neighbour Council" Australia Day Fair which occur annually.

FOREST CAR RALLY

One major event for which we have been able to obtain permission to assist with communications as an exercise over the last two years is a "Forest Car Rally". This event, which covers an extremely large area, provides by its very nature probably the most valuable type of exercise which we can undertake as a WICEN exercise.

This Rally is organised and controlled in the motoring aspects by volunteers from a number of car club enthusiasts around Adelaide, and has come to be recognised as a major event on the sporting car calendar by the motoring public, Including in it such well known competitors as Colin Bond, Peter Brock and other leading Australian Rally drivers, plus some overseas competitors. Although the event does receive some sponsorship from commercial organisations it is run on a non-profit basis, costs are kept to a minimum and in fact expenses in staging the events are usually only just covered by the sponsorship obtained. Thus we feel we can still assist such an activity and retain the recognised status of Amateur Radio as not becoming associated with a commercial venture.

The main reasons for the preparation of this article is, however, to describe for your interest the amateur radio activities associated with the support of the Forest Rally as the major item of WICEN exercises held in South Australia. However, at this stage a general description of the event is called for.

The Rally for 1978 covered three distinct stages or Divisions. Division 1, held on the Saturday during daylight hours, comprised a run for the competitors from the marshalling point at the Torrens Parade Ground in Adelaide through the north-eastern suburbs to the Mount Crawford Forest area approximately 50 kilometres north-east of the city. The distances actually travelled were of course greatly in excess of this. Once in the Forest area some extremely tricky and at times even hazardous road conditions were met by the competitors. Thus, whilst the main basis of the exercise was message handling practice by the passing of scoring information, it also provided a readily available communications network should some aspect of safety, accidents, etc., arise during the event. This year conditions were made extremely difficult due to some heavy falls of rain on the days preceding the Rally, resulting in slippery dirt roads, washaways, bogs and surface water on the competitors' route.

Upon completion of Division 1, the cars, such as were able, returned to the Torrens Parade Ground to then attempt the Second Division to be run throughout the night. This section covered a distance south from Adelaide down through the hills and valleys of the Le Flerieu Peninsula, where the cars again ran into extremely difficult conditions.

Division 3 of the Rally, which took place during the daylight hours of the Sunday, was virtually a repeat of Division 1 so as to "sort out" such of the competitors who may have made it through the first two Divisions without loss of points. This time though such an approach probably really wasn't necessary as none of the competitors could possibly have managed such a feat in the prevailing conditions.

So much for the automobile aspects of this event.

COMMUNICATIONS NETWORK

It can be seen, however, that an event such as this made various demands on the WICEN organisation.

Firstly a communications network had to be set up to cover fairly large distances overall and thus requiring the use of both high-frequency and very-high-frequency stations. Secondly the commitment had to be made to operations extending continuously over a period well in excess of 24 hours. Both these requirements comprise an ideal situation for a major exercise. In some cases installation of equipment at control stations began on the Friday evening, and in the case of the Forest Control Station the operators

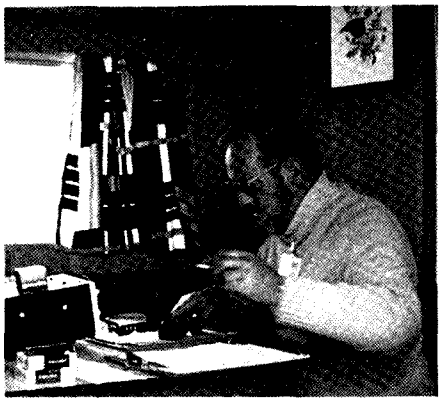
In caravan, Steve VK5ZSD at TTY machine. Note paper behind TTY.

camped on site for the whole of the weekend.

Now for a description of the networks involved.

Along the route, as is normal with this type of event, were various check points. On Division 1 there were 10 major check points at which radio communication was required. At these check points operators were stationed equipped with VHF mobile and portable radio to communicate with the net control station located in the Mount Crawford Forest.

The net control station was also equipped with HF radio to provide both a voice and radio-teletype link back to the main organising centre at the Torrens Parade Ground in Adelaide. Included amongst the equipment at this net control were a Model 14 keyboard re-perforator plus Model 15 page-printer for tape preparation, Model 15 page-printer, Model 14 transmitter-distributor, home brew ST6 demodulator with built-in CRO monitor and UART generator, TS520 transceiver with external VFO, and SB200 linear amplifier.



Ian **VK5QX with VHF** net control.

ANTENNAE

The antennas used were dipoles for 40 and 80 metres with a half-wave vertical antenna on top of one of the masts for 2 metre FM operation. This station was housed in a caravan provided at the site by the rally organisers. The tape preparation equipment was set up in the back of a "Land Cruiser" owned by one of the operators. Power for the station was provided by a 3.5 kVA petrol generator.

Sections of the Rally in Divisions 1 and 3 were to be televised. So as to co-ordinate the movement of competitors through the televised sections a special "TV" net was set up, with all stations using 2 metres FM. This net worked independently of other operations and utilized about five stations with their own co-ordinating control.

Scores from the checkpoints in the main Forest Net were relayed on VHF to the control station from each outlying point and passed by RTTY to the Torrens Parade Ground and in written form to the local Forest Scoreboard, whilst scores for the TV stages were hand carried to the control station for transmission and also to the local scoreboard.

RAIN, CARS, DIRT ROADS

The operation worked smoothly with particularly excellent results on the RTTY link, nevertheless something adverse always seems to crop up despite the amount of organisation put in beforehand. This time it was not equipment failure, poor communication paths or anything like that. It was also nobody's fault either.

Due to the prior rain, the roads or tracks as they could more properly be called, began to show the effects of the many cars travelling over them. This resulted in many vehicles sliding out of control, becoming bogged and encountering many difficulties, with sections of the course eventually becoming absolutely impassable. One car on one of the TV sections actually turned over completely in the air, landed on its wheels and then kept going, apparently losing almost no time whatsoever. The navigator of said vehicle was heard later to claim that whilst in the air the driver apologised to him, "Sorry about this", and then went to change down in gear before they landed back down on their wheels again. Needless to say, the TV station people seemed delighted with that portion of coverage and replayed that incident time and time again.

The end result of all the problems caused by the wet conditions was to really test the flexibility of the WICEN network and operators. Routes had to be changed, sections closed, check points re-located and the whole system re-established, meantime continuing to provide coverage for the cars still moving. If you had really studied your map reading such capability became most useful during this turn of events.

General view of forest control site

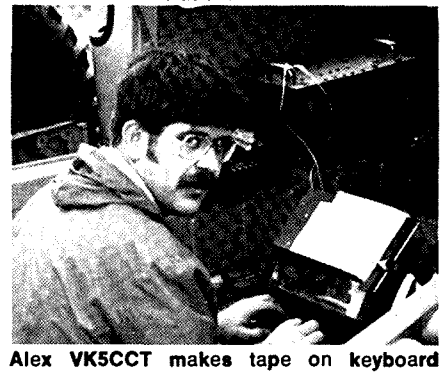
TROUBLE SHOOTERS

Another net which proved most useful was also in operation. This comprised six mobile stations also working on 2 metre FM. Attached to each of these mobile units was a senior rally organiser. These stations were able to act as "trouble shooters" for the exercise and, with extreme care in many cases, to get into and out of locations which needed immediate attention by the organisers.

The southern section of the rally comprised a network of 10 control points manned by radio with their control station also set up for both HF RTTY and VHF FM back to the Parade Ground. In this particular instance some HF communications problems were encountered and the major part of the traffic was conducted on VHF.

This particular case showed up the advisability of using the best possible available antenna when participating in such an exercise. In other words, a full sized HF dipole is much to be preferred to using a compromise antenna such as a loaded whip. It is with this type of incident we learn such things in practice which points up the fact that exercises such as this provide most important training aspects for personnel involved. Nevertheless in this instance flexibility, availability of alternative equipments and frequencies saved the day and the network achieved its purpose in impeccable fashion whilst dealing also with very similar problems due to the road conditions as experienced during Division 1, plus of course the fact that they had to do this throughout the hours of darkness.

Division 3 on the Sunday seemed to be virtually a repeat of Division 1, so not much more is left to be said on that subject, although the network was kept extremely busy with a very large volume of traffic being passed back through the Forest Control station.



Alex VK5CCT makes tape on keyboard reperforator

MINOR CHANGES

A minor change in the Forest Network did however take place as a number of the check points for Division 3 were manned by Novice operators using the 80 metre band. This was catered for by having a net sub-control operating on both 80 and 2 metres to relay scores back to the main control station. Throughout all of Divisions 1 and 3 there were also two further stations involved. These stations were located at strategic points on the top of hills and were able to act as an "umbrella" to oversee all the nets, thus obviating problems of communication caused by any possible difficult terrain and locations which could crop up due to the hilly type topography of the forest area.

REPEATERS

As well as the networks mentioned some use was made of the two Adelaide VHF

repeaters on each day by net control stations for the purpose of directing operators to their check point positions and establishing the simplex nets. Adelaide Channel 8 repeater was also used throughout the night for the passing of scoring information for Division 2 back to the city.

All in all a large amount of message handling exercise was carried out and the operators obtained most valuable practice in this network operation and discipline and other general field operations which inevitably occur In an event such as this.

SUPERIOR COMMUNICATIONS

Whilst it may not be considered particularly "good form" to mention this fact, we were informed later by the Rally organisers that the communications provided by WICEN were definitely superior to the communications previously provided by a military service unit to support the event.

Thus generally speaking we can be proud of the efforts of our WICEN organisation In this State.

CONCLUSION

I hope that this description of one of our activities has been of interest to you.

Some of the available photographs produced with this article show part of the set up in the main Forest control station.

The large number of operators involved In this exercise precludes the publication of all the call signs and names of such operators. However, it would be most remiss of me if I did not acknowledge the great amount of planning preparation and organising work carried out by John Eastaugh VK5GY, who carried the major responsibility as an Assistant WICEN Co-ordinator for the organising of the exercise. Thanks, of course, are due to all the others who participated in any way.

I also feel sure that, should you wish to participate in WICEN operations within your own Division and join in the fun, at the same time making a worthwhile contribution to both your hobby and the community, your local WICEN Co-ordinator will be very pleased to hear from you.

It does not matter whether you are an HF, VHF, Novice operator or Associate member, you can still make your contribution in some way.

This is yet another worthwhile facet of Amateur Radio which does deserve your solid support. Remember, one day you may be in a position where you might have to handle an emergency, and WICEN can give the opportunity to be fully prepared to do so in an efficient manner. When confronted with such a situation the training you will have received in WICEN will be most valuable. ■

SEANET — THE SOUTH-EAST ASIA AMATEUR RADIO NETWORK

The South-East Asia Radio Amateur Radio Network started in 1964 as an informal gathering on the air of amateur radio enthusiasts in the South-East Asia region for the camaraderie of talking with each other. Meeting daily on 14.320 MHz at 1200 GMT daily, the numbers of amateurs checking into the Net Control Station (NCS) range from Hawaii to East Africa, and from Japan to Australia.

After the South-East Asian amateurs have checked in with the NCS, amateurs throughout the world are given an opportunity to identify themselves to the NCS. Usually there are at least a few from the United States, South America or Europe checking in depending on propagation conditions. And the number of amateurs meeting on the net may range up to 150.

In addition to the ties of friendship fostered by meeting on the network, it also provides a means of testing equipment, contacting friends and if ever needed, emergency communications throughout this part of the world.

The first SEANET convention was initiated by that most indefatiguable SEANET regular Big John Van Lear (9M2IR) with his letter of October 21, 1971, inviting the then-Net Controller Paddy Guneskera (4S7PB) to a meeting in Penang. Some 30 amateurs and guests attended the relaxed informal affair on December 30-31, 1971 — January 1, 1972.

The affair was such a success that it was decided to hold another in Bangkok the following year. This was organised by the Radio Amateur Society in Thailand and the number of attendees grew to nearly 100. And the third convention was held in Singapore in 1973 and hosted by the Singapore Amateur Radio Transmitting Society.

The amateur radio societies in the South-East Asia region have since taken turns to host this annual eyeball QSO — 4th in Manila, 5th In Kuala Lumpur, 6th in Jakarta, 7th in Bangkok and once again it is the turn of the Singapore Amateur Radio Transmitting Society to play host to amateurs not only from this region but also from all over the world.

Because the main purpose of the annual meeting is to give participants a chance for eyeball QSOs, the programme is usually informal. New developments in communication systems, specific topics related to amateur radio, the communication needs of the region and the place of the radio amateur in meeting these needs are some of the topics on the agenda.

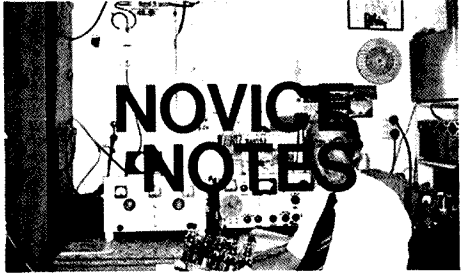
SEANET GUIDELINES

Here are some of the ways in which you, as a SEANET member, can assist the Net Control Station (NCS):

- *NOT* tuning up on net frequency after the net has been called to order, and until the net closes and the channel becomes free.
- *REFRAINING* from checking in under "emergency, medical, urgent or priority traffic" unless a situation really exists. Please do not check in at this time merely to make a contact with another station unless you have a very good reason to do so.
- *NOT* breaking in out of turn. Please wait for your turn and if it has passed, then wait for "late station or late traffic". This does not apply to any emergency traffic you may have; then call "Break" or "Break, Break" for dire emergency. If you want to call a station that has just checked in, then call "Contact".
- *TRYING* to be on time for your turn. The order of check-ins can vary depending on the NCS and his or her location, but there is usually a set pattern.
- *RESTRICTING* your transmission to essentials only on the net frequency, such as RS, QRU, QRV or traffic as the case may be.
- *ANNOUNCING* at your check-in time if you wish to leave the frequency before the net closes.
- *CHECKING* back into the net if you fail to make contact with your assigned station on the assigned frequency. Then call "Check back".
- *CHECKING* back into the net and releasing the assigned frequency to NCS when your traffic is cleared. Say "333 clear", etc.
- *CALLING* "Relay" followed by your call sign to prevent doubling when relaying becomes necessary.
- *REFRAINING* from asking the NCS to hold your traffic for another day.
- *TRYING* to make all contacts on the net during net time with the help of the NCS only.

Thank you and happy check-ins.

Reproduced from 1978 SEANET Convention Handbook. ■



BEHAVIORAL OBJECTIVES FOR THE NOVICE LICENSEE

The Novice should be able to:

1. Operate legally.
2. Tune a rig.
3. Carry on a QSO.
4. Put together a simple station.
5. Show an understanding of common problems.
6. Have some basic familiarity with terminology and equipment common to radio.

To do this he will need to understand:

1. Frequency bands.
   Frequency versus wavelength.
   Power.
   Power relationship with W,I.
   CW requirement.
   Identification rules and methods.
   Logging requirements.
   Definitions of control operator, etc.
   Definitions of prohibited practices, etc.
2. Meaning of controls.
   Meter reading and meaning.
3. International Morse Code.
   Abbreviations.
   Propagation effects.
   Finding a proper frequency.
4. Interconnections.
   Antennas and feedlines.
   SWR and measurement of relays and TR switches.
   Ground and importance of safety concerns.
5. Harmonic radiation and prevention.
   Key clicks and cures.
   Chirp.
   Block diagram of rigs.
6. Ohm's Law.
   R, C and L relationships.
   Resistors, capacitors, etc.
   Tubes and transistors.

Submitted by Graeme Scott VK3ZR, Federal Education Co-ordinator, from ARRL Club and Training Department. ■

★ ☆ ★

TEN COMMANDMENTS OF ELECTRONIC SAFETY

1. Beware of the lightning which lurks in undischarged capacitors, lest it cause thee to be bounded upon your backside in an ungentlemanly manner.
2. Cause thou the switch which supplies large quantities of electrons to be opened and tagged, that thy days may be long on earth.
3. Prove to thyself that all circuits that radiate and upon which thou workest are grounded, lest they lift thee up to a high-frequency potential and cause thee to radiate also.
4. Take care that thou use the proper method when thou takest the measure of high voltage, that it doth not incinerate both thee and the meter; for verily, thou hast no account number and can be replaced easily, the meter doth not have such, and shall bring great woe upon the supply department.
5. Tarry not amongst those that engage in intentional shocks, for they are surely non-believers and shall not be long in this world.
6. Take care that thou tamperest not with interlocks and safety equipment, for this shall incur the wrath of thy seniors, and unleach the fury of the safety officer upon thy head and shoulders.
7. Workest thou not with energised equipment; for if thou doest, thy mates shall surely be buying beers without thee, and thy place at the bar shall be filled by another.
8. Verily, verily, I say unto you: never service high voltage equipment alone, for electric cooking is a slothful process, and thou mightest sizzle in thine own fat for many hours until thy maker seeth fit to end thy misery and draw thee into HIS fold.
9. Trifle not with radioactive tubes and substances, lest thou commence to glow in the instruction books; they give the straight blurb and steer thee away from error.
10. Commit thou the words of the prophets to memory, which are written in the instructions books; they give the straight blurb and steer thee away from error.

From Zero Beat September 1978. ■

★ ☆ ★

LOOK BEFORE YOU LEAP

"Murphy" traps another when converting a CB transceiver to 10 metres!

Recently I decided to convert a Gemtronics 3325 CB transceiver down to 10 metres.

Being in the usual bit of a hurry, I consulted the rather scrappy instruction manual which provided a just readable circuit diagram, together with a comprehensive list of the crystal frequencies used.

The Gemtronics 3325 along with many of the older CB units is not a PLL system, it uses the frequency synthesising mixing system as described in the previous articles in AR of August and September 1978.

A perusal of the crystal frequency chart in the instruction leaflet enabled one to calculate the frequency of the new crystals that would be required.

Altogether I decided to replace the 6 x 11 MHz mixing crystals.

The frequencies listed are 11.000 MHz to 11.250 MHz in 50 kHz steps. These beat with 8 other crystals ranging from 8.1635 MHz to 8.2065 to arrive at the respective CB channels after taking into account the 7.8 MHz filter.

It was a rather simple matter to calculate the required crystal frequency to increase the operation to 10 metres.

A crystal of 12.335 MHz was ordered to replace the existing 11.000 MHz crystal as listed.

I calculated this would allow operation on 28.300, 28.310, 28.320 and 28.340 MHz.

The new crystal duly arrived (at a cost of $9.00) and was inserted into the relevant socket.

Then Murphy struck! — I had expected the crystal just removed to read 11.000 MHz — but it didn't. It read 11.705 MHz.

The manufacturers had done it again! For reasons best known to themselves they had increased all of the 11 MHz mixing crystal frequencies by 705 kHz from that published.

Likewise, the 8 other mixing crystals had been *reduced* by the same amount. Naturally, the amendments were never altered in the instruction book!

A sure trap for young players — and the not so young as it appears.

I only have myself to blame.

This item is published to bring awareness to others of the misfortune that may befall you If you don't *physically* check the frequencies of the crystals in some of these CB sets before ordering new crystals.

The story has an almost happy ending in that I guess "Murphy" also worked in the reverse for me — I only ordered one (1) of the required crystals instead of 6.

Does anybody want to swap a 12.335 MHz crystal for one of 13.040 MHz?

B. Bathols VK3UV ■

★ ☆ ★

LOOKING BACK

Ern Rogers
Rockdale, NSW

In 1933 on a visit to the home of a workmate I spied in a corner of his workshop a strange wireless set in an aluminium case. I knew it was a wireless set because three valves could plainly be seen. A vacant socket was also discernable. I asked my friend what kind of wireless it was. "It's a shortwave set," he said, "but it's no good. One of the valves has blown out and I can't get another anywhere."

In the next few weeks that wireless set was constantly on my mind. I could not help wondering what a shortwave set was and how it worked. Why couldn't my friend get the valve he needed? Had he really tried? In these few weeks my mate had been on holidays and as the time

approached for his return I found myself getting excited. I couldn't work out what happened to me. I didn't realise it then, but the bug had bitten me.

On the first night back I met George at the door. I didn't even ask him about his holiday. "Did you ever get a valve for that shortwave set?" I asked him.

"No," he replied, "they're unobtainable. You couldn't find one in all Sydney." "Why don't you sell it then?" I said. He looked at me in disbelief. "Who would buy the blank blank thing?" he asked. "I would," I answered rather too eagerly, "I'll give your a fiver for it."

And so the big deal was made. He agreed to drive over with it at the week-end. But I couldn't wait. I knocked at his door early next day, fiver in hand. He asked me how I was going to get the set home. I said I would carry it. "You must be joking," said George. "Have a look at it." I spotted the little receiver on the bench, all cleaned up and shining brightly. I was puzzled by the weird contraption beside it. "That's the power supply," I was told. "It weighs a ton!" And I reckon it did. It consisted of a Philips B eliminator and a 4 volt filament transformer. I decided to let George bring it over at the week-end.

The set duly arrived. My mate explained it all to me. "It's a TRF (tuned radio frequency)," he said, "with a regenerative detector." He wished me luck in finding an E424. I set out early on Monday morning in my search. Eventually I found a little shop in George Street with the required valve. I was able to get a spare set of the other valves in the set — E424 RF, E424 detector, E415 first audio amplifier and 8406 output. I rushed home and plugged in the missing E424. Once I had learned the intricacies of the reaction control the stations rolled in. This was the beginning of a long period of enjoyment. It was a wonderful experience.

I know it is ridiculous, but I regard it as the finest set ever made. I was sorry to part with it — I sold it for a fiver. One of the E424s burnt out and I couldn't find a replacement.

From Westlakes RC Newsletter, February 1979. ■

ANTENNA PERMITS (and other non-events) IN S-E ASIA

Dick Goslin VK3SV

The writer recently spent a few weeks in Singapore and Indonesia. The following notes may be of interest to other amateurs considering a visit to these areas.

SINGAPORE

Together with a VK2 visiting Singapore for a Seanet Convention, I spent a pleasant afternoon with Jim 9V1TE, communications officer at the US Embassy. Jim lives in an apartment provided by the US Government, and after prolonged negotiation with local authority received written permission to erect a quad on his penthouse roof. Some time later the authority telephoned to say that a gentleman (?) living nearby had objected to the antenna on aesthetic grounds and that it must be removed forthwith. In view of the permit issued to him, Jim naturally declined to do so. Following a further telephone call from the authority, a working party arrived with a notice of revocation, dismantled the quad and stacked the pieces neatly on Jim's balcony where they still lay at the time of my visit. Jim is now operating with a vertical and keeping his fingers crossed against further "QRM".

David Rankin VK3QV/9V1RH is fully occupied with settling into his new home with XYL and 13 month daughter Sheila, as well as with his increasing business commitments. Due to shortage of time on both sides, we were unable to meet each other on this occasion, but managed a short telephone contact before he left his office to supervise the finishing touches at an electronics exhibition in which his company had a number of stands. David and family hope to spend a few weeks in Melboure in the near future, his first holiday in VK-land since transferring to Singapore several years ago.

With no 2 metre facilities available in Singapore such as we enjoy here In Australia, it is not surprising that many amateurs have little knowledge, either personally or on air, of other operators who in some instances may be living only a relatively short distance away by our standards. Of some 50-60 licensed operators in the 225 square miles of Singapore Island, only a small number are active, and as a consequence there is very little marketing of amateur equipment. Except for replacement components such as PA valves, etc., not much is available "off the shelf". I found only one 10-160 metre rig for sale ex stock, and no information was forthcoming about its suitability for use in Australia. Price asked was only fractionally better than that advertised in VK for a similar transceiver.

JAKARTA

About a month before starting our holiday, I had been working Lumbangaol YB0WR on 20m. On learning that we would shortly be at Jakarta, he offered to meet us at the airport and spend an hour or so driving us around the city. I explained that as passengers en route to Bali we expected to be confined to the transit lounge and therefore unable to join him. However, we found after completing the usual formalities that we were free to wander as we pleased until shortly before the connecting flight was due to leave some 2½ hours later. As a request for Lumbangaol to meet us at such short notice could possibly embarass him, we contented ourselves with a phone call to his office. Another non-event, but the transit arrangements at Jakarta may be of interest to amateurs passing through Halim Airport en route to other destinations in Indonesia. Lumbangaol's address is Box 4602, Jakarta, and his office phone numbers are 41 4521 and 41 3747.

BALI

No stations on the Island of Bali are listed in the 1976 ARRL call book, but a chef at one of the hotels assured us that there are now five amateurs operating from the capital Denpasar, which is midway between the main holiday resorts of Kuta Beach and Sanur Beach, and that he knew one of them personally. This information was received only the day before we left so I was not able to follow it up. The chef is a daily listener to Radio Australia before commencing duty at 7 a.m. He has a better-than-average knowledge of English and attributes this to the assistance he receives from Australia's foreign language service.

ACKNOWLEDGEMENT

Due to some flights being cancelled by the Indonesian authorities, we were required to leave Bali a day before schedule, and at very short notice. Through the co-operation of VK2HH and VK3NJ I was able to inform our family in time for them to meet us at Melbourne airport a day earlier than originally planned. Thank you, Harry and Ken — your assistance was greatly appreciated. ■

Visiting Hong Kong

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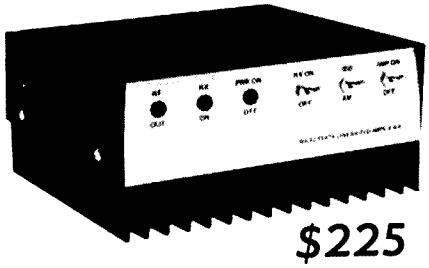

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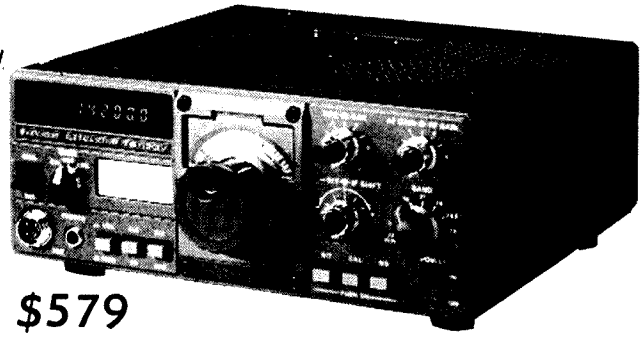

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VHF PROPAGATION BETWEEN ALBANY AND ADELAIDE

C. J. Hurst VK5HI
K. G. McCracken VK2CAX

This is a report of the analysis of a portion of the project ASERT[1] data for January 1979. These data are singled out for immediate analysis since they demonstrate, very clearly, some phenomena of immediate practical importance to the VHF amateur.

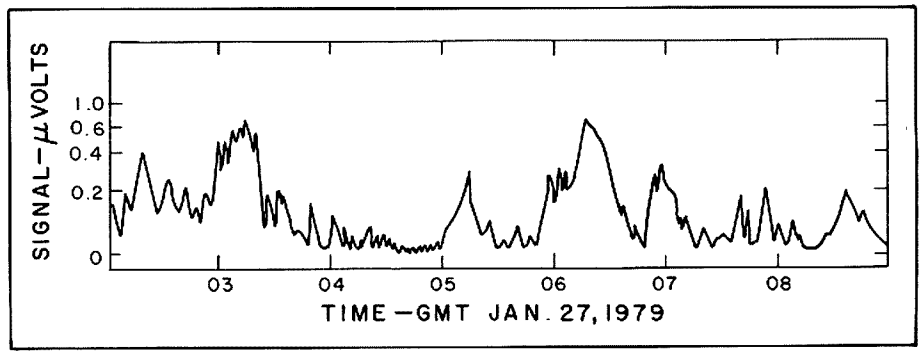


FIGURE 1: A copy of the rustrak record of the 144 MHz Albany beacon as received in Adelaide on 27-1-79. The wedge on 22-1-79 indicates the occurrence of a FM QSO between VK5 and VK6.

Figure 1 displays the signal strength of the 144 MHz Albany beacon, VK6RTW, as received at Adelaide on 27/1/79. The data was received at the QTH of VK5HI, using a TS.700A receiver, and a ten dB gain yagi at a height of 15 metres. The voltage across the signal strength meter of the TS.700A was recorded on a "rustrak" chart recorder, running at 25 mm per hour. The strongly fluctuating nature of the signal, with periodicities ranging from less than one minute to the order of an hour, is clearly seen.

Figure 2 is derived from the data such as Figure 1, and summarises the state of the Albany to Adelaide path at 144 MHz throughout the period 20/1/79 to 27/1/79. The solid histogram gives the peak signal received in Adelaide during each hour, while the graph plotted below the histogram gives the percentage of that hour that the circuit was inferred to be open for SSB operation (see below). Note that this latter graph is plotted upside down.

About 0700 GMT on 22/1/79 VK6OE worked VK5NX in Adelaide via the VK5 repeater, VK5RHO. The beacon signal on the recorder chart for that time was 0.17 uV RX input voltage. Assuming that this signal strength on the beacon recorder represented the threshold for a FM contact between Albany and Adelaide (this assumption will be discussed later), Figure 2 (and the data for 28/1/79) shows that the beacon exceeded this threshold during each of 44 different hours during the nine day period under study. That is, we infer that the Albany to Adelaide path was open for FM for 20 per cent of the hours during this interval.

The path gain for SSB is some 4 dB greater than for FM on account of the narrower bandwidth. This suggests that 0.1 uV at the beacon receiver would be a suitable indicator of the threshold for SSB communication. Figure 2 shows that the beacon signal exceeded this threshold during 90 separate hours; that is, the path was open for SSB for 42 per cent of the hours in the 9 day interval under study. (Note, however, that for many of those hours the path was only open for 10 to 20 per cent of the time.)

Table 1 lists the number of hours in the total 9 day period for which the beacon signal exceeded 0.1, 0.17, 0.27, 0.42 and 0.63 uV in Adelaide. (These rather strange values correspond to the major scale divisions on the rustrak chart.) It shows that the strongest signals, and the most prolonged openings occurred on the 21st, 22nd, 26th and 27th of January. Table 1 also shows that these four days were precisely those for which a major atmospheric high was situated in the Great Australian Bight, between Albany and Adelaide.

The above correlation is well known to VHF operators. Perhaps of more interest is the fact that the path was open, briefly, on every other day in the period under study. Figure 2 shows that these openings, however, were very brief and tenuous. Consider 25/1/79 as an example. If the path were open during an hour, it was usually only for from 10 to 20 per cent of the hour. The detailed chart records (similar to Figure 1) shows that this 10-20 per cent was made up from many short-lived intervals of from 1 to 2 minutes' duration, the signal barely exceeding the inferred SSB threshold on each occasion. The path was open, but only just!

The data from Table 1 have been plotted in Figure 3 to demonstrate the dependence of "hours open" upon signal threshold. This graph provides great insight into the properties of VHF communication at these ranges, and is discussed in detail in the following paragraphs.

Table 2 interprets Figure 3 in terms of normal amateur practice. A less efficient receiving antenna, increased cable loss, reduced height gain, or an increased receiver noise figure could all reduce the reception gain below that used for these tests. Reductions of 3, 6 and 9 dB are

TABLE 1

The number of hours for each day in the study interval for which the peak signal exceeded five reference levels. "Yes" in the last row indicates the presence of a pressure high between Albany and Adelaide.

	Day									
Threshold (uV)	20	21	22	23	24	25	26	27	27	SUM
0.1	1	18	12	6	6	9	16	21	1	90
0.17	1	9	4	1	1	2	7	19	0	44
0.27	0	4	1	1	0	0	4	15	0	25
0.42	0	2	0	0	0	0	3	12	0	17
0.63	0	0	0	0	0	0	0	2	0	2
Pressure High		Yes	Yes					Yes	Yes	

TABLE 2

Gain (dB) Reception	Transmission Gain		
	—6	0	+6
0	17%	42%	
—3	11%	26%	
—6	7%	17%	42%
—9	3%	11%	26%

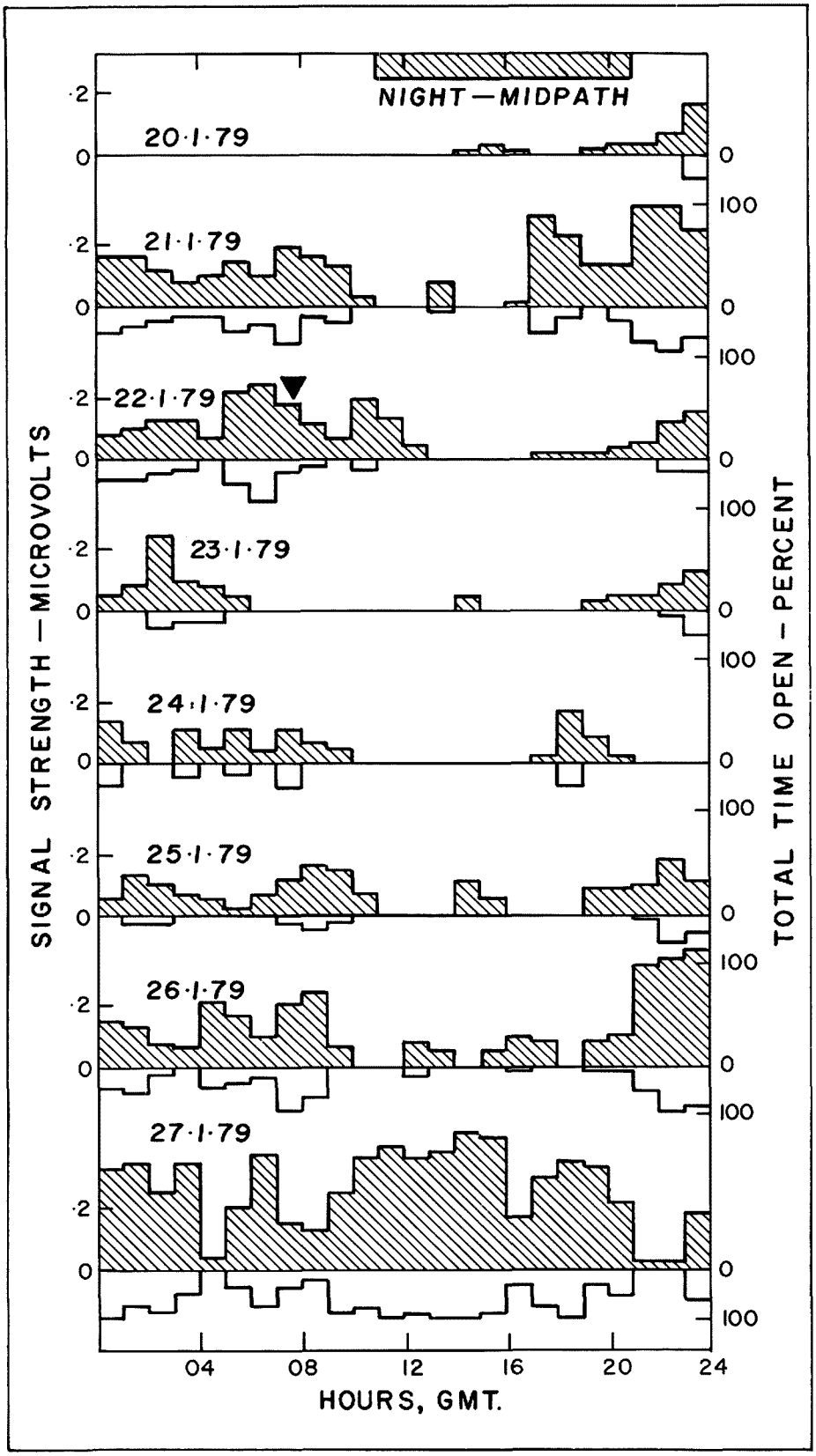


FIGURE 2: The peak signal strength for each hour, and the fraction of that hour for which the Albany-Adelaide path was inferred to be open for SSB.

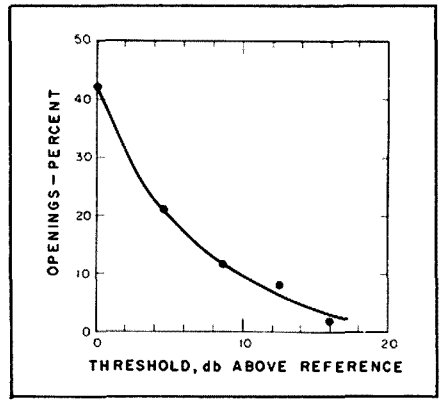


FIGURE 3: The manner in which the number of hours for which the Albany-Adelaide path was inferred to be open for SSB, against receiver threshold.

taken as representative of that which might be met in practice.

Transmission gain can vary because of greater, or less power, different antenna gain, increased cable loss, or different height gains. Gains of +6 dB and —6 dB are taken as indicative of current practice relative to the Albany beacon.

From Table 2 it is clear that the ability to communicate depends extremely strongly upon the gain parameters at each end of the path. Thus Table 2 shows that "normal practice" could have resulted in frequencies of communication varying between 3 per cent and in excess of 42 per cent during the study period. It is sobering to remember that it is relatively easy to "lose" 6 dB in a receiving installation (e.g. 2 dB in the antenna, 2 dB in the cable, and 2 dB due to a higher than optimum noise figure, each of which appears relatively trivial) and yet the overall penalty is great (17 per cent versus 42 per cent). Stated differently, a few dB improvement in either transmission or reception gain results in major improvements in communication efficiency.

The scientific facts in Figure 3 belie the common belief that "when the band is open on VHF, anything will get through".

An important goal of project ASERT will be to determine the extent to which the Inferred performance figures in Figure 3 actually relate to the amateur experience. In doing this we will be able to correct any errors made in our assumed thresholds for FM and SSB communication. To this end, project ASERT requests that any SSB or FM operators that worked the Adelaide-Albany circuit on 144 MHz in the period 20-28/1/79, provide the details of your contacts to Project ASERT, Box 150, Toorak 3142. Please give date, time (GMT), station worked, mode, RS and your estimated power output and antenna type.

REFERENCE:

(1) R. C. Arnold, "Amateur Radio", 47: No. 2, February (1979). ■

THE IMPORTANCE OF AMATEUR REPRESENTATION AT WARC 1979

The following article is reprinted with acknowledgements to the EMDRC Radio Bulletin for March 1979 as the contents deserve wide publicity. The article was written by Jack O'Shannassy VK3SP.

Michael Owen VK3KI, Jack O'Shannassy VK3SP and David Wardlaw VK3ADW discuss WARC problems. Photo by Bill Rose VK3ZMI.

"A short time before Christmas the Australian delegation to the Special Preparatory Meeting (SPM) of the World Administrative Radio Conference, 1979 (WARC), returned to Australia. The delegation had spent four weeks in Geneva, towards the end of the European autumn, and were glad to be back to the warmth of Australia. Under the leadership of the First Assistant Secretary P. and T. Department (Mr. Jim Wilkinson) the 15 man delegation had been more than busy putting the views of Australia as contributions towards the production of a Technical Report which will be a very important input document to the WARC which commences in September, 1979.

A notable 'first' for this delegation was the inclusion of an Amateur as a full time Delegate. Because of the difficulty of obtaining the necessary time for their normal occupations, the work was shared by two people — David Wardlaw and Michael Owen. In the past, Amateur involvement In International delegations of this nature has been confined to the production of briefing documents only, or, on rare occasions, to the presence of an Amateur as an Observer.

Representation of the Amateur Service in the Delegation by a full time Delegate on this occasion is due partly to the balanced outlook of Jim Wilkinson, who accepts as desirable the representation of non-Government frequency users and partly to the availability of Amateurs with the energy and ability of Michael Owen and David Wardlaw and, just as important, their availability to attend the many preparatory meetings and drafting sessions over a period of many months.

TECHNICAL VIEWS IMPORTANT

It is tremendously important to have technical views which you wish to be used as the basis for decisions of WARC agreed to in the SPM and printed In Its Report. It is only in the comparatively technical atmosphere of the SPM (which is *not* a frequency allocation conference) that technical arguments can be put and may be accepted in a more logical engineering climate.

At the WARC itself many other factors — particularly those of an economic social and political nature — are balanced against the purely technical considerations. The fact that the SPM Report contains almost all of the views which Australian Amateurs consider to be important is a tribute to the preparatory work in Melbourne and the work in Geneva of our joint Delegates.

Although many nations at the Conference expressed an interest in the Amateur aspects of the SPM, In the event only three nations made a written input — USA, Canada and Australia. In almost every aspect of radio technical matters In the ITU arena the Australian Input has a particular significance. When considering our small population this may seem surprising. The reason why the Australian view carries so much weight in Geneva is due to a combination of factors — some political, such as our non-alliance with any major political power, some technical, in that Australia despite our small population is regarded as technically advanced in communication technology generally, and some commercial, in that there Is no large nationally supported radio manufacturing industry in this country.

In addition, because of our small population, our views are often accepted by other small nations, and, because of our low population density and large distances, our technical approach to communication problems generally is more allied to the problem of lesser developed nations. We also have the advantage of speaking English as our mother tongue. Although French is the language which prevails in the event of a dispute in the ITU, English is the main working language and the language used by the majority of nations attending.

PREPARATORY WORK

Success at a conference such as the SPM requires more than active participation In Geneva. It requires a large amount of preparatory work in Australia leading to the preparation of the official Australian Brief, and in particular, it requires the preparation of Input Documents which are clear, technically sound, generally acceptable to a wide range of nations, and worded so that their message is clear and unambiguous. In this regard it is significant to note that many of the agreements and recommendations contained in the Report of the SPM were taken almost word for word from the Australian input documents. This is a tribute not only to our delegates in Geneva but also to the dedicated group of Amateurs working behind the scenes who helped in the preparation of our input documents.

The main issues of concern to the Amateur Service in the SPM Report came under the following headings:

- — The appreciation of the nature of the Amateur Service.
- — Recommendations concerning frequency bands below 30 MHz.
- — Recommendations concerning frequency bands above 30 MHz.
- — Recommendations concerning the Amateur Satellite Service.

The wording of the Report concerning the nature of the Amateur service is very much to our satisfaction. The recommendations concerning the needs of the Amateur Service for bands below 30 MHz contain recommendations which we considered of Importance, e.g., additional frequency bands in the vicinity of 10, 18 and 24 MHz.

The only notable exception is the absence of a recommendation concerning the

proposed new low-frequency band in the vicinity of 160-190 kHz. The recommendations for frequency bands above 30 MHz in general agree with the Australian view, both as to bands and the desirability of wider bands in some cases which could be shared with the Radiolocation Service. So far as the Amateur Satellite Service is concerned, the recommendations are very close to our views.

Although the SPM is a 'preparatory meeting for WARC' this should not be taken to mean that it was small or unimportant. Over 750 delegates attended, representing 85 nations. Fifteen special organisations attended (including the IARU) and 30 private operating agencies were also represented. A total of 368 input documents were processed.

By comparison, the WARC will have representatives from about 140 administrations with more than 1000 Delegates. It is expected that there will be more than 1000 input documents which represent a tremendous amount of paper to be processed and information to be absorbed by the Delegates attending.

TEN WEEKS CONFERENCE

The WARC, which commences in September, runs for 10 weeks into November. This is a very long period for a conference of this nature, taking account of the climate in Geneva at that time of the year and the very heavy pressures which will be exerted on the Delegates from smaller nations such as Australia. The timetable for conferences of this type is essentially set by the nations with the larger delegations, e.g., USA, UK, USSR and, as a result many simultaneous meetings result.

As the Conference progresses, the work tends to spread into the evening hours and occupy part or all of the weekends. These extended hours, together with the necessity for daily Delegation co-ordination meetings and the preparation of additional input documents, and the very cold climate (in (Australian terms) combine to put a heavy load on all of the Australian delegates.

Whilst there is an excellent degree of co-operation and sharing of workload amongst the Australian Delegates, it is clear that the Amateur service case is best put by the one Delegate at WARC (David Wardlaw), the combination of long working hours and the cold climate raises the possibility of his being unavailable at some stage due to illness. It would be very desirable if the Amateur service could have a second representative to cover this possibility and also to help in the presentation of the Amateur case generally.

The availability of another Amateur Delegate however, involves a very considerable cost and raises the problem of finding a suitable person with the appropriate background and the necessary time to attend the preparatory meetings over a period of many months before the Conference, and whose business will allow him to be absent overseas for 10 or 11 weeks without salary.

TECHNICAL AGREEMENTS NECESSARY

Without the necessary technical agreements reached at the SPM, the Amateur Service would have an almost impossible task at the WARC. However, success at the SPM does not automatically mean success at the WARC. The comparatively calm technical climate of the SPM will be replaced by an actively political climate at the WARC and many nations who had little to say during the technical discussions at the SPM may be much more vocal at the WARC.

ACTIVE OPPOSITION

Although there is evidence of a more widespread support for the Amateur Service in recent times there are still quite a few countries which actively oppose the Amateur movement. There is no doubt that the spectrum available to Amateurs over the next 20 years will be dependent in no small measure on the efforts of the Amateur Delegate in the Australian Delegation to WARC 1979 and on the support he gets in the preparations for that Conference." ■

EQUIPMENT REVIEW:

THE ETO ALPHA 76 PR LINEAR AMPLIFIER

Ron Fisher VK3OM

This is the first time that a linear amplifier has been the subject of a review in this magazine and it was instigated when James Goodger of Australian Sound and Signal Research offered one of ETO's Alpha 76 PRs for our appraisal.

These amplifiers are made in the USA by Ehrhorn Technological Operations Inc. of Canon City, Colorado. ETO have built up quite a reputation over several years in the production of linears and the 76 PR is representative of their current production.

Naturally as these units are designed for use in the USA they are rated at power levels well above the Australian maximum output of 400 watts PEP. Before putting the 76 on air, I rang the local Radio Branch to check on the legality of using such a unit. It appears that so long as the PEP output is kept at 400 watts or below that all would be OK. However, it was stressed that the onus was on the amateur concerned to prove this to the department in the event of an inspection.

In view of this it might be a good idea to look at the specification of the Alpha 76 PR.

Frequency Coverage: 1.8-2.0 and 3-30 MHz.

Plate Power Input: 3kW PEP and typical RF output to 2kW PEP. CCS input 1 kW average or key down.

Drive Power: Nominal 100 watts PEP, 60 watts carrier.

Input and Output Impedances: Nominal 50 ohms resistive, unbalanced; VSWR 2 : 1 or less.

Distortion: Third order IM more than 30 dB below 1 kW PEP output.

Harmonics: More than 50 dB below mean fundamental frequency output.

Tube Complement: Three Eimac 8874s ceramic-metal grounded-grid triodes.

Cooling: Full-cabinet, ducted forced air; centrifugal blower.

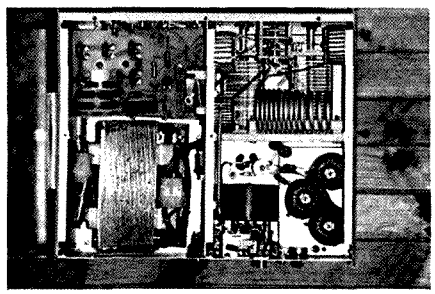
ALC: Adjustable threshold, negative-going standard as shipped.

Protection: Primary fuses, plate overcurrent relay, AC and HV interlocks.

Primary Power: 240 volt at 10 amps or 120 volts at 20 amps nominal. 50/60 Hz.

Size and Weight: 7.5 in. high, 17 in. wide, 14.75 in. deep, and shipping weight 75 lb. Well so much for the figures, let's take a look at the amplifier both inside and out.

Alpha 76



What is inside the Alpha 76

First one point is that the 76 PR is a special model with three tubes in parallel. The standard 76 has two and is rated at a mere 2.5 kW PEP input. However, as the power supply is the same for both models the average power input remains the same.

It should be noted though that the particular 76 PR imported by Australian Sound and Signal Research is fitted with an extra

heavy duty power transformer and power supply section. However, apart from this information there is no specification on the difference between this and the standard supply.

Reference to the illustration reveals that the 76 PR is a handsome but large unit. Both the cabinet and front panel are of heavy plastic covered aluminium with a smooth ripple finish.

The row of push buttons under the meter select the various meter functions. These are High Voltage, Grid Current, Plate Current and Forward and Reflected Power. Under these again are the AC on switch and the SSB/CW TUNE switch. The AC switch is spring loaded and it is only necessary to push it down momentarily then release to lock in the AC switching relay in the power supply.

As most of the overall weight of the unit Is in the power transformer, this is shipped In a separate package to the amplifier and is installed by the owner. The reason for this is obvious when the smallish box containing the transformer is picked up, and then immediately put down again to get a better grip. Installation of the transformer is, with the exception of the weight, an easy job. The side panel comes away with the removal of several screws, the transformer is bolted in and the electrical connections are completed with two pairs of multi-pin plastic connectors. The above procedure is fully explained in the excellent instruction book.

Interior layout and construction is quite superb. Liberal use of ceramic stand-offs, a large sliver plated coil for the higher frequency bands with large toroids for the lower bands. It is interesting to note that the input is untuned but a balun is provided to give an optimum impedance match into the three 8874s. The centrifugal blower draws air from the outside around the power transformer, past the tubes and up through rubber tubes to three outlets in the top of the cabinet.

Both the tuning and loading controls are operated via smooth reduction drives and a 0-100 scale is provided for logging on each. It is interesting to note that the models sold In the United States no longer Include the ten metre band. Apparently quite a large percentage of linears sold were going into the CB market, so the elimination of ten metres is calculated to overcome this.

On connecting the Alpha to the driving transceiver our first criticism was brought to light. The input connector is nothing more than a phono type socket. Why not a BNC or even another SO-239? As there is no way to lock a phono plug in this would have to be considered non-professional. I know that these connectors are common in American made gear for RF purposes but in a unit of this class is somewhat out of place.

Safety interlocks are provided on both the high tension and AC lines. Should the amplifier top cover be removed for inspection, the HT would immediately be shorted to ground and the primary AC voltage removed. Even the forgetful expert is therefore protected.

Plugging in the AC cord and switching on brings our second (and final) criticism. The blower system is very noisy. Not only that but there is also a degree of rumble which is transmitted into the desk or table on which the unit is sitting. Perhaps blower noise is a subjective thing that might bother some people more than others, but if I were using an Alpha I would want it on a separate table several feet from the operating position. At initial switch on, the meter is illuminated red and it is necessary to wait for the delay circuit in the power supply to operate before tune-up is commenced. Delay conclusion is signalled by the meter illumination turning green. A front panel switch selects either high or low voltage for tune-up CW or for SSB operation. For Australian conditions the low voltage setting should be used at all times. However, here comes the problem. Tune-up requires the amplifier to be run at an input of 1 kW and so the use of a dummy load is mandatory. An accurate RF power meter and a monitor oscilloscope are also required equipment.

SWITCHING

Switching the amplifier to "transmit" is by shorting the operate line to ground. This Is normally done by a relay connection in the driving transceiver. In the non-transmit situation, the antenna is connected through for normal receiver operation.

Well, just how does one check out a 2 kW output linear at 400 watts output? Two things can be said right away. The amplifier runs stone cold at all times and distortion products are much further down than the specified —30 dB. This of course assumes that the exciter is clean.

However, when using modes other than SSB it is necessary to run the amplifier at a maximum of 150 watts input to comply with local regulations.

Unfortunately I do not have access to a spectrum analyzer, but reference to a QST review of January 1978 indicates that the third order distortion products are around 40 dB down on full PEP output so one can expect at least this figure at 400 watts. When one considers that some of the older transceivers using sweep tube finals are struggling to reach 20 dB down, some idea of the Alpha's performance can be seen. For our on-air tests the 76 PR was driven with a Kenwood TS-820 transceiver and the output taken via a Drake W-4 wattmeter and a Heath SB-610 monitor scope. A Heath Cantenna was available for high power testing. With everything running full on, just on 1700 watts carrier was delivered to the Cantenna. ETO make quite a point in their advertisements that you can put a brick on the key and hold the power output at full steam indefinitely. I am sure the 76 PR would take it but the Cantenna certainly would not. Under the same conditions PEP output as indicated on the scope was around the 2000 watt mark.

Provided that the drive level was kept constant, the output from the Alpha remained essentially constant from band to band.

Bringing things back to 400 watts for our on-air tests only requires the exciter to deliver about 30 watts PEP.| A check with a local station showed that the 400 watt output signal was in fact slightly cleaner than the TS-820 running alone at full power. Perhaps a run down on the method of checking this might be of interest. With the TS-820 and a few other transceivers, it is possible to switch to the opposite sideband without changing frequency. This means that the strength of the unwanted sideband can be read on the "S" meter. Now it follows that the reading will be the product of two things, the unwanted sideband and the distortion products of the transmitter. Naturally, too, the sideband rejection of the receiver also comes into it. However, assuming a good receiver filter and transmitter sideband suppression of 40 dB or better, the thing that will show up is the distortion products of the transmitter. If the calibration of the receiver "S" meter is known then the distortion can be checked with fair accuracy.

The instruction manual is well written and contains all the information needed to use and possibly service the Alpha. The only thing missing is a printed circuit board layout in the power supply section.

SERVICE

In so far as service is concerned, I will quote from the covering letter received from James Goodger. "As a normal predelivery check we operate all our amplifiers on all bands 160-10 metres checking power output, making sure there are no problems after the journey from the USA. By doing this we have no problems with any amplifiers that we have sold. To hand is also a fully equipped workshop, and our 24 hour order number (02) 36 7756 ensures that an electronic engineer will answer any technical queries as soon as he starts work. Both our engineers are extremely familiar with Alpha, Dick Ehrhorn Products, as both have had considerable time in the factory with Dick, enabling them to often pinpoint problems over the phone."

Well, just where does an amplifier of this type fit into the Australian scene? Perhaps this is a bit like saying where does a Porsche sports car capable of 250 kilometres per hour fit into our restricted speed limits? In other words there is more to it than sheer speed in a car and perhaps power in a linear amplifier. However, there is also no doubt that both take expert handling. For further details on price and delivery, all enquiries should be addressed to James Lindis Goodger, c/o Australian Sound and Signal Research, GPO Box 5076, Sydney 2001, NSW, or telephone (02) 36 7756. ■

"WOODPECKER" BALONEY OR WHAT?

Alf Chandler VK3LC
Federal IW Co-ordinator

Although the USSR has indicated that the P0 pulse signal has been minimised it still bugs all Amateurs throughout the world.

The screed published below has been received at this QTH from three separate sources:

"From the West Coast DX Bulletin, 14th February, 1979:

THE RUSSIAN WOODPECKER

If you have not heard this one, you have not been on the air in the last year or two. Like a lot of other things, you try to live with it and wish it would go away but it seldom does. Maybe if you know a bit more it might help to tolerate the continuing burden. The following information compiled by W3 . . . ."

"The 'woodpecker' Is a long range radar and the range can be estimated by noticing that the repetition corresponds to 25 w.p.m. CW dots. At this speed, the time from dot to dot is 96 milliseconds and this means that the radar range is roughly 47,000,000 feet or 8950 miles. This 'on-the-air' estimate was done without instruments so it is probably a bit in error. If the actual design range was 15,000 km or 9320 miles, the error in the estimate would only be 4 per cent.

Presuming a 10 megawatt source and 18 dBi of antenna gain, the ERP is 88 dBw. However, if you figure twenty metres at 1000 miles, this immense signal is reduced by path loss to a mere 0.0006 watt.

This might make some think that a 1 watt jammer would have an advantage over the woodpecker of over 1000 : 1 but this is not correct. Not all of a jamming signal will be effective unless it is able to pass through the IF and Video filters of the radar. A constant carrier is not effective at all because it is rejected as a DC level by the AC coupled video circuitry of the radar.

However CW dots will get through, this assuming a rise time of 1 millisecond for amateur CW, and an additional 20 dB advantage is given back to the radar because of the mis-match in rise time, Video bandwidth and corner frequency. Notice that the CW dot jammer, even if only 1 watt, still has a 10 to 1 advantage. It might even be that a 100 watts or 1 kW would be even better.

There is some reason to believe that the above is true. For one thing the woodpecker is only heard on the phone bands where voice envelopes can be rejected by the radar video circuit. *Also, when someone is sending CW dots at 25 w.p.m. the woodpecker usually QSYs within five minutes.*

Some who have studied the situation have noted that persistent CW sending on the woodpecker frequency has had them go QRT, one instance it lasting for about three weeks, returning with a new gimmick. The woodpecker showed with a frequency hopping mode. If problems developed, the woodpecker would hop to some other frequency on the amateur band.

However, the woodpecker must have an IF bandwidth of 20 kHz in order to process the 100 micro-second pulses that they transmit and thus there are not many such hops possible within one ham band. Observation tends to reinforce this thinking, only about eight operators sending dots at 25 w.p.m. spaced 20 to 30 kHz across a band would eliminate the advantage gained by the frequency-hopping technique.

Son of a Gun! This is high level technical stuff and we did note that deliberate jamming might not be exactly kosher. One bright type came back with the information that he had heard on two metres that H5HHH was on from Baja Bophuthatswana and that he was calling him but having trouble counting all of those dots. A likely story!!"

Is the above interesting to you? I found it so. From K6WM.

Do you think the above baloney, as "experts" in New Zealand seem to think, OR WHAT?

And, by the way, my QTH after the first week in May will be as follows:—

Alf Chandler VK3LC, 15 Point Avenue, Beaumaris 3193. ■

AMATEUR SATELLITES

Bob Arnold VK3ZBB

OSCAR 7
Still working on occasions, generally on Mode A unless commanded on to Mode B. Telemetry is garbled.

OSCAR 8
Working well on all Modes. Mode J on Saturday, Sunday and Wednesday; Mode A at other times.

RS
Telemetry working on both RS1 and 2.

My only record of the transponder being ON is orbit 1492 on 27 Feb.

RS2 power supply is having some difficulties due to excessive radiation effects.

PHASE III
Scheduled for launch on 3rd March, 1980.

AMSAT
Seems to have forgotten Australia — no newsletter received since June 1978 — so much for our interest and past record.

ORBIT PREDICTIONS — MAY 1979

	OSCAR 8			RUSSIAN RS.1		
Date	Orb. No.	Eqx Z	Eqx °W	Orb. No.	Eqx Z	Eqx °W
1	5877	0039	54	2235	0109	170
2	5891	0044	55	2247	0114	173
3	5905	0049	56	2259	0118	176
4	5919	0054	58	2271	0123	178
5	5933	0100	59	2283	0128	181
6	5947	0105	60	2295	0132	184
7	5961	0110	62	2307	0137	186
8	5975	0115	63	2319	0142	189
9	5989	0120	64	2331	0147	192
10	6003	0126	66	2343	0151	195
11	6017	0131	67	2355	0156	197
12	6031	0136	66	2366	0000	170
13	6045	0141	69	2378	0005	173
14	6058	0003	45	2390	0010	175
15	6072	0008	46	2402	0014	178
16	6086	0013	47	2414	0019	181
17	6100	0019	49	2426	0024	183
18	6114	0024	50	2438	0029	186
19	6128	0029	51	2450	0033	189
20	6142	0034	53	2462	0038	192
21	6156	0039	54	2474	0043	194
22	6170	0044	55	2486	0047	197
23	6184	0050	57	2498	0052	200
24	6198	0055	58	2510	0057	203
25	6212	0100	59	2522	0102	205
26	6226	0105	61	2534	0106	208
27	6240	0110	62	2546	0111	211
28	6254	0116	63	2558	0116	213
29	6268	0121	65	2570	0120	216
30	6282	0126	66	2582	0125	219
31	6296	0131	67	2594	0130	222

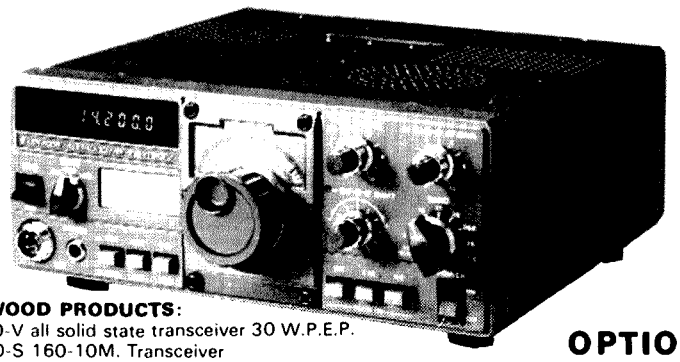
RS.2 lags RS.1 by 30 minutes and 5°

Sideband Electronics Sales

TRIO KENWOOD COMMUNICATION CENTRE

Trio-Kenwood Amateur Equipment
Trio-Kenwood Test Instruments
B & K Precision Test Instruments.

KENWOOD



KENWOOD PRODUCTS:
TS-120-V all solid state transceiver 30 W.P.E.P.
TS-520-S 160-10M. Transceiver
TS-820-S 160-10 M. Transceiver
R-820-S 160-M. Transceiver
R-820 Communications receiver
TS-700-SP. All mode 2M. transceiver.
TS-600-A All mode transceiver
TS-7000-A 2.M FM. 25W. Transceiver
TR-7500 2.M. FM. 10.W transceiver
TR-7600 2.M. FM digital transceiver 800 CH.
TR-8300 70. CM. FM. Transceiver
VB-2200-A. Power booster for TR-2200
VFO-30-G Remote VFO for TR-7200 TX-12. MHZ-RX. 45. MHZ.

OPTIONAL ACCESSARIES
VFO-120
PS-20
MB-100
YK-88C
SP-120

KENWOOD PRODUCTS
TR-7200-G 2.M. FM 10.W Transceiver
TR-7010 2.M. SSB 10.W. PEP Transceiver
TV-502 2.M. Transverter
TV-506 6.M. Transverter
TL.922 2 KW. PEP. Lineal amplifier
SP-8 Regulated Power supply 8.Amps
VFO. 520-S External VFO for 520-S
VFO. 820 - External VFO for 820-S
VFO. 700-S External VFO for TS-700-SP
SM-220 Station monitor
BS-8 and BS-5 PAN adaptor
SP-820 Deluxe Speaker consul
SP-520 Speaker consul
SP-70 Speaker consul for TS-700 & 600
VOX-3 Vox unit for TS-700 & TS-600
DS-1-A DC converter for 520-S & 820-S
DG-5 External digital display TS-520-S
AT-200 Antenna coupler
MC-30-S Microphone 500 OHM
MC-35-S Microphone 50. K. OHM
MC-10 Microphone 50. K. OHM.
MC-50 Deluxe desk Microphone dual imp
HC-2 Deluxe Ham clock
YG-68 CW. filter for TS-820
YC-3395 CW filter for TS-520
LA-30-A Lowpass filter
HS-5 Headphone
HS-4 Headphone
RD-15 Dummy load 450 MHZ. 15. Watts
RD-300 Dummy load 150 MHZ. 300 Watts.

HY-GAIN ANTENNAS

12-AVQ 10-15-20M vertical 13 ½" tall	$50
18-AVT/WB 10-80M vertical 23" tall	$125
TH6-DXX 10-15-20M senior 6 el. yagi 24' boom	$300
TH3-MK3 10-15-20M senior 3 el. yagi 14' boom	$240
TH3-JR 10-15-20M junior 3 el. yagi 12' boom	$175
204-BA 20M 4 el. Tiger Array 26' boom	$230
HY-QUAD 10-15-20M full size cubical quad	$260
2M 5 el. Yagi w/balun 6'3" boom	$25
2M 8 el. Yagi w/balun 12'5" boom	$30
2M 14 el. Yagi w/balun 15'6" boom	$40
BN-86 Balun 50 ohm 1:1	$20
BU-5 Balun 50 ohm 1:1	$14

ANTENNAS SUITABLE FOR 10M

11M 5 el. Yagi 17' boom	$70
11M ¼ wave G.P. w/3 radials.	$20
CLR 5/8 wave vert. w/4 radials 22'9½" 11M.	$50
CLR-2 5/8 wave vert. w/3 radials 19'10" 11M	$40

ROTATORS AND CABLE

KEN KR-400 rotator medium duty 28V-AC	$125
CDE HAM L11 rotator heavy duty	$175
RG-8U Polyfoam Coax	80c per yard
RG-58U Coax	30c per yard
8 core rotator cable	65c per yard

SKY-BAND MOBILE HELICAL ANTENNAS

SKY 80 six feet long 3.5 MHz	$28
SKY 40 six feet long 7.060	$26
SKY 20 six feet long 14.150	$26
SKY 15 six feet long 21.100	$25
SKY 10 six feet long 28.500	$24

CRYSTAL FILTER, 9 MHz, similar to FT-200 ones. With carrier crystals. $39

COAX CABLE CONNECTORS
PL-259
SO-239 Chassi Mount
Male to male joiner
Female to female joiner
Angle connector

Accessories

SWR 50A 3.5 - 150Mhz SWR meter	$26
12VDC regulated supply	$26
5M RG 58-U w/PL-259 one end	$3
Bumper mount c/with 3/8" 24-thread ant. mount	$7
Gutter mount c/with 3/8" 24-thread ant. mount	$4.50

SIDEBAND ELECTRONICS SALES, 477-479 PACIFIC HIGHWAY, CROWS NEST. PHONE 438 4191.

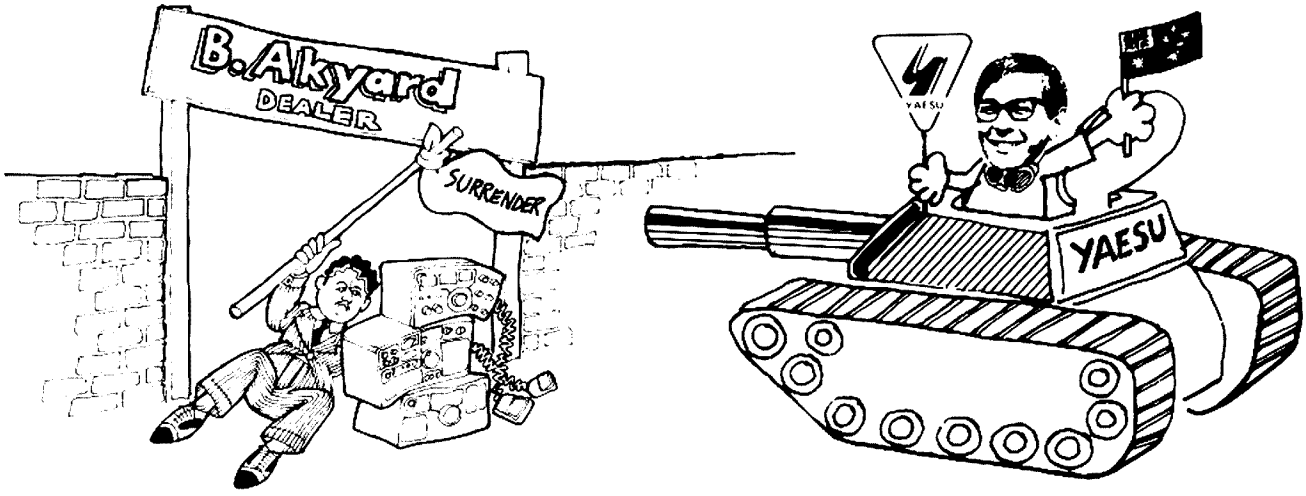
KENWOOD AMATEUR RADIO EQUIPMENT

MAIL ORDERS: P.O. BOX 184, SUTHERLAND 2232. **PETER SCHULZ, VK2ZXL**

DICK SMITH ENDS

★★ THE YAESU PRICE WAR ★★

YOU REAP THE BENEFIT!



Dick Smith Electronics will better any genuine price offered by anyone on Yaesu products.

YES! This means that we will sell you a fully guaranteed, genuine unit at a cheaper price — even if we are competing with a backyard importer who probably hasn't even got provision for warranty service.

And you'll be buying from a fully Australian owned company – your one stop electronics shop who actively supports amateur radio!

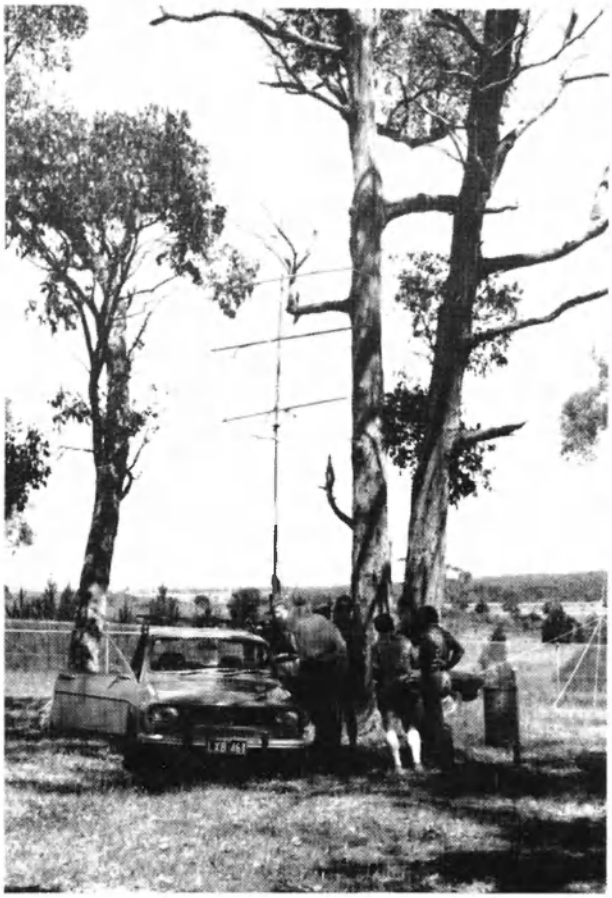
HERE ARE OUR PRICES: (WE'LL SEND ANY OF THESE TO ANYWHERE IN AUSTRALIA FOR $6 EXTRA!)

FT-101E 80-10m HF transceiver	Cat D-2860	**$789.00**	FT-101Z New HF transceiver	Cat D-2862	**$775.00**
FT-301 Solid State HF transceiver	Cat D-2870	**$795.00**	FT-901D Top class HF transceiver	Cat D-2854	**$1349.00**
FT-7 Mobile HF transceiver	Cat D-2866	**$375.00**	FT-227RA 2m FM scanning transc.	Cat D-2891	**$379.00**
FT-7 2m FM transc with memorizer	Cat D-2890	**$379.00**	CPU-2500 computerised 2m transc.	Cat D-2889	**$549.00**
FC-301 Antenna tuning unit	Cat D-2896	**$219.00**	FC-901 antenna tuning unit	Cat. D-2855	**$249.00**
FL-2100B 1.2kW linear amplifier	Cat D-2546	**$529.00**	FL-110 200W linear amplifier	Cat D-2884	**$189.00**
FRG-7 Solid State HF Rcvr	Cat D-2850	**$319.00**	FRG-7000 Digital HF rcvr	Cat D-2848	**$599.00**
FP-301 13.8V/20A supply	Cat D-2872	**$169.00**	YC-500S 500MHz Freq. Counter	Cat D-2892	**$475.00**

We believe that the prices above are better than any supplier in Australia. If you find someone cheaper for the same goods, tell us!
For us to better any price, simply show as the advertisement from any Australian company. After checking that they have stocks available at that price we will sell for a lower price. Offer remains open while present stockst last (approx. $250,000 worth).

FIELD DAY — PICTORIAL ROUND-UP

The Publications Committee operated portable at Devil Bend Reservoir, Mornington Peninsula, using bands 80m to 70 cm on phone and CW. Call sign used was VK3UV. Section entered — Multi-Op, 6 hours.



LEFT: 5 min. "smoko" — Yagis for 6, 2, 70 cm on Gil VK3AUI's car.

ABOVE RIGHT: Bruce VK3UV on 40 Mx CW — motto "Points gained is proportional to 'tinnies' consumed".

LOWER LEFT: "Smoko" continued — Ron VK3AFW still works on in Mazda.

LOWER RIGHT: Ron VK3OM with FT7 enjoying the shade.

Photos by Bill Rice VK3ABP.

WAGGA ARC FIELD DAY ACTIVITY

JOHN MOYLE NATIONAL FIELD DAY WEEK-END
Mt. Granite, near Tumbarumba, on the edge of the Snowy Mountains.

Club activity started at the camp site after Friday lunch time when the spearhead of the Wagga group got a flying start in the afternoon. Around 4 p.m. work commenced on a huge 80 metre antenna system that went for nearly a mile through the bush. Work on this antenna was interrupted many times by the necessity to quench the consistently high thirst. More of the party arrived just after tea and one or two tents were erected and the scene was set for the evening's social activities that always accompany the Wagga Club's field day activity. The social activities and general frivolities continued till well into early Saturday morning. Saturday arrived with once again good weather, and the task of erecting the rest of the tents, aerials and generator systems commenced. By this time around 15 club members were at the site. It was a real team effort in getting the wide range of HF and VHF aerials assembled. By 3 o'clock everyone was fed, all gear tested out, the log sheets ready and pencils sharpened. Activity was very consistent on all HF bands during the week-end whilst 6 and 2 metres did appear to be a little disappointing due to lack of activity within the service range of Mt. Granite. Our VHF operators did confirm that the bands were actually open for most of the week-end . . . but there was just not sufficient participation from home stations and other field stations to ensure the level of activity so much hoped for during a large field day operation. However plenty of contacts were made and we don't recall any of our club participants saying that he was bored. It was a terrific week-end enhanced by a mixture of good operating conditions on the air and, of equal importance to us, a really first class social period that will be remembered for a long time. Let's hope we see more stations in the field next year.

Another group burning the midnight oil on 80 metres very late Saturday night. Left to right: Ron VK2BÊR, Andrew Hill and Bob Knight.

Frank VK2NFV working 20 metres during the early hours of Sunday morning.

Club Register: WAGGA AMATEUR RADIO CLUB. Meets last Fridays, Rescue Clubrooms, Bolton Street, Wagga.

Club call signs VK2WG, VK2NWG and Repeater Ch. 3 VK2RWG.

Secretary's address: C/o PO Box 71, Kooringal, Wagga 2650.

VK3SW. ■

QSP

SOME COMMON DEFINITIONS FOR UNLOGICAL PERSONS

ADDER: A snake in the grass.
FULL ADDER: As above, but not hungry any more.
AND: Stryne.
OR: Substance from which metals are extracted.
EXCLUSIVE OR: Uranium.
SHIFT REGISTER: Book to sign on and off at work.
LATCH: Opens doors.
STORE: Local shop.
COUNTER: Thing what shop assistant stands behind.
RING COUNTER: 1. As above, but in jewellery store. 2. Dirty old man.
TWISTED RING COUNTER: A very dirty old man.
DECODER: DC3.
BUFFER: French polisher.
EXPANDER: A panda that died.
DRIVER: Chauffeur.
TRIGGER: Roy Roger's horse.
NAND: Past tense of grandmother.
NOR: What dogs do to bones.
NOT: Refer to Scout manual.
DECADE: New brand of soft drink.
CODE: Nasal virus.
BINARY: Two one-legged canaries.
OCTAL: Everything pawned.
FAN OUT: Regional air-conditioning.
CHIP: Thing eaten with fish.

From Department of Transport Airways Engineering Branch News Bulletin "Grapevine". ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

The Editor,
Dear Sir,
I wish to draw the attention of a certain clot who is currently using the call sign VK3AHK on the 144 MHz band to the fact that, as the genuine owner of that call, I strongly object to this practice.

Therefore, I suggest to this person that (1) he steals someone else's call sign, or (2) obtains a P. and T. licence by passing an official examination, thereby becoming legitimate (radio wise). If neither course appeals to him, the only other alternative I can suggest — without profanity — is that he peruse the Yellow Pages, where he will, no doubt, be enabled to discover the address, and utilise the services of, a competent taxidermist.

Yours faithfully,
H. O. Kellas VK3AHK. ■

The Editor,
Dear Sir,
RNARS UPDATE
Further to the article by Don Walmsley G3HZL in the February edition of AR, we wish to advise of some recent changes in the Royal Naval Amateur Radio Society.

The call sign G4EOK has been revoked and the Amateur Radio Station on board HMS Belfast now operates under the more appropriate call sign of G4HMS. Whenever the vessel is open to the public the call sign of GB2RN is used.

HMS Mercury continues to be the Society Headquarters with the general call sign of G3BZU, but uses GB3RN on special occasions.

Current (February 1979) membership of the Royal Naval Amateur Radio Society stands at 1,251, which is spread world-wide. There are 25 members in Australia (all States represented) and 27 members in New Zealand.

The Australian members have recently commenced regular nets on 80 metres and we invite all radio amateurs with a maritime background to join our Society. The nets are as follows: SSB — every Monday, 3.610 MHz ± QRM, N/C — VK1CDR/VK2ALG. CW — every Tuesday, 3.527 MHz ± QRM, N/C — VK5MD/VK2ALG.

We wish to stress that, although our Society name of Royal Naval Amateur Radio Society reflects our origin, membership is open to ALL amateurs with a sea-going background. In the Australian branch (Sqn) we have current serving members of the RAN together with retired members of the Royal Navy, Royal Australian Navy, Royal New Zealand Navy, British, Australia and New Zealand Merchant Navies, as well as civilians connected with the aforementioned services. Affiliate membership is offered to former members of other navies/merchant marines, e.g. USN, Royal Nederlands Navy, Koingsmarine, etc.

Therefore if any readers are at all connected with the sea and/or maritime life and would like to find out more about the Society, they are invited to contact either Surgeon Rear-Admiral Jim Lloyd VK1CDR if ex-navy, or myself, Terry Clark VK2ALG, if ex-merchant navy. Both OTHR.

Yours faithfully,
Terry Clark VK2ALG, RNARS 1196. ■

The Editor,
Dear Sir,
I, too, would like to add my voice to the protest about the "Wooley Bum" group, although I hesitate to do so in the knowledge that any publicity such as this may only further their obscure cause.

There would appear to be no justification for any encouragement of a group with standards as low as this one. Surely amateur radio as a hobby has more than sufficient problems at this particular time without deliberately fostering a cancer within itself. If it could be shown that the "Wooley Bum" group has contributed anything to bettering our hobby it would be a different matter, but I have yet to see any evidence of this.

The most unfortunate aspect of this group's activities is that newcomers to the hobby and those outside it are likely to think that the activities of this isolated group are representative of Amateurs as a whole.

It is indeed regrettable that these misguided people cannot or will not make a more realistic contribution to our hobby. In the long term it is they who will have most to lose.

NAME AND ADDRESS SUPPLIED. ■

The Editor,
Dear Sir,
I read with interest the comments from the "RD" contest manager in February AR, page 60, about the woeful standard of log entries. Having been involved in a related area, I know only too well the problem he faces and he has my sympathy. However, I have also seen the other side of the coin, too, and there may be some excuse for the problem.

Currently with most contests and awards (but not all) there is usually no set application form or printed log sheets to record your entry. The contestant or applicant for an award can only follow the instructions given in the contest or award rules and improvise accordingly. This invariably leads to a broad spectrum of entry standards from the ultra neat that are a delight to receive down to the "dog's breakfast" which is quite common.

It shouldn't be too difficult to arrange a standard format for recording contest contacts and or award applications that could be printed in pads of, say, 25 or 50 sheets. It could then be made a condition of entry that only entries made on such forms would be acceptable. By doing this the job of both the entrant and the organisers would be made easier. By using carbon paper between sheets an original and copy could be made in one go, thus saving the operator the chore of having to copy it into his log. One copy could simply be attached to the station log as a permanent record.

If the WIA could produce such forms at a reasonable cost and in a format compatible with log books I feel certain that this would encourage more people to submit logs for contests than do so presently. Surely one of the fundamental policies of the WIA should be to encourage on air activity in every possible way and this must achieve this end.

The use of lightweight airmail type paper would be desirable as the majority of entries have to go overseas and almost invariably airmail must be used to ensure arrival in time to make the closing dates. Even logs for the "VK-ZL" contest go to ZL every second year. Bulky "homebrew" forms can be very expensive to mail, even in small quantities.

Yours faithfully,
Geoff Wilson VK3AMK,
7 Norman Avenue, Frankston, Vic. 3199. ■

36 Rutland Street,
Coorporoo 4151, Queensland.

The Editor,
Dear Sir,
It is refreshing to read the reactions of the anonymous VK3N.. and the righteous wrath of our Rex Black VK2YA concerning the "Wooley Bum" certificate. With the exception of one point in Rex's letter, I support him in expressing disgust at the way in which a number of CB and ex-CB, now Novice licensees, pollute the channels, and also the Radio Press with their defiance of the commonly acceptable standards of operation and correspondence. However, I urge Rex and all others who feel cheated by the withdrawal of 27 MHz from amateur use to shed no more tears over the fact that a section of the spectrum designated for industrial, medical and scientific radio transmissions, virtually the garbage heap of the whole spectrum, was withdrawn from the amateur service. The Australian delegation to the WARC in 1959 simply followed the lead given by the Federal Communications Commissioner of America who, obviously directed by great pressures applied in the political lobby by the electronics and equipment manufacturers, re-assigned the Citizens Band in the USA to 26.960 MHz, etc., from UHF, where at that time manufacturing techniques were not yet capable of producing hand held and mobile equipment in really compact and lightweight form of sufficient reliability, robustness and reasonably low cost, to meet the huge market of would-be users clamoring for them.

27 MHz equipment almost immediately available then was apparently seen as saleable in Australia to large scale farmers, station owners and the small boat industry, a huge expanding market in its own right. It followed that CB would be sold in huge quantities in Australia because of the mirror image of the American way of life which so many Australians prefer.

The immediate difficulty was not, however, the allocation of frequency, since the US had the neat garbage heap solution to offer. The public, non-technical, non-experimental would need service for the equipment. It seems, looking back, that the major manufacturers of telecommunications and radio equipment in Australia had no desire to become involved in this new CB gimmick and thus the matter of service became of paramount importance.

From whence had the Establishment in WWII drawn its enlarged staff of skilled radio technicians, operators and instructors? Mostly directly and, often without realising it, indirectly from the amateur ranks, because so many competent amateurs were, and are today, employees of the telecommunications industry, the broadcasting industry, the radio and TV service industry, aviation, the marine radio servicing industry, etc., the list is extensive. Does it not follow that a neat way of introducing CB 27 MHz into our country was to encourage the licensed amateur to operate on the garbage heap band. Why, Mr. Dick Smith, in a recent broadcast feature over ABC sound only radio called "The Big Ten Four", said this "CB radio was introduced into Australia for the amateurs" — and so it was! Some amateurs quickly saw possibilities of prosperity in this new thing. Practically all radio service firms jumped on the band wagon. Employees of these firms (licensed amateurs) had little option but to obey their masters and install and service the 27 MHz illegal to operate equipment at that time. The public, that is the interested section of the public, now reassured about the servicing problems, decided to take on CB. The results are too well known to merit further discussions.

Many amateurs, those not involved in the money making side of this rapidly expanding service industry, resented the intrusion (!) of CB into an amateur (!!) band.

Many clashed with CB, all this you remember. Eventually, numerical pressure and the anti-establishment attitudes of an appreciable section of the Australian community urged on by powerful commercial banking in the political lobby, resulted in the removal of the amateur "PRIVILEGE (!)" to operate in the Industrial, Medical, and Scientific section of the spectrum.

So, Rex and others who have expressed regrets about the loss of 27 MHz, please reflect on my remarks and take heart, we are well rid of the unbearable 27 MHz situation into which we were precipitated by Australian importers, and all those involved for several years in the import distribution, installation and servicing of equipment which it was illegal to use! Now, Rex, as you so correctly forecast, the radio amateur has inherited the onerous task of converting as many of the CB fraternity as possible to a low grade of amateur radio licensee. There are some bright spots in the picture. Many CBers are intelligent and highly respectable citizens who simply believed all the advertising and rumours and adopted the trend. They were misled by the high pressure salesmanship of the day. Being intelligent and forward looking, they have now upgraded to WIA training and membership. Australian amateur radio is rapidly gaining numerical strength, and may also in the near future show evidence of an increasing content of intellectual stability and academic attainments by those newer members. So then, on balance, we have survived a crisis and are poised for a new era of amateur radio techniques and cultural expansion. What could be better? To return to the subject of your concern, a point concerning editorial responsibility arises. The Editor reserves the right to refuse to publish, or as he puts it, "to edit all material including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, WITHOUT SPECIFYING A REASON".

Why then, was the material submitted by Mr. Ramsbotom published, apparently in its original form? Perhaps you could pursue these matters further through the good offices of the Federal Convention. Had he rejected the Wooley Bum article, we would not have been disturbed by it and have remained ignorant of its existecne. Furthermore, had he exercised his editorial powers, neither you, I, or Mr. Ramsbotom would ever have known why he rejected it! An editor's work is fraught with psychological pitfalls, so that what appears to him as a boisterous attempt at humour albeit, on the coarse side, becomes an outrage to some readers and evokes guffaws of belly laughter from others. Again, I emphasize my dislike of ideas and material of the Wooley Bum species, and their usually over loud noises of those who enjoy it. However, those are some varieties of journalism which seek, covertly, to influence readers under the well known guise of doing good! We've all heard of the Do Gooders.

How about this gem from QTC, our Queensland pamphlet, of October 1978.

"MAINLY FOR OLD TIMERS

Lord, thou knowest better than myself that I am growing older and I will some day be cold. Keep me from getting talkative and particularly from the fatal habit of thinking I must say something on every occasion. Release me from the craving to try to straighten out everybody's affairs. Keep my mind free from the recital of endless detail; give me wings to get to the point! I ask for grace enough to listen to the tales of other plans. Help me to endure them with patience. But seal my lips on my own aches — they are increasing and my love of rehearsing them is becoming sweeter as the years go by. Teach me the lesson that occasionally it is possible that I may be mistaken. Keep me reasonably sweet; a sour person is one of the crowning works of the devil. Make me thoughtful but not moody; helpful but not bossy. With my vast store of wisdom it seems a pity not to use it all — but Thou knowest Lord that I want a few friends at the end. . . .

From ANOTHER OT."

What better way of subtly brainwashing a (presumably) unwelcome commentator or critic who attends meetings and exercises his right to air his views? Wooley Bum is crude but harmless by comparison, but the spiel from Another OT is not, by any means. You may notice the number of well dressed ageing amateurs of great DX reputation who sit silent, lips firmly pressed together for almost all the time after reading such trash. These people ought to have something constructive to contribute, but we shall apparently never discover it, for they are but obeying the dictum laid down by ANOTHER OLD TIMER.

This kind of dictum is commonly displayed in waiting rooms of doctors, psychiatrists and mental hospitals. Nursing homes for the aged make use of it.

Thankfully, the average age of the radio amateur is descending towards its original age group of under 25, and Another OT will, if he still exists, find no application for his repressive talents. I have, I trust, drawn attention to the need for the Editors of the various WIA publications to take heed of Rex Black and others who have an interest in the quality of Amateur Radio humour.

Yours sincerely,
George Harmer VK4XW ■

The Editor,
Dear Sir,
At long last the RD contest results for 1978 have been published (AR February 1979). This seems a terribly long time considering the number of entries.

I have noted the manager's comments re poor log keeping, but cannot agree that logs full of errors or without the mandatory cover page should ever be allowed.

A radio contest is a sport, and in all sports rules broken are subject to penalty. The log layout is clearly published before the contest, but page size is left to the individual.

This is convenient as it allows cheap production for those who have access to various copying machines.

If the WIA could produce standard log sheets cheaply it would help contest managers, however, it would be near impossible to get all contestants to use them.

Another point which is a bone of contention with a lot of regular contestants is the effect non-participants have on the final result.

I know the history of the contest is to encourage maximum participation in all VK call areas and I certainly try to support this concept.

I do not think it is a fair contest when non-starters (for whatever reason) have a major effect on the final score.

Could we please have a 1980s type re-think and try a scoring system based on participants' scores ONLY?

In closing I would like to thank the contest manager for a most enjoyable contest and trust those concerned will accept the above comments as constructive criticism and suggestions based on 20 years of RD contest participation.

M. N. O'Burtill VK3WW,
3 Maxwell Street, Lalor, Vic. 3075. ■

CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

CONTEST CALENDAR

April

7-8	POLISH SP CW CONTEST.
21-22	POLISH SP SSB CONTEST.
21-22	COMMON MARKET DX CONTEST.
28-29	DUTCH PACC CONTEST.
28-29	SWISS H26 CONTEST.
28-29	EA (SPANISH) KING TROPHY.

May

26-27	CQ WW WPX CW CONTEST.

EA KING TROPHY

2000Z 28 April-2000Z 29 April, all HF bands, but only 20 hours operation allowed. RS plus 3 figure serial from 001. Contact only EA stations.

Log: Date, GMT, station worked, serial numbers, indicate multipliers.

Scoring: 1 point per QSO, multiplier each Spanish province.

Final score: QSO points times mult.

Log to ARC, PO Box 181, Calella, Barcelona, Catalunya, Espana.

Trophy and eight days in Spain to highest International score. Diploma for amateurs with over 50 contacts.

ITEM OF NOTE

KV4AA managed to have 48,100 QSOs in 1978. That is an average of one every 11 minutes. VK2 desperately want him for the RD!

ROSS HULL MEMORIAL CONTEST 78-79: RESULTS

		7 Day	48 Hour
(a)	TX Open:		
(b)	TX Phone:		
	VK2HZ	556	120
	VK4DO	2748	954
	VK2ZBD	920	249
	VK3AUI	784	420
	VK3AUQ	526	209
	VK2YHG	—	396
(c)	TX CW:		
	Nil entry.		
(d)	RX Open:		
	L40018	16	—

CONTEST CHAMPION TROPHY POINTS TO DATE

VK2HZ—10 points, VK4DO—10 points, VK2ZBD—9 points, VK3AUI—8 points, VK3AUQ—7 points, VK2YHG—6 points.

Points are subject to confirmation of WIA membership.

Other nominated contests for 1979 are: John Moyle, Remembrance Day and the VK/ZL. ■

WESTLAKES NOVICE CONTEST 1978: RESULTS

SECTION N (Novices)

CLASS A (Phone)

VK2NBZ	447	VK3NLP	144
VK2NYL	442	VK3NWC	65
VK2NAO	376	VK4NKL	456
VK2VBY/P	323	VK4NIK	283
VK2NKJ	163	VK4NJY	99
VK2VBC	157	VK5NLC	180
VK2VAR	95	VK6NDZ	543*
VK2NCI	73	VK6NFS	384
VK2NMJ	47	VK6NCF	166
VK2NBS	45	VK7NSA	193
VK3NIL	415	VK7NFR	84

CLASS B (CW)

No logs received.

CLASS C (Open)

VK2NVX	761*	VK3NTS	268
VK2NYF	470	VK3NPU	165
VK2NMU/P	234	VK3NHR	101
VK3NNG	747	VK6NAY	336
VK3NHA	645	VK8NJN	205
VK3NTF	574		

SECTION F (Full Call)

CLASS A (Phone)

VK2AHB	366	VK3BER	10
BK2BID	375	VK4ARW	308
VK2BVY	208	VK4AYL	90
VK2BOS	130	VK4ACL	53
VK2BLP	94	VK5ABW	257
VK2AKH	62	VK8DB	444*
VK2AKX	48	ZL1TB	419
VK3AVB	66		

CLASS B (CW)

VK3AXB	227

CLASS C (Open)

VK2GL	302	VK3KS	155
VK2IQ	91	VK4AAR	380*
VK3BIR	225		

SECTION L (Listener)

CLASS A (Phone)

R Weston VK3	283*
C. Thorpe VK4	219
R. Daymon VK5	69
B. Entwistle VK6	5

CLASS B (CW)

E. Trebilcock VK3	25*

CLASS C (Open)

M. Hall VK2	453*

SECTION R (Club)

CLASS A (Phone)

VK2BHV	83*	VK3ARC	45

CLASS B (CW)

No logs received.

CLASS C (Open)

VK2ATZ	655	VK5ALM	254
VK3BHU/P	791*		

* Indicates winner in this Class. ■

QSP

CQ PROCEDURE

REMEMBER, before calling CQ, first a clear frequency must be found. Listen carefully on the frequency for at least a minute, check that the frequencies either side are also clear. It is also recommended that you enquire if the frequency is in use. If this procedure were followed faithfully operating on the HF amateur bands would be much more enjoyable. It is also called "good manners". From QTC AR Supp. Feb. 1979. ■

EMONA electronics

Head Office, Sales & Service: 23 JUDGE ST., RANDWICK 2031. Ph. 398 6378
City Branch: ROOM 208/661 GEORGE ST., SYDNEY 2000. Ph. 212 4815
Cable Address: EMONA Sydney. A.H. CALL 398 6378

The great evolution of **DenTron** *power machines!*

$1399

DTR 2000 L — 2 kW AMPLIFIER

The ultimate in precision linear amplifiers from DenTron. Features range from a Broadcast proven 8877 tube with a continuous duty built-in power supply with a vacuum impregnated power transformer. Cooling is EIMAC specification forced air, through a pressurized chimney and chamber. Dual metering is provided for plate voltage and current monitoring, along with front panel switching of transformer secondary taps and linear bypass. Compatible with most exciters. These amplifiers have been tested and proven in every imaginable situation folks could put them through, from rare DXpeditions to medical research labs. Not to mention hamshacks the world over.

SPECIFICATIONS

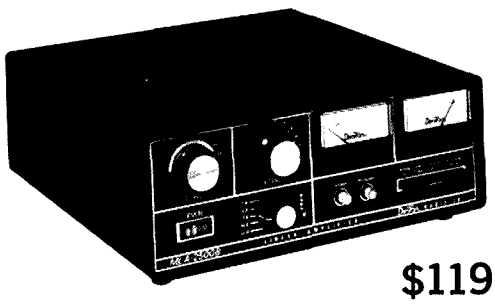
- Freq. Ranges: 10-160 metres.
- Modes: USB, LSB, CW, RTTY, SSTV
- Power Requirements: 234/117V AC 50/60Hz
- RF Drive Power: 125W max., and 65W RMS min. for 1 kW DC input
- DC Plate Voltage: SSB (idle + 2600V approx.) CW (idle + 1800V approx.)
- Duty Cycle: 100% at full power
- Input impedance: 50 ohms nom.
- Input VSWR: 1.5 to 1 average
- Output impedance: 50 ohms nom.
- Antenna load VSWR: 3 to 1 max.
- ALC: negative going, adjustable from rear panel
- Spurious Emissions: IMD: greater than 30 dB down Harmonics: greater than 40 dB down
- FCC Type Accepted
- Size: 7¼"H. x 14½"W. x 14½"D.
- Weight: (incl. 8877) 54 pounds
- Packaged in 5/8" Hardwood Crate

MLA 2500 B — 2 kW AMPLIFIER

The world famous MLA-2500 is now the MLA-2500B. Featuring the same EIMAC 8875 work-horse finals, self-contained continuous duty power supply, full complement metering and controls from the front panel, plus NEW HIGH-LOW POWER SWITCHING for consistent efficiency at both the 1KW and 2KW power levels. The basic MLA-2500 remains the same unit that thousands of Amateurs now have in use the world over; a cool-running full-power Linear Amplifier of high quality, all-American construction and design.

SPECIFICATIONS

- **NEW FEATURE** Hi-Lo power switching
- 160 thru 10 metres
- 2000 watts PEP input on SSB
- 1000 watts DC input on CW, RTTY, or SSTV Continuous Duty
- Variable forced air cooling system
- Self contained continuous duty power supply 2250V idle SSB — 1575V idle CW approx.
- Two EIMAC 8875 external-anode ceramic/metal triodes operating in grounded grid.
- 50 ohm input impedance unbalanced at better than 1.5 to 1 VSWR
- Harmonic Suppression: meets or exceeds FCC requirements
- Built-in ALC (negative going)
- Built-in RF wattmeter
- Easily changed 117V or 234V AC 50-60 Hz
- Third order distortion down better than 30 dB
- 65 watts minimum drive tor 1 kW DC input
- Size: 5½" H. x 14" W. x 14" D.
- Weight: 47 lbs.



$1199

$799

The CLIPPERTON-L 2 kW AMPLIFIER

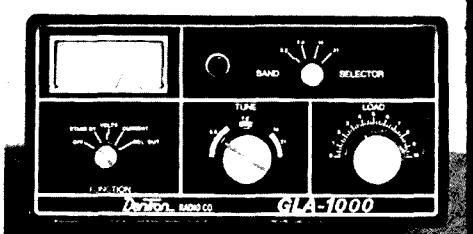
Adventure is a part of hamming, and DenTron's new "Clipperton-L" linear amplifier is dedicated to that spirit, with continuous duty power and high quality components. There are four 572B triodes operating in grounded grid, hi-lo power switching and linears bypass from the front panel, a large illuminated meter for monitoring plate current and plate voltage, a built-in continuous duty power supply with rear panel selection of 117V or 234V primary transformer taps, adjustable ALC. Compatible with most exciters, the Clipperton-L delivers 2000 watts PEP input on SSB and 1000 watts DC input on CW, RTTY or SSTV; all continuous duty.

- **NEW FEATURE:** Hi-Lo power switching
- 160 thru 10 metres
- 2000 watts PEP input on SSB
- 1000 watts DC input on CW, RTTY or SSTV
- Forced air cooling
- Self contained continuous duty power supply 2500V idle SSB — 1800V idle CW approx.
- 4-572B Triodes operating in grounded grid
- 50 ohm input impedance unbalanced at better than 1.5 to 1 VSWR
- 50 ohm output impedance
- Harmonic Suppression: meets or exceeds FCC requirements
- Built-in ALC (adjustable)
- Size: 6" H. x 14½" W. x 14½" D.
- Weight: 42 lbs.

GLA 1000 — 1 kW AMPLIFIER

SPECIFICATIONS:

- SIZE: 5⅜" H., 11" W., 11" D.
- WEIGHT: 24 lbs.
- ELECTRICAL — Power Consumption: 117V AC 50/60 Hz 12.5 amps. Factory fused at 15 amps. 234V AC 50/60 Hz 7 amps. Recommended fuse, 10 amps.
- FREQUENCY COVERAGE: 80 metres: 3.45 to 4.3 MHz 40 metres: 6.950 to 7.5 MHz 20 metres: 13.950 to 14.5 MHz 15 metres: 20.950 to 21.350 MHz 10 metres: 28 to 30 MHz
- RF DRIVE: Max. 135W for 1 kW input
- DC INPUT: 1 kW CW, 1200W PEP SSB
- INPUT IMPEDANCE: 50 ohms 1.5 : 1 VSWR APX.
- SPURIOUS EMISSIONS: Ind better than 30 dB, harmonics down better than 40 dB
- COMPONENTS: 4 — D50-A tubes 6 — Diodes.
- FCC Type Accepted.



$489

DenTron ANTENNA TUNERS:

MT 3000A	$447
MT 2000A	$270
SUPER TUNER PLUS	$199
JR. MONITOR	$104
SUPER TUNER	$160
80/10 TUNER	$95
BIG DUMMY	$43

WRITE FOR OUR LATEST HAM-RADIO EQUIPMENT CATALOGUE

EMONA electronics

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City Branch: ROOM 208/661 GEORGE ST., SYDNEY 2000. Ph. 212 4815
Cable Address: EMONA Sydney. A.H. CALL 398 6378

MAIL ORDERS: Box K21, Haymarket NSW, 2000, Australia
WRITE, PHONE OR CALL IN!

NATIONAL RJX-1011

A Unique New SSB/CW Transceiver For Amateur Communications

There is no substitute for quality, performance or the satisfaction of owning the very best.
Hence, the incomparable National RJX-1011 amateur transceiver. The RJX-1011 covers all amateur bands 1.8-30 MHz (160-10 metres). It utilizes advanced Phase-Lock-Loop circuitry with dual gate MOS FETs at all critical RF amplifier and mixer stages. There's a rotating dial for easy band-scanning and an electronic frequency counter with digital readout and a memory display that remembers frequencies at the flip of a switch. And that's just the beginning.
Matching speaker unit RJX-S1011 and complete external VFO RJX-V1011 also available.
For further information and specifications write, phone or call in!

$1990

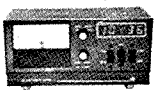
CONVERT MORSE, RTTY AND ASOLL TO VIDEO

MODEL 200 TRI-MODE CONVERTOR

Based on the powerful F-8 Microprocessor system, this new product from Info-Tech, advanced technology is an addition to the popular Model 100.

$668

WAWASEE JB1003C/M

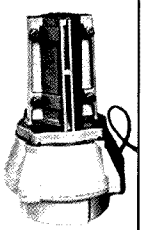


CLOCK/WATTMETER/SWR BRIDGE

ELECTRONIC CLOCK has 5 in. red LED digits, AM-PM light, flashing seconds colon, and 12 hour format. Peak-reading WATTMETER has 3 ranges — 0-20, 0-200, 0-2000 watts. SWR BRIDGE shows standing wave ratios of 1.5, 2, and 3 from 3 to 2000 watts. Operates on 240V AC. Great base station accessory for Hams.

$135

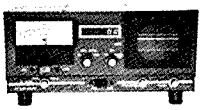
ANTENNA ROTATOR



MEDIUM-SIZED HAM ANTENNA ROTATOR — FU 400. With approved power supply. Additional mast clamps. Constructed for long trouble-free operation. 200 kg vertical weight capacity. Extra heavy duty disc brake that prevents wind-milling.

$117

SCOPE/ COUNTER/ WATTMETER/ SWR BRIDGE



The most deluxe Black Cat accessory. MONITOR SCOPE permits measuring RF output to antenna and viewing modulation patterns. FREQUENCY COUNTER has six big LED digits, 1 to 50 MHz range (typical), 100 cycle readability, 50m V sensitivity. Peak-reading WATTMETER has 3 scales—0-20, 0-200, 0-2000 watts. SWR BRIDGE reads standing wave ratios of 1.5, 2, and 3. Perfect for Ham base stations. JB1001SFCM.

$379

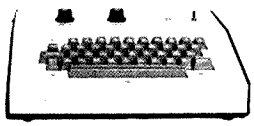
MULTI PALM II 2M/FM POCKET TRANSCEIVER

SPECIFICATIONS

Transceive frequency range 2 MHz in 144-148 MHz, transceive channels 6, channels antenna impedance 50 ohms unbalanced, BNC connector power requirement 12V DC (negative grounded), Power consumption transmit 300 mA, receive 100 mA stand-by 25 mA, size 68 mm (2-43/64 in.) wide, 154 mm (6-1/16 in.) high, 41.5 mm (1-41/64 in. deep, weight 470g (1.03 lbs.). Repeater offset +600 kHz modulation variable reactance phase modulation, max. deviation +5 kHz microphone condenser, microphone receiver, double conversion superheterodyne (1st IF, 16.9 MHz; 2nd IF, 455 kHz). Sensitivity —4 dBu NQ 20dB). Audio output maximum 0.3 watts. Attachment rubber ducky antenna. Nicad battery pack. DC cable with cigarette lighter plug. Carrying strap.

$229

INFO-TECH M-300 TRI-MODE KEYBOARD



A microprocessor controlled keyboard that generates Morse, RTTY and ASCLL. Write or call for further specifications.

$564

FDK BIGEAR TRANSCEIVER Type2

2m FM PLL SYNTHESIZED MOBILE TRANSCEIVER

● 144-148 MHz. PLL digital synthesizer system (800 channels) ● A large-sized LED, digital display system provides readings up to six figures ● Easy-operating separate and selective mechanism displayed by the frequency unit for wider operation ● Transmitting output: 25W/1W, two-step selector switch ● Provides repealer operation of ± 600 kHz and desired frequency ● RF output with S meter indicator.

$375

MODEL HF3-100L 2 DUAL POWER BI-LINEARIZED HF AMPLIFIER

● Full 80-10m broadband coverage ● Full 100 watts output AM (150-200 watts PEP on SSB ● Dual power: Selectables S/10 watt input power ● Operating modes: AM, FM, CW, SSB, RTTY, SSTV ● Broadband — requires no tuning across band ● Harmonic levels typically —50 dB or better (see specifications) ● RF actuated switching relays ● Full VSWR and reverse voltage protection ● Extra stabilization circuitry ensures spurious-free operation at all input power levels ● Under 1 dB insertion loss in receive or bypass mode ● Remote control capability ● Receive pre-amp nominal 18 dB gain across band.

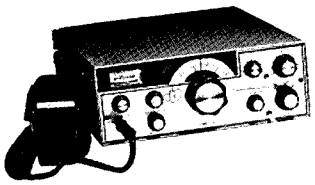
$225

VHF MODELS 2M 10-80P

● 10W input, 80W output nom ● Low power input yields nom 10 dB gain ● Covers entire amateur band w/o tuning ● Built-in receive pre-amplifier ● automatic TR switching or hard keying ● Variable TR delay for SSB/CW use ● Pre-amp and power amp independently controllable ● Pre-amp nom 11 dB gain, 2½ dB overall NF.

$249

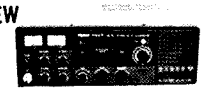
alda 103



3¼" H x 9" W x 12½" D
totally solid state SSB Transceiver 80 through 20 metres

250 WATTS FOR ONLY $495

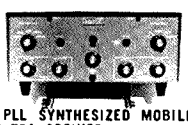
AMATEUR TELEVISION IS EASY WITH THE NEW ROBOT SCAN CONVERTOR MODEL 400



● All solid state random access memory ● Slow-to-fast and fast-to-slow conversion capability ● SSTV picture display on any standard CCTV monitor ● Frame freeze from any standard CCTV camera, broadcast video or video, tape source ● Permanent picture storage ● Automatic or manual TV frame snatch ● Internal grey scale generator adjustment standard ● Capable of real time display of digitally processed fast scan video.

$898

FDK BIGEAR TRANSCEIVER TYPE 1



2m FM SSB CW PLL SYNTHESIZED MOBILE BASE TRANSCEIVER

● 144-148 MHz, PLL digital synthesizer system, FM: 800 channels (5 kHz step); SSB: 400 channels (10 kHz step), plus VXO system (±7 kHz) ● AC 117/240V, DC 13.8V, two-step power supply ● Digital display system (using a large-sized LED), providing reading up to six figures ● Transmitting output: 10W/1W, shifting mechanism ● Front loudspeaker suited for base station ● Easy-reading, separate S/RF centre meter ● ON AIR/ RECEIVE/RIT position displayed by LED ● Include RIT, AGC, VOX and noise blanker circuit ● Provides repeater operation of ± 600 kHz and ±1 MHz.

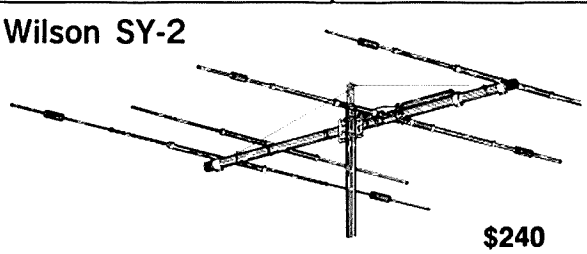
$694

ATLAS 215X-HF Transceiver $795

FT101E: AC-DC $707

NATIONAL	
RJX-1011 Transceiver	$1,990
RJX-S1011 Speaker Unit	POA
RJX-V1011 VFO Uint	POA
RF4800/DR48 Receiver	$466
YAESU	
FT101E Transceiver	$770
FT301 Transceiver	$840
FT301D Transceiver	$990
FP-301 AC Power Supply	$175
FRG-7 Receiver	$339
FTV-650 6m Transverter	$249
FV-301 External VFO	$139
FRG-7000	$595
LUNAR	
HF3-100L2 Linear Amplifier	$225
BI-LINEAR VHF Models	$259
28-432 MHz Low Noise Pre-amplifier	$42
OSCARBOX J, UHF Down Converter	$96
PAI-50B VHF In-line Pre-amp, Low Noise (6m)	$54
PA-144B VHF In-line Pre-amp, Loy Noise (2m)	$54
PA-28 VHF In-line Pre-amp, Low Noise (10m)	$54
FOK PRODUCTS	
Type-1 2m/ SSB CW PLL Mobile/Base	$694
Type-2 2m/FM PLL Mobile Transceiver	$375
Multi-palm 11 2m/FM 6 ch. Pocket Transceiver	$229
Multi-800 2m/FM PLL 800 ch. Mobile	$416
Multi-2700 2m/FM SSB CW AM Base Transceiver	$744
Leather case (for Multi-palm 2)	$11.50
Battery charger (Multi-palm 2)	$9
Crystals (for Multi-palm 2)	$3
WAWASEE PRODUCTS	
JB1002FC/M Counter/Wattmeter	$225
JB1003C/M Clock/W'meter/SWR	$135
JB1001SFCM Scope/W'meter/SWR/ Counter	$379
JB2000SW Wattmeter/SWR Bridge	$75
JB1000S-M Scope/W'meter/SWR Bridge	$310
B & W PRODUCTS	
Model 333 Dummy Load Wattmeter	$122
Model 334 Dummy Load Wattmeter	$221
Model 374 Dummy Load Wattmeter	$265
KENWOOD PRODUCTS	POA
ANTENNAS	
SY-1 4-el. on 20, 15 & 5-el. on 10m	$300
SY-2 3-el. on 20, 15 & 10m	$240
4-BTV w/80m Resonator (10-80m vertical)	$135
ELCETROCOM	
"Series 400" Shift Converter	$990
INFO-TECH	
Model 75 RTTY to Video Converter	$448
Model 150 RTTY Keyboard	$407
M-200E Morse, RTTY & ASCII to Video Converter	$668
M-300 Morse, RTTY & ASCII Keyboard	$564
ROBOT	
Scan Converter	$898
12 in. Video Monitor AVM-090	$269
ASA 500 Video Camera	$270
MIZUHO	
SX-59 RF Pre-amplifier	$86
SX-1 Pre-selector	$63
DX-555D Counter Generator w/Prescaler	$220
KX-1 Coupler	$56
MX-1D Marker	$69
OSKERBLOCK	
SWR-300 Power Meter	$111
SWR-200B Power Meter	$84
Couplers 6m and 2m	$30
Couplers 0.7m	$39
ROTATORS	
Commander FU400 Rotator	$117
Rotator Power Supply	$22
Stay Bearings	$35
6-core Rotator Cable	$1.00m
Mast Clamps	$11 (set x 2)
Coaxial Cable RG 8/U Low Loss	$1.30m

Wilson SY-2



$240

Delivers outstanding performance on 20, 15 and 10 metres. Features Wilson's large diameter High-Q Traps, feeds with 52 ohms coax, a beta match method presents tapered impedance which provides most efficient 3 band matching and DC ground to eliminate precipitation static. The result is SWR less than 1.5 to 1 at resonance on all bands and maximum front-to-back. An added feature is the separate 10 metre reflector for correct monoband spacing. Add to this the rugged boom to element mounting, heavy duty taper swaged elements.

SIDEBAND ELECTRONICS IMPORTS

P.O. BOX 23, SPRINGWOOD, N.S.W. 2777
WAREHOUSE 78 CHAPMAN PDE., FAULCONBRIDGE
TELEPHONE (047) 51-1394 A.H. (047) 54-1392

Next month, MAY 1979, we shall have a stock of new CDR rotators, apart from the well-known HAM-III. The **TAIL-TWISTER** is actually a larger version of the HAM-III, good for Christmas-tree stacked HF Yagis or 40 Metre beams, further the **BIG-TALK**, a smaller one than the HAM-III, for small HF and larger VHF beams. The BIG-TALK has apart from the normal azimuth control, a push-button programmable 4-position control.

All rotators of necessity will continue to be for 28 Volt low voltage AC operation as the N.S.W. Electricity Authority demands high fees for inspection and approval of 240 V AC operated control boxes which expense we cannot justify with the small market here for rotators.

HY-GAIN ANTENNAS:

12-AVQ 10-15-20M vertical	$50
18-AVT/WB 10-80M vertical	$125
TH-6DXX 10-15-20M 6-el yagi	$300
TH3-MK3 10-15-20M 3-el yagi	$260
TH3-JR 10-15-20M 3-el yagi	$175
204-BA 20M 4-el Tiger Array	$230
HY-QUAD 10-15-20M Quad	$260
2M 5-el yagi w/balun 6'3" boom	$25
2M 8-el yagi w/balun 12'5" boom	$30
2M 14-el yagi w/balun 15'6" boom	$40
BN-86 balun for beam buyers	$20

ANTENNAS SUITABLE FOR 10M

11M 5-el yagi 17' boom	$70
11M CLR 5/8W w/4-radials	$50
11M CLR-2 5/8W w/3-radials	$40

ROTATORS AND CABLES:

KR-400 Med. duty 28V AC oper.	$125
HAM III Hy. duty 28V AC oper.	$175
Bottom bracket Ham III	$10
KS-065 Thrust bearing KEN	$25
8-core rotator cable per yd.	65c
RG-8U foam co-ax per yd.	80c
RG-58U co-ax per yd.	30c
No.14 H.D. copper wire per yd.	10c
7/8" H.D. foam co-ax per ft.	$1

ACCESSORIES:

SWR-50A 3.5-150Mhz SWR meter	$26
Voltage Reg. 18V AC in. 12V DC output	$23
240/18V AC transformer	$10
5M RG-58U w/PL-259 one end	$2.50
Bumper Mount 3/8" 24-thread	$5
Gutter Mount 3/8" 24-thread	$3

COAX CONNECTORS:

PL-259, SO-239. Cable joiners ea.	75c
Right angles & T connectors ea.	$1.50
Mic sockets 3 and 4 pin ea.	75c
GLP right angle RG-58U to SO-239 w/lock nut & weatherproof cap	$2.50
MLS right angle RG-58U-PL-259	90c

KENWOOD PRODUCTS:

TS-520-S 10-160M transceiver	$725
TS-820-S digital transceiver	$1100
TS-700SP 2M all mode trans.	$850
TS-120V 10-80M mobile trans.	$600
TR-7600 2M FM transceiver	$400
TL-922 10-160M linear amp.	$1200
DK-520 Adaptor (TS-520)	$20
LF-30A low pass filter	$30
TV-502 2M transverter	$300
AT-200 Antenna matchbox	$175
DS-1A DC/DC converter	$75
VFO-820 for TS 820-S	$185
VFO-520S for TS-520-S	$160
SP-520 for TS-520-S	$30
MC-10 hand held microphone	$20
MC-50 Desk microphone	$50
HC-2 Ham clock	$35
BS-8 and BS-5 (pan adaptor) ea.	$65

YAESU MUSEN PRODUCTS:

FT-7 10-80M mobile trans.	$475
FT-301S 10-160M mobile trans.	$600
FRG-7 .5-30Mhz receiver	$350

NOVICE SPECIALS:

10M Sideband SE 502 USB/AM 15W PEP 240V AC/12V DC. inbuilt SWR/RF meter 28.3-28.6 Mhz $150

10M Universe 224M USB/AM 15W PEP 12V DC 24-ch. 28.480-28.595 Mhz in 5-Khz steps clarifier operates transmit and receive $125

CRYSTALS (For amateur license holders)

Set of 8-crystals for converting 23-Ch. 27-Mhz CB units to 28Mhz. suitable for Sideband, Universe, Kraco, Hy Range V etc. Converts as per UNIVERSE 28Mhz above — crystals and conversions instr $40

Double female connectors 80c

All prices quoted are net, ex Springwood NSW, cash with order, subject to change without prior notice. All risk insurance is free: freight by air, road, rail or post at cost. All orders cleared on a 24 hour basis after receipt with payment.

Arie Bles (VK2AVA) Proprietor **Roy Lopez (VK2BRL) Manager**

VK/ZL/OCEANIA DX CONTEST 1978: RESULTS

VK — Phone

Call	160	80	40	20	15	10	Total
VK1BS	—	20	4	40552	48922	106353	195851
VK1RM	—	—	—	13585	98670	—	112255
VK1BC	—	440	4	86480	8960	2046	97930
VK1FT	—	—	—	27666	38148	18666	84480
VK2XT	—	—	—	—	379800	—	379800
VK2AXM	—	—	—	—	—	236082	236082
VK2APK	—	—	—	51675	117784	—	169459
VK2NZU	—	—	—	—	136192	—	136192
VK2NQI	—	—	—	—	121800	—	121800
VK2BSB	—	—	—	9432	91910	102315	121657
VK2VAO	—	—	—	—	—	35154	35154
VK2NVX	—	—	—	—	3968	25704	29672
VK2AHB	—	—	4	4717	16900	819	22440
VK2VAB	—	—	—	—	20336	—	20336
VK2NYB	—	—	—	—	—	19647	19647
VK2BAM	—	525	4	3719	6030	7095	17364
VK2ABC	—	—	—	11766	—	—	11766
VK2NRZ	—	—	—	—	608	11094	11702
VK2BQS	—	500	—	1824	450	288	3062
VK3OT	—	—	—	—	546608	—	546608
VK3AMK	—	—	—	8600	9024	256542	274166
VK3ABH	—	—	—	44376	44460	15840	104676
VK3NHA	—	—	—	—	11360	—	11360
VK3SM	—	—	—	1184	50	1680	4594
VK3AUQ	—	360	36	552	80	2346	3374
VK3XB	—	2080	—	—	—	—	2080
VK3AWQ*	—	1450	—	—	32	—	1482
VK3ASN	—	—	—	238	188	972	1398
VK3AIE	—	—	—	—	72	459	531
VK3DG	—	360	—	—	—	—	360
VK3SV	—	240	—	—	—	—	240
VK3NDG							Check
VK3CEE	—	—	—	700	36736	70863	108299
VK4SF	—	—	—	990	10320	97902	109212
VK4AGP	—	550	—	—	9144	59625	69319
VK4NHU	—	—	—	—	72	36300	36372
VK4NFU	—	—	—	—	14880	16851	31731
VK4UU							Check
VK5OU	—	—	—	70584	72	2376	73032
VK5ABW	—	—	—	—	66360	—	66360
VK5NVW	—	—	—	—	2112	63114	65226
VK5ZZ	—	—	16	1856	11970	39804	53646
VK5NLG	—	—	—	—	31302	13923	45225
VK5OR	—	—	—	4365	—	—	4365
VK5QQ	—	—	—	1300	1440	1080	8320
VK5NMQ	—	—	—	—	1012	60	1072
VK5RK	—	—	—	144	264	—	508
VK5IT	—	—	—	289	—	—	289
VK6NE	—	—	—	19800	9522	221841	251163
VK6NEX	—	—	—	—	—	152368	152368
VK6NBU	—	5	—	—	32448	102480	134933
VK6NCW	—	—	—	—	—	118542	118542
VK6FS	—	—	—	13446	798	49104	63348
VK6NDZ*	—	5	—	—	6144	51600	57749
VK6NZ	—	—	—	23450	—	—	23450
VK6NAY	—	—	—	—	46	258	304
VK6RI							Check
VK7NFR	—	5	—	—	1334	210	1549
VK7NJC*	—	120	—	—	2350	3510	5880
VK8BG	—	—	224	62805	75864	79980	218873
VK8NEB*	—	—	—	—	—	1968	1968
VK9XW	—	—	—	—	—	122625	122625

*denotes QRP

VK — CW

Call	160	80	40	20	15	10	Total
VK1FT	—	—	—	2436	128	2775	5339
VK2APK	—	—	—	62484	73706	47411	183601
VK2GW	—	5	6144	11088	33250	11868	62355
VK2AQF	—	—	—	15360	8112	24552	48024
VK2BQQ	—	75	3600	23160	10836	—	37671
VK2BAC	—	—	—	—	16728	—	16728
VK3MR	—	—	—	—	—	148044	148044
VK3AYO	—	5	23540	14280	3762	540	42127
VK3RJ	—	—	—	—	—	21285	21285
VK3AEW	—	5	24	1650	8360	912	10951
VK3YK	—	—	4	2700	3920	2178	8802
VK3VF	—	—	—	3106	3500	561	7257
VK3DQ	120	—	840	1989	3710	—	6659
VK3CM	420	—	—	—	—	—	420
VK3XB	5	200	—	—	—	—	205
VK3SV	—	180	—	—	—	—	180
VK3FG	20	45	—	—	—	—	65
VK4XA	45	20	11232	40180	55440	112230	219147
VK4SF*	—	—	—	—	128	2100	2228
VK4CJ	—	—	224	16	260	1134	1634
VK5MD	—	—	2480	27875	15680	5088	51123
VK5OR	—	—	—	16289	286	—	16575
VK5SW	—	—	—	4300	—	—	4300
VK6AJ	—	—	—	—	—	41328	41328
VK6NZ	—	—	—	22010	—	—	22010
VK6FW	—	—	—	—	18	3120	3138
VK7ZZ	—	—	—	918	2264	1320	4902
VK7RY	20	30	32	180	578	—	840
VK9XW	—	—	—	8844	—	—	8844

*denotes QRP

ZL — Phone

Call	160	80	40	20	15	10	Total
ZL1ADI	—	—	—	291456	110682	156510	558648
ZL1AZV	—	—	—	541974	—	—	541974
ZL1BQD	40	540	4488	87362	267036	175764	535230
ZL1ANH	—	—	—	360760	—	—	360760
ZL1AKY	—	—	—	5500	—	298452	303952
ZL1BCG	—	220	—	80132	2320	80190	162862
ZL1MQ	—	—	16	11440	3016	3140	17612
ZL1AGO*	—	570	100	1900	4446	4488	11504
ZL1AAS	—	2960	—	—	—	—	2960
ZL1BHR	—	2450	—	—	—	—	2450
ZL1AQO	270	—	—	—	—	—	270
ZL2ACP	—	—	4560	95535	112112	130152	342359
ZL2AH	—	—	—	8378	143510	12816	164704
ZL2BAK	—	5	288	10140	7100	—	17533
ZL2AJB	—	90	—	3608	2294	3996	9988
ZL3ABC	—	190	4	53650	22275	22050	98369
ZL3AAX	—	150	—	22176	7420	7665	37411
ZL4IJ	—	10	—	—	5328	6825	12163
ZL4BE							Check

ZL — CW

ZL1ADI	—	—	—	150274	1056	114030	265360
ZL1IL	—	30	2112	17072	107678	1512	128404
ZL1BCG	—	—	13984	16160	6790	78435	115279
ZL1HV	—	20	100	5336	—	23908	29364
ZL1MQ	—	—	—	3888	3700	12	7600
ZL2BR	—	—	—	62062	62952	22401	147415
ZL2ACP	—	—	—	—	—	91440	91440
ZL2AGY	—	20	1900	44908	41760	—	88588
ZL2AYP	—	30	—	24087	14840	—	38957
ZL2GZ							Check
ZL4HA	—	30	34544	52326	15872	432	1033204

VK & ZL INDIVIDUAL BAND SCORES

Band	Phone		CW		Phone		CW	
	VK		VK		ZL		ZL	
Open	3OT	546608	4XA	219147	1ADI	558648	1ADI	265360
	2XT	379800	2APK	183601	1AZV	541974	2BR	147415
	3AMK	274166	3MR	148044	1BQD	535230	1IL	128404
10m	3AMK	256542	3MR	148044	1AKY	298452	1ADI	114030
	2AXM	236082	4XA	112230	1BQD	175764	2ACP	91440
	6NE	221841	2APK	47411	1ADI	156510	1BCG	78435
15m	3OT	546608	2APK	73706	1BQD	267036	1IL	107678
	2XT	379800	4XA	55440	2AH	143510	2BR	62952
	2NZU	136192	2GW	33250	2ACP	112112	2AGY	41760

20m							
1BC	86480	2APK	62484	1AZV	541974	1ADI	150274
5OU	70584	4XA	40180	1ANH	360760	2BR	62062
8BG	62805	5MD	27875	1AOI	291456	4HA	52326
40m							
8BG	224	3AYO	23540	2ACP	4560	4HA	34544
3AUQ	36	VK4XA	11232	1BQD	4488	1BCG	13984
5ZZ	16	2GW	6144	2BAK	288	1IL	2112
80m							
3XB	2080	3XB	200	1AAS	2960	1IL	30
3AWQ	1450	3SV	180	1BHR	2450	2AYP	30
4AGP	550	2BQQ	75	1AGO	570	4HA	30
180m							
—		3CM	420	1AQO	270	—	
—		3DQ	120	1BQD	40	—	
—		4XA	45	—		—	
QRP							
6NDZ	57749	4SF	2228	1AGO	11504	—	
8NEB	1968	—		—		—	
3AWQ	1482	—		—		—	
SWL							
BERS195	11673						

Brief comments from the Contest Manager:

1. Too many late logs — all from VK.
2. General acceptance of the new scoring system.

In this efforts were made to make the scoring effective and multi-band attractive without overloading this. Possibly contact scores for bands could require revising but changing conditions could alter things again!

3. Inability of some to read and understand the rules!
4. General lack of support for QRP.
5. In general — a dropping off of CW operation.
6. Great support and results from VK "Novice" area.
7. There is a problem of costs — certificates, results duplicated for winners, postages, etc. etc., especially when district/band place awards are made. There are 70 mailings for VK/ZL alone.
8. The compilation of a big contest log is a time consuming task and this is appreciated. No less is the lot of the Contest Manager, who has many logs to deal with . . . many shapes and sizes; variations of setting out; degrees of legibility (!!), etc., etc. Even so, mammoth logs from operators like VK4XA and ZL1ADI were models.
9. Maybe there should be a contest division for the VK "N" calls, but the scores from some of these stations is very commendable.

73 and good operating.

Jock White ZL2GX. ■

AWARDS COLUMN

Bill Verrall VK5WV

7 Lilac Ave., Flinders Park, SA

Readers will observe that I have taken over the job of Federal Awards Manager from Brian VK5CA after a certain amount of persuasion on his part.

On behalf of all the members of the WIA and the readers of Amateur Radio, I thank Brian for a good job done over the past five years. No doubt we will hear more of him on the air in the future. I will endeavour to keep up an interesting standard in this column.

AUSTRALIAN AWARDS

It is my intention to compile an updated list and give maximum publicity in this column to awards issued from within VK. As awards are created, deleted or rules updated, I would appreciate details for publication. Awards which are available from other countries will continue to be featured from time to time. The recipients of awards issued by the WIA will ba included in this column at six monthly intervals.

DXCC TALLIES

I propose to update DXCC scores on the 30th June and 31st December for publication in subsequent issues of AR. This will include the top 12 call signs in each section. If there is sufficient publication space, I may also list some tallys for DXers who are lower down the DXCC listings. This may exhort some of these operators to try harder.

AMENDMENTS TO DXCC LISTINGS

All DXCC tallies are being progressively amended to include these latest amendments to the listings. The current country total is 319 and deleted countries now number 45.

ADDITIONS

ST0 — Southern Sudan — only contacts made from 7-5-72.

4U1UN — United Nations Headquarters, New York, USA — only contacts made from 4-2-78.

D6, 7, 8 — Comoros — only contacts made after 5-7-75.

FH — Mayotte — only contacts made after 5-7-75.

DELETIONS

EA9 — Rio De Oro (Spanish Sahara) only contacts made before 1-8-78.

FH8 — Comoros — only contacts made before 6-7-75.

CR8 — Port. Timor — only contacts made before 15-9-76.

VQ9 — Aldabra; VQ9 — Desroches; VQ9 — Farquar — only contacts made before 29-6-76.

RTTY TALLIES

There has been an explosion in interest in this mode over the past four or five years, no doubt due to the ready availability of morse page printers from disposals sources and suitable terminal units in kit form. A vast array of commercial equipment is also available from commercial houses in VK. Other operators have found it necessary to try RTTY because of their interest in microprocessors. Some have discovered that there are no real difficulties in the technology involved.

With the object of creating more interest in this mode, I have decided to publish the confirmed tallies for RTTY operators who send me details. At this stage I do not require the QSLs. It will be sufficient proof to me if I have worked or printed them on RTTY. If there is enough interest in this proposal it may be a future proposition to approach Federal Executive to create an award for RTTY operators. As a suggestion I would envisage the issue of an award for 25 countries confirmed plus stickers for every additional 10 countries and with CCR rules to apply. I invite any comments on this proposal.

Here are two scores for a start.

CONFIRMED ON RTTY

VK5RY — Tally 47.

VK5WV — Tally 20.

SSTV

Is there any interest in an award for this mode. Although I am not an enthusiast, I would be pleased to receive any comments.

Finally, here are the details of an award for RTTY operators.

EURO AWARD

The Deutscher Amateur Radio Club (DARC) issues the Europaelsches RTTY Diplom (EURD) to promote RTTY activities. The award is presented by the Deutsche Amateur Fernschreib Gruppe (DARG) and is available to all licensed amateurs who use RTTY. The award is issued in three classes for working European countries and prefixes.

Class 3: 100 prefix points in at least 20 countries

Class 2: 150 prefix points in at least 30 countries

Class 1: 200 prefix points in at least 40 countries.

The European countries are determined by the WAE country list. Each official European prefix counts one (1) prefix point per band.

All bands may be used. All QSL cards must confirm two way RTTY and be dated after 01 January 1965.

Contacts during the annual RTTY WAE DX contest can be used in lieu of the QSL cards provided the log of the requested station is also received. Do not request such until after the contest results have been published. The requests must be made within two years after the contest.

To apply for this award submit the necessary QSL cards with your application with a fee of 8 IRCs to:

DAFG
Award Manager
Postbox 640323
D-6000 Frankfurt 64
West Germany.

Good hunting.

GEMFIELDS CENTENARY AWARD

To mark the 100th year of the discovery of sapphires in the Anakie-Rubyvale region of Central Queensland.

Period of Award: From 2000Z 15th August, 1979, to 1800Z 25th August, 1979 inclusive.

Contacts: (a) VK, DX and SWLs. Work or hear ALL four (4) Novice stations of the Gemfields Radio Group on 3.525-3.625 MHz, 21.125-21.200 MHz, 28.100-28.600 MHz, any mode. (b) Z calls. Work VK4ZBI on 52.100 MHz up, SS or AM; VK4ZBI on 144.100 MHz, SSB or AM; VK4ZBI on 146.500 MHz, FM. DX or VK call areas.

Cost: $2.00 or 10 IRCs.

Logs: Send to Gemfields Radio Group, PO Rubyvale 4702, Old., Australia.

Closing date: October 31st, 1979.

Information required: List of stations worked, name, call sign, date, time in GMT, mode. No QSL cards required for award.

An attractive certificate will be issued to all making the required number of contacts. So be in it, it won't be available for another 100 years! QSL cards will be sent to all contacts made.

WORKED ALL QUEENSLAND "VK4" AWARD

1. This Award is divided into two sections:
   (a) **WORKED ALL CITIES AND TOWNS**
   (b) **WORKED ALL SHIRES**
2. Any transmitting Amateur or Listening Amateur may apply for this Award, provided that these applications comply with the Rules.
3. Only one Award is issued, but this will be updated upon receipt of further additions.
4. **WORKED ALL CITIES AND TOWNS**
   There are 20 (twenty) Incorporated Cities and Towns in Queensland —

   Brisbane, Bundaberg, Cairns, Charters Towers, Dalby, Gladstone, Gold Coast, Goondiwindi, Gympie, Ipswich, Mackay, Maryborough, Mount Isa, Redcliffe, Rockhampton, Roma, Thursday Island, Toowoomba, Townsville, Warwick.

   Initial Award: Fifteen contacts with Radio Amateurs operating from these Cities and Towns. A "silver sticker", if ALL Cities and Towns are worked.
5. **WORKED ALL SHIRES**
   There are 113 (one hundred and thirteen) Shires in Queensland. The population figures in these

Shires range from 250 to well over 25,000 — Albert, Allora, Aramac, Atherton, Ayr, Balonne, Banana, Barcladine, Barcoo, Bauhinia, Beaudesert, Belyando, Bendemere, Biggenden, Jackal, Boonah, Booringa, Boulia, Bowen, Broadsound, Bulloo, Bungil (as from 1-1-1979), Burke, Burrum, Caboolture, Calliope, Cambooya, Cardwell, Carpentaria, Chinchilla, Clifton, Cloncurry, Cook, Crows Nest, Croydon, Dalrymple, Diamantina, Douglas, Duaringa, Eacham, Eidsvold, Emerald, Esk, Etheridge, Fitzroy, Flinders, Gatton, Gayndah, Glengallan, Gooburrum, Herberton, Hervey Bay, Hinchinbrook, Ilfacombe, Inglewood, Isis, Isisford, Jericho, Johnstone, Jondaryan, Kilcoy, Kilkivan, Kingaroy, Kolan, Laidley, Landsborough, Livingstone, Logan, Longreach, McKinlay, Mareeba, Maroochy, Millmeran, Mirani, Miriam Vale, Monto, Moreton, Mount Morgan, Mulgrave, Mundubbera, Murgon, Murilla, Murweh, Nanago, Nebo, Noosa, Paroo, Peak Downs, Perry, Pine Rivers, Pioneer, Piltsworth, Proserpine, Quilpie, Redland, Richmond, Rosalie, Rosenthal, Sarina, Stanthorpe, Tambo, Tara, Taroom, Thuringowa, Tiaro, Waggamba, Wambo, Warroo, Widgee, Winton, Wondai, Woocoo, Woongara.

Initial Award: 51 (fifty-one) contacts. "Stickers" for 61, 71, 81, 91, 101 Shires, with a gold sticker if ALL Shires have been contacted.

6. MODES and BANDS. All legitimate modes and bands may be used, LF, HF, VHP, UHF, OSCAR, EME, etc., BUT CROSS-BAND MODES ARE NOT ALLOWED.

7. SPECIAL VK-RULE
As a number of areas are not very active, "DX-peditions" to these areas are encouraged . . . to help the Award Hunter (and others) to get that rare Queensland Shire, Town or City.

The following will apply:

A copy of the VK/P log shall be forwarded to the Queensland Awards Manager for use as a checklist.

The VK/P operator will automatically be credited with "as having worked" that particular area, if at least 20 (twenty) different stations have been contacted from that location.

8. METHOD OF APPLICATION:
A certified list of contacts, as per CHC rules, to be sent to:

THE WIA(Q) AWARDS MANAGER
GPO BOX 638
BRISBANE, QUEENSLAND, 4001
AUSTRALIA

with either $1 (Aust.) or 10 IRCs or equivalent for the initial Award. Subsequent stickers will be issued free, although return postage will be appreciated.

9. CONTACTS MADE AS FROM 1 JANUARY 1976 WILL BE VALID FOR THIS AWARD. ■

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

SENDING FORMAL MESSAGES OVER RADIO

In the March issue of AR, I described how to write a formal message; in this issue I intend to describe how to send one over the radio.

The formal message example chosen is from the ACT WICEN course lesson notes and the accompanying sender's script is self-explanatory. VK1RH was the sender and VK1ZDF the receiver.

The procedure used is that given in the "little grey book", Civil Defence Communications, Part III, 1969. As always, the aim is to clearly and quickly convey the contents of the formal message over the network.

FORMAL MESSAGE — SENDER'S SCRIPT

VK1ZDF—THIS IS VK1RH—LONG MESSAGE—OVER.

VK1RH—THIS IS VK1ZDF—SEND—OVER.

THIS IS VK1RH — PRECENDENCE ACTION — ROUTINE—TIME TWO SEVEN ONE FOUR ZERO ZERO KILO JUNE 78—ORIGINATOR'S NUMBER BRAVO SIERRA 7 — FROM BRINDABELLA SEARCH HQ—TO C ES—BREAK—EXERCICE. PARA 1 — STOP — SEARCH CONTINUES AS PLANNED—STOP—ROGER SO FAR—OVER.

VK1ZDF—ROGER—OVER.

VK1RH — PARA 2 — STOP — RESUPPLY REQUIREMENTS FOR NEXT FIGURES 24 HOURS FOLLOW STOP—ALPHA—STOP—MEALS FOR FIGURES 25 SEARCHERS AND FIGURES 5 FOR HQ STAFF TO BE DELIVERED TO THIS HQ IN SEPARATE HOT BOXES STOP—ROGER SO FAR —OVER.

VK1ZDF—ROGER—OVER.

VK1RH—BRAVO—STOP—WATER COMMA FIGURES 10 PLASTIC JERRICANS — STOP — CHARLIE —STOP—PETROL COMMA FIGURES 44 GALS WITH PUMP—STOP—DELTA—STOP—FIGURES 25 WATERPROOF SMOCKS—STOP—ROGER SO FAR—OVER.

VK1ZDF—ROGER—OVER.

VK1RH—ECHO—STOP—FIGURES 6 BY FIGURES 12 VOLT CAR BATTERIES FOR RADIO BASE — STOP — FOXTROT — STOP — FIGURES ONE HANDSET TYPE 1 SPELL HOTEL UNIFORM FIGURES 38—STOP—ROGER SO FAR—OVER.

VK1ZDF—ROGER—OVER.

VK1RH—PARA 3—STOP—IF HIKERS NOT FOUND BY TIME 281200 KILO WILL NEED TO ROTATE SEARCHERS AND REST PRESENT PARTY FOR FIGURES 24 HOURS—STOP—OVER.

VK1ZDF—ROGER—OVER.

VK1RH—ROGER—OUT. ■

Join the I.W. net at 2300Z on Thursdays on 14165 kHz when you have intruder information. ■

OC 33
Introduced Mar 77
Formerly
CM109, F Sigs 52-1, A224

Department of Defence

MESSAGE FORM

Note: Shaded areas are for Comment/Sigs use only.

LINE 1	SECURITY CLASSIFICATION AND SPECIAL HANDLING INSTRUCTIONS
LINE 2	
LINE 3	
LINE 4	
LINE 5	

PRECEDENCE – ACTION	PRECEDENCE – INFO	DATE – TIME GROUP	MESSAGE INSTRUCTIONS
ROUTINE	ROUTINE 2	271400JUN76	

ROUTING INDICATORS		SIG/ORIG NO
	FROM BRINDABELLA SEARCH HQ	
	TO CES *(Write only one addressee per line)*	BS7
		GR

EXERCISE 1. SEARCH CONTINUES AS PLANNED.

2. RESUPPLY REQUIRMENTS FOR NEXT 24 HOURS. FOLLOW.
A. MEALS FOR 25 SEARCHERS AND 5 FOR HQ STAFF TO BE DELIVERED TO THIS HQ IN SEPARATE HOT BOXES.
B. WATER. 10 PLASTIC JERRICANS.
C. PETROL. 44 GALS WITH PUMP.
D. 25 WATERPROOF SMOCKS.
E. 6 BY 12 VOLT CAR BATTERIES FOR RADIO BASE.
F. 1 HANDSET TYPE HU38.

3. IF HIKERS NOT FOUND BY 2812ØØK WILL NEED TO ROTATE SEARCHERS AND REST PRESENT PARTY FOR 24 HOURS.

PAGE NO	DRAFTER'S NAME AND TITLE	PHONE NO	REF FILE NO
1	HENDERSON		
NO OF PAGES	RELEASER'S NAME AND TITLE	SIGNATURE	DATE
1	HENDERSON		

FOR OPS USE	R	DATE	TIME	SYSTEM	OPERATOR	D	DATE	TIME	SYSTEM	OPERATOR	SECURITY CLASSIFICATION

Stock No 7530-66-094-6819

Message Form sample

VHF-UHF An expanding world

Eric Jamieson, VK5LP
Forreston. 5233

AMATEUR BAND BEACONS

Freq.	Call Sign Location
50.023	HH2PR — Haiti
50.025	6Y5RC — Jamaica
50.050	WA1ENX — Maine
50.080	TI2NA — Cosla Rica
50.087	WA8MHZ — San Diago
50.088	VE1SIX — Naw Brunswick
50.085	WA8JRA — Los Angalea
50.092	W7KMA — Oregon
50.098	KG6JIH — Guam
50.101	FO8DR — Tahiti
50.104	KH6EQI — Paarl Harbour
50.110	HL9WI — Seoul
50.110	KG6JDX — Guam
50.110	JD1YAA — Marcua Island
50.110	KH6HK — Marshall Island
50.500	5B4CY — Cyprus
51.999	YJ8PV — Naw Caledonia
52.200	VK8VF — Darwin
52.300	VK6RTV — Perth
52.350	VK6RTU — Kalgoorlie
52.400	VK7RNT — Launceston
52.440	VK4RTL — Townsville
52.450	VK2WI — Sydney.
52.500	3D2AA — Fiji
52.500	JA2IQY — Nagoya
52.500	ZL2VHM — Palmerston North
52.510	ZL2MHF — ML Climie
52.800	VK8RTW — Albany
53.000	VK5VF — Mt. Lofty
53.100	VK0MA — Mawson
144.101	VK2WI — Sydney
144.400	VK4RTT — ML Mowbullan
144.475	VK1RTA — Canberra
144.500	VK8RTW — Albany
144.700	VK3RTG — Vermont
144.800	VK5VF — Mt. Lofty
144.900	VK7RTX — Ulverstone
145.000	VK8RTV — Perth
145.100	ZL1VHF — Auckland
145.150	ZL1VHW — Waikato
145.200	ZL2VHF — Wellington
145.250	ZL2VHP — Palmerston North
145.300	ZL3VHF — Christchurch
145.400	ZL4VHF — Dunedin
432.400	VK4RBB — Brisbane
432.450	VK3RPX — Ballarat
432.475	VK7RTW — Ulverstone

Alterations to the beacon listings this month consist of the removal of ZK1AA as it is definitely not operating, and with little sign of any worthwhile 6 metre operating from there at present. David VK5CK has just returned after visiting the Cook Islands and reports first hand on the situation. HL9WI is not listed on the 52 MHz list, though still shown on 50.110. Operation by this station seems to be on a rather spasmodic basis, since no one has ever reported it as a beacon, and as far as I know has never been heard in southern regions even when there have been massive openings to Japan.

There is a report in the February issue of "QRM" that a six metre beacon will be operating in 1979 from southern Tasmania on 52.370 MHz. That's good news, I hope those responsible will see that I am amongst the first to be informed so it may be given listing. Full details please.

I would draw your attention to the fact that many of the beacons listed from overseas countries are operated by amateurs themselves on an attended basis so are not necessarily true beacons operating on a 24 hours a day schedule. Nevertheless, they do fill in gaps in geographical areas of interest and could well be heard when conditions are right. Hence in most cases they are worthy of inclusion in the list at this period.

THE SCENE IN THE SOUTH

As David VK5KK is still home from University and has many opportunities of keeping a watchful ear on the bands, I have asked him for a further report this month, which covers events from 1-1-79 to the end of February, though the last week of February went very quiet on all bands.

David reports as follows: "It remains to be seen as to whether indications shown in this period will spell out real DX for this equinox. On a casual observation February 1978 had in the first three weeks more decent Type 1 TE openings (i.e. afternoon) than so far this February 1979. However, this February has seen many, many good extended Type 2 openings at night, and also very good daytime F openings. Rumours spread about beacons being heard. To clear a few points it would seem that the period 5-12 to 22-12-78 drew reports on TI2NA and WA6JRA. Two VK5s and a VK7 have heard TI2NA at times around 1400Z. WA6JRA apparently has not been as consistent in these reports and no taped evidence exists to my knowledge. Of course, if you listen long enough, KH6EQI will come up very often and I have tapes and some chart recordings of this beacon for many openings from September to December 1978. Now back to TI2NA. Reports have cropped up from one or two areas that appear interesting. One apparently an IF break-through with a 28 MHz to 6 metre transverter! Other times, weak, OSBing TV spots have given some a scare. However, I have a tape of what looks to be the beacon sending . . . TEST TI2NA . . . KH6EQI has appeared a couple of times this year but most reports appear to be rumours. TI2NA was heard, apparently, in VK3 in early February around about the time KG6 worked K7, VE7. Just remember also that weak CW on any of these frequencies may be a JA in QSO with JA, etc., just because it may be an international beacon segment doesn't mean that everyone stays out of it, so be sure of your CW. Also a lot of listed beacons are normal stations and some only operate on an attended basis.

VHF/UHF DX SUMMARY

"Following is a summary of VHF/UHF DX and otherwise drawn from several logs. 1-1 and 2-1 saw large 50 MHz openings to Japan though 52 MHz saw very little. VK8GB was worked from VK5 0540Z onwards. 3-1, 4-1 and 5-1 saw some good tropo on 2 metres to VK3 but unfortunately not many stations to be worked from VK3 except the usuals. 6-1 saw FK8, YJ8 and JA to VK5. 7-1 YJ8 and JA to VK1, 2, 3 and 5, tropo on 2 metres still good. 8-1 YJ8 to VK5 with YJ8PV appearing several times. For the next several weeks the new YJ8PV beacon appeared on the band so many times that VK2WI now takes second place in the most regular appearance charts! 9-1 YJ8 and ZL3 to VK5. 12-1 YJ8ZV and YJ8PH to VK5 0010 to 0050. 14-1 large ZL opening (1, 2 and 3 metres) from southern States and VK4. Most noteworthy contact was between ZL1ADP and VK5ZMO and VK5KK, 52.275 MHz at 5 x 9. Fred uses an Eddystone 750 to a valve converter with 10 to 15 watts AM to 4 element yagi. Those narrow-banded (-minded) people who (a) sit talking on 52.050 during extensive DX openings or (b) swoop on people in (a) so as they have a quiet 52.050 for their DX pals to hear nothing! Take note!

"15-1 JA1 and 7 from 0000 to 0100Z 5 x 6 to VK5. YJ8ZV at 0032 and 0115Z. 16-1 JA1 and 2 0010 to 0040Z 5 x 5. 20-1 YJ8KM 5 x 9 + 20 to VK5. From 20-1 to 26-1 quiet a few small openings to JA on 50 MHz at midday or around 1200Z but nothing to work. Period 25-1 to 30-1 openings to VK6 on 2 metres. VK6RH/P and VK6PR/P tried ATV towards east but unsuccessful. VK6KZ and VK6HK out portable over Australia Day week-end but very quiet conditions above 432 MHz. VK5KK worked VK6KJ 5 x 9 on 432 at 1146Z on 27-1. VK6XY having antenna problems on 432 only 5 x 3 here. VK6KZ/P inaudible during tests. 29-1 ZLs 5 x 9 on 6 metres at 0036Z to VK5. Also on 29-1 very strong local tropo conditions to Eyre Peninsula, about 180 miles. IC202s being used hand held in backyards and in bedrooms with good signals. Tropo to VK3 also good at night and again around 0700 to 0900 local time. Col VK5RO has been working VK2 (Broken Hill) and VK3 and VK5 DX extensively in early morning skeds. 4-2 large JA opening to VK4, 5 and 8 from 1100 to 1220Z. Also lesser openings on 3-2 and 5-2. 7-2 a larger opening to JA1, 2, 3, 4, 5, 6 and 9 from 1040 to 1410Z. Signals from 5 x 3 to 5 x 9. VK5LP, VK5RO, VK5ZBU, VK5AVQ and VK5KK clocked up well over 100 contacts. It should be noted that one some of these dates also VK1, 2, 3 and 7 worked JA although as of 15-2 JA DX quiet in Sydney. Period to 10-2 with occasional JA from 1200 to 1540Z on 50 MHz.

"11-2 good opening to VK7 on 2 metres with 5 x 9 signals to VK5. Also tropo conditions on 6 metres with VK5KK and VK5AVQ to VK7DA. On 2 metres VK7DA worked VK5KK, VK5AVQ, VK5LP, VK5ZPS and VK5ZDR from 1200 to 1315Z when he went ORT. To top it off VK5ZCT at Port Lincoln successfully worked into the three VK7 repeaters and the VK6 repeater at Bunbury. I was told he worked into the VK6 Wagin repeater and was heard on direct path in Perth! Strange conditions indeed as from here and in Adelaide not even the Albany 2 metre beacon was audible. At 1435Z on 6 metres path to Perth opened and several tests showed that 2 metres was not a goer, though the Es opening on 6 metres was still a bit strange. Band closed on 6 at 1515Z.

"12-2 ZL2 to VK5 5 x 7 at 1450Z. Late night JAs. On 13-2 large JA opening (biggest quantities and strengths so far for the month) from 1120 to 1400Z. Areas JA1, 2, 3, 4, 5 and 6. Several attempts were made to find some HL/HM stations on 50 MHz but no go. Band had also opened to VK3 and VK5. Again VK5LP, VK5RO, VK5ZZZ, VK5ZBU and VK5KK working on 6 with two Okinawa stations worked. Also VK1RK and VK3AUG heard being worked but none of the usuals from VK3. VK5RO heard DU2?? In reply to QRZ, but possible in view of the Okinawa stations. Note also on 12-2 JAs worked KH6 and KL7 from 0000 to 0300Z. Previous week KG6 and KL7 around at same time.

"14-2 JA1, 2, 3 and 6 from 1300 to 1420Z on 52 MHz. Flicking the switch to 50 MHz gave another 90 minutes of entertainment with JAs working their local DX. Even by 1515Z they started going ORT and one or two kept on having local QSOs. Listening to one Japanese conversation I suddenly heard VK5RO mentioned! For a moment I thought Col was up to something (Tut, tut. With all those big ears listening . . . 5LP). However, further into the discussion it became obvious the other station was giving a list of the southern DX stations worked on 52 MHz, most of which were VK5s earlier on. They went QRT at 1540Z and nothing else seemed to come through in the 50 MHz region so I went to bed! Wouldn't it be nice to have 50 to 54 MHz? Most VK4s and 8s have experienced that sort of opening. 16-2 what appeared to be a large solar flare with ionospheric noise even on 144 MHz occurred from 0152 to 0157Z. Straight after I worked two JA8s and then sat for three hours carefully looking for DX. Below 50 MHz quite a few carriers evident with a few TV types that don't fit into somebody's list. All came from the north. A further five JA8s were worked amongst other JA7s and JA0s. Band QRT at 0440Z. JAs late that night. 17-2 band open to JA around 0645Z on 52 MHz but no one tried to work them even though they were talking in Japanese on that SACRED 52.050. Again JA on 50 MHz late at night.

"Just lately when working locals on 6 metres it is usual to hear some JAs on 50 MHz. Keeping two separate systems going can be very interesting as the better one stays on 50 MHz to listen and while in QSO with the other system on 52 MHz. Many times I have heard JAs calling even with my little 5 element south trying to have an uninterrupted QSO on 52 MHz. Me thinks we will have to use 144 MHz more often. No one will laugh when the same thing happens there! I think it just indicates that overall this equinox will be 100 per cent up on that 12 months ago. As far as W6 is concerned, well, take it or leave it, but with an Es extension both ends and a reasonable Type 1 TE then 0300 to 0400Z could show promise. But don't forget it could happen via F layer at an earlier time from 0000Z. However, just remember that about 0700 to 0800Z is a popular time for KH8 and up to 1100Z is about 11 p.m. to 3 a.m. West Coast time so the time difference will play a part in activity.

"And what about Magnetic Field Aligned Irregularities? One well known VK2 expert on TEP says it is rubbish but overseas experts do say that it does give some explanations to the recent 2 metre DX. Sought of 'out with the old ideas and in with the new'. This cycle will make or break that one.

THE LOCAL SCENE

"Quite a lot of interest is brewing on 6 and 2 metres. More and more stations are becoming involved in DX and some of these are relatively new calls, who are developing acute awareness to VHF DX as apart from the well known HF-syndrome! Amplifiers for 200 to 400 watts are taking over for the coming years. I expect this is common throughout the country and it will be interesting to see the re-emergence of Melbourne stations on 6 metres when the 'Big O' disappears later this year. Let's also hope two metres will see a similar revival from that area as it is disconcerting to hear the only readable Melbourne stations on 144.3 MHz busy liaising ATV contacts, too busy it would seem, on several occasions, to bother about other DX. Between VK5RO and myself we have had only two contacts to Melbourne on 144 MHz this season and it wasn't exactly the propagation which let us down. Plenty of other contacts are to be had to inland VK3, Broken Hill, VK6 and VK7.

"One local contact of interest was on 11-2 with Mike VK5ZMI on 432.1 MHz. Mike was using a new IC402 hand held inside his first storey flat at St. Peters, Adelaide, 60 km path, signals 5 x 5. This contact nevertheless is not unusual as previous times I have worked Mark VK5AVQ when over a similar distance he was using a groundplane antenna mounted on a bench supply in his shack. It goes to show, however, the interesting properties of the shorter wavelengths as far as penetration goes in built-up areas. Signals on 2 metres under similar conditions are never better except when a great deviation from line-of-sight occurs. Some mobile experiments on 23 cm have also shown this and for on line-of-sight communications a bit of power is needed to get some more coverage from reflection and refraction. By the way, mobile flutter on 1296 MHz was interesting. Just imagine the difference between 144 and 432 and then multiply the resultant factor (3) to get the flutter rate on 1296, not unlike a good buzz!"

Thanks, David, for filling in the gaps in my information, and for the observations you have made. There is little doubt that the erection of stacked 8 over 8 antennae at the VK5KK QTH for use on 6 metres has paid dividends for TEP signals. The lower angle of radiation and reception of these antennae are consistently giving David signals at 3 to 4 S units stronger than my large single 6 element yagi on a 25 foot boom will give. I am hoping to have a similar array soon and it will be interesting to compare the results then.

SILENT KEY

Norman Burton BRS11494 from Revesby, NSW, writes to say Bob Grimm K6RNG joined the ranks of Silent Keys on 13-1-79, following a massive heart attack at the age of 46 years. Bob was extensively known throughout the VHF world for his contributions to the art, and his passing will be a sad loss for all concerned. Bob had written to me (5LP) previously and indicated how much he was looking forward to working into Australia from the USA on 6 metres during this cycle. Such is life.

ZL UHF ACTIVITY

Lyle VK2ALU has sent copies of information contained in "The Propagator" and concerns the 70 cm opening to New Zealand at the time of the large 2 metre opening in January. Lyle reports hearing the Palmerston North beacon on 432.250 MHz between 2325 EST on 9-1 and 0015 EST on 10-1 at a consistent S4. It idents ZL2VHP using FSK. Signals were taped. CQs on SSB and CW produced no results. An earlier knowledge of the opening may have produced a contact with one or more of their higher powered stations.

Lyle received a letter from ZL1THG of Hamilton, NZ, reporting copy of VK2ALU on CW at S1-2 on 432.250 MHz on 10-1, which corresponded with the times Lyle was calling CQ on this frequency (0715 to 0745 EST). ZL1THG called without success, running 3 watts output.

Other information included by Lyle is a list of ZL repeaters numbering 34 stations, mostly FM but a few on AM. SSB calling frequencies in New Zealand are 52.2, 144.2, 432.2 and 1296.2 MHz. Tom ZL1THG sent a list of 70 cm stations in New Zealand, some of which are included here for your future information. ZL1TAB 10W SSB, good QTH. ZL1MO AM and CW, also on 1296. ZL1MQ 20w AM/CW plus 1296. Good QTH. ZL1THG 3 to 30 watts AM/SSB. Poor QTH, but able to go portable. Also has 1296, 2304 and 5600 MHz! ZL1ATV 10W SSB/CW. ZL2TFJ high power SSB, good QTH. ZL2TAL 10W on 432, 1296 and 2304. Can go portable. ZL2TAR has ATV in colour, inc. repeater. ZL3AR and ZL3LS AM and ATV. ZL4LV and ZL4LS SSB/FM.

MICROWAVE TEST

A test was made on the 10 GHz band on 16-1-79 between VK2BYY portable on Saddlecloth Mountain, south of Kiama, and VK2ZYM/VK2AHC at Collaroy Plateau, northern suburbs of Sydney. The test was to try an all land path rather than the all water paths along the South Coast tried last year. No contacts were made possibly due to path obstructions. All the gear used was made by Des VK2AHC . . . from "The Propagator".

NEWS FROM THE WEST

Wal VK6KZ has written an interesting letter and here are some extracts other than the 1296 MHz record breaking contact with Chris VK5MC which have been covered before. During the annual pilgrimage to the south-west corner of VK6 he was not able to reach further on 432 MHz than Aub VK6XY had done the year before, taking the record. He was unable to work Les VK3ZBJ for some reason, and VK3YLR did not have 432 when operating from the Dandenongs.

Looking to next year Wal indicates an interest in trying some east/west contacts from Cape Leeuwin, which is about as far west as one can go comfortably! In addition to seeking contacts to the east, he proposes trying the path to the north, as he has found the trough across the Great Australian Bight appears to coincide with the formation of a trough up and down the WA coast producing good signals between Perth and Carnarvon, and Bunbury and Geraldton on 144 MHz. With reports of high channel TV (190 MHz) from Indonesia being received at Exmouth near North West Cape who knows what can be worked. Maybe he can give the Albany boys a run for their money from Perth! Additionally, he is priming up for 2304 MHz contacts, with converter and antenna so far, plus a transmitter which can be provided by Don VK6HK. Also looking at 3.3 GHz!

On 27-1 Don VK6HK and Wal VK6HZ went portable again to Walpole, and made contacts with VK3 and 5 on 144 MHz. Les VK3ZBJ was heard on 432, but Les was unable to hear Wal, although heard in Mt. Gambier by Colin VK5DK and also VK5OA. On Sunday 28-1 besides working VK3BPH and several VK5s on 144, they moved from Walpole to Mt. Burnside, about 60 km inland with an approx. 145 km track across land to the sea, and worked VK5MC and VK5ZPS. This is the furthest west they have so far traced the tropo openings. Bob VK6ZFY is reported to have heard VK5VF beacon on 144.8 the same day from Kulikup, further inland and to the north-east of Mt. Burnside, but no contacts. The whole trip involved over 900 km of travelling by this dedicated pair.

Wal concludes by saying he is totally unenthusiastic about the present Ross Hull Contest which, with its altered rules, has destroyed any recognition of distance, propagation and frequency as the dominant features of the points table. He is disappointed with the rules, having been an ardent supporter of the contest since becoming licensed as VK6ZAA in 1954. I fully concur with these comments. There is certainly no incentive for stations to go out portable any more (so much so that I am considering selling my alternator), and home stations still actively participate in giving numbers and thus keeping up the overall activity on the bands, but refrain from putting in logs in view of the effort involved for such small scoring returns.

EXTRA BEACONS

Bill Tynan W3XO, Conductor of "The World Above 50 MHz" in "QST" sends a list which contains a few extra beacons which you may care to note on your lists. They include: 50.029 ZS6PW South Africa; 50.035 ZB2VHF Gibraltar; 50.100 ZS6HVB South Africa; 50.103 N8AJD Ohio, USA; 50.110 K6GRO Saipan and AL7C Alaska. He confirms that 6Y5RC Jamaica, TI2NA Costa Rica and ZB2VHF Gibraltar are operating. Thanks, Bill.

GENERAL NEWS

I had a contact with Bruce VK4ZBC/4 on 3-2-79, who was contemplating whether he should try operating maritime mobile if he should try fording Julia Creek on whose banks he had been camped for three days waiting for the water to go down! . . . pleasing to see Dave VK4ADL on from Longreach, hope Alan VK4ZJS can be persuaded to come on from there as well . . . Hal VK4DO reported he had been on the air for 56 years, and had been made a Life Member of the Central Queensland Branch of the WIA and was their first Life Member. Congratulations, Hal . . . JA2BZY Joshi had worked 27 countries on 6 metres as of 3-2-79, which must rank as an outstanding effort, and shows what you can do if permitted to work on 50 MHz! He needs H44DX in the Solomons and VK9NI Norfolk Island to complete about all there is for the time being . . . during November KG6 worked VE7BLF, and W6XJ worked KG6JIH and KG6DX, all on 50 MHz of course . . . David VK5CK just back from Cook Islands reports ZK1AA has a 7 helical antenna for satellite working, a 64 element antenna for 2 metres, and an 8 element LP yagi on the ground for six metres! But no beacon . . . VK5RO reported hearing of contacts between Gippsland area of VK3 and ZL on 2 metres early February, possibly on Channel 40 — no further information obtainable on this . . . TV sound on 44.250 MHz is from HLKA in Korea — often very strong around 0300 to 0500Z.

ABOUT 52.050

Hassles seem to arise from time to time over the usage or non-usage of the 6 metre calling frequency of 52.050 MHz, to the extent that I received a report there were moves by a VK3 operator to start another calling frequency on 52.025. Such a move is to be deplored as only of recent times have we been able to spread the news satisfactorily overseas that our calling frequency is 52.050, and I would appeal to the VHF fraternity to keep 52.050 as the calling frequency and not start fragmentation of the band. With the first of the 1979 equinoxial periods right on us and with the cycle 21 peak just around the corner, any moves for such changes must be resisted strongly.

Personally speaking, I see the use of 52.050 in the following manner and I believe these views are supported by quite a number around me.

1. The main idea of having 52.050 MHz as a calling frequency was to use it as such, i.e. overseas and local stations who would be seeking a contact would first of all carefully monitor the frequency (under the terms of your licence) and if not in use a call would be made, or if in use a call made to the station operating on that frequency for a contact.

2. If the call results in a DX contact, especially it overseas, then it is likely the contact will be a brief one, in which case there seems no reason why the contact cannot be continued for a short period and concluded on the call frequency, thus alerting other listeners to a possible contact.

3. If an answering station is a local station and the contact desired to be continued it seems courteous to other band users to shift from the call frequency. If you feel there are possibilities of DX being around then you can either make the contact brief and return to make a further call on the call frequency or make a shift to, say, 10 kHz which leaves you close enough to the call frequency to be tuned by a searching station, but far enough away to not interfere with a station needing the call frequency. This same situation exists in the case of Es contacts, having established contact move off the call frequency particularly if it is a general band opening.

4. The action of some high powered stations sitting on the call frequency and using it to the exclusion of others in the hope they will be the first to be heard by some other area, in other words, keeping the frequency clear only for themselves, is also to be deplored. This has happened, and it is shameful operating and is to be mainly noted during periods of Es openings, and the tactics of some stations have been noted here for future reference.

5. 52.050 is not a sacred frequency, as David VK5KK points out, but should be used sensibly and with due regard for others, but as we are all different and some people will always have questionable operating habits, then we need to be tolerant of the shortcomings of some, but none of these reasons give sufficient strength for any start to be made towards another call frequency, let everyone forget it and do the right thing on 52.050.

Having said all that, let's close with the thought for the month: "Maturity begins to grow when you can sense your concern tor others outweighing your concern for yourself."

73. The Voice of the Hills.

COUNTRIES ACTIVE ON SIX METRES

From SMIRK comes a listing of countries which are active on six metres. This listing of 42 countries does not include any DXpeditions or other planned activity. With the current sunspot cycle it should present a unique challenge to DXers unlike the boxtop DXCC of the FH bands.

The list is as follows:

CE—Chile, FO8—F. Oceania, HH—Haiti, H44—Guadacanal, K/W, etc.—US, KH6—Hawaii, KV4—Virgin is., PJ—Neth. Ant., TG—Guatamala, VK—Australia, VP2L, St. Lucia, VP9—Bermuda Is., YJ—New Hebrides, ZL—New Zealand, DU—Philippine Is., FY7—Fr. Guiana, HK—Columbia, JA—Japan, KG6—Guam, KL7—Alaska, KZ5—Canal Zone, PY—Brazil, TI—Costa Rica, P29—New Guinea, VP2S—St. Vincent, VS6—Hong Kong, YV—Venezuela, ZS—South Africa, FK8—N. Calendonia, HC—Ecuador, HL—Korea, JD—Ogasawara Is., KG6R—Salpan, KP4—Puerto Rico, LU—Argentina, PZ1—Surinam, VE—Canada, C6A—Bahama Is., XE—Mexico, ZB2—Gibraltar, 3D2—Fiji Is., 6Y—Jamaica.

From the SMIRK newsletter comes a warning to anyone writing to BV2B on Formosa. Apparently you should not put his call sign on the outside of the envelope. Remember in many countries call signs on envelopes can lead to trouble for the station concerned. So when BV2B is on 6 send your QSL in a plain envelope.

6 METRE LIAISON NET

A 6 metre liaison net is on 28.885 MHz. This is to co-ordinate listening and calling schedules and reports of 6 metre propagation. W6XJ is on most week-ends. A net on the West Coast of the USA meets at 2100Z Sundays, which is Monday morning in Australia.

STOP PRESS

6m DX TO USA

Bruce N6CT, 60 miles north of San Francisco, was worked on 52.060 MHz by Ed VK4ZEZ, Hal VK4DO, Neville VK4ZNC, and Dave VK2ZDK/4 on 2nd March, 1979, at about 0500Z.

Signals to 5 x 9 at VK4DO, who also worked N6CT with his IC502.

Also . . . on 12th March, W6XJ, N6CT and others worked VK3AUI, VK3AUQ, VK3ZZX, VK3AQR, VK3AMK, VK3AKK, VK3OT.

Contacts started with W6XJ and VK3OT at 0830k and lasted till 0935k.

JAs and KG6DX were worked during the evening.

These are the first VK-USA contacts for cycle 21. ■

QSP

WHEN NOT TO USE THE GREAT AUSTRALIAN ADJECTIVES

Amateurs everywhere are reminded that we are supposedly "self-policing". Notwithstanding all this, amateurs (or a few) on the local airwaves of late, have been prone to unthinkingly making use of a range of innocent great Australian adjectives. If you hear some then you will be doing amateur radio a favour by inserting a gentle type of reminder. This IS amateur radio!

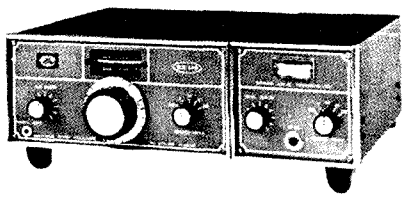
DESCRIPTION

Directed to Bob VK2ZRN was the observation by Gus VK2ZGJ: "Your signal was up and down like a toilet seat at a mixed party". — From "Smoke Signals", Dec. '78. ■

NEW LOW PRICED AMATEUR TRANSCEIVER FROM ATLAS RADIO INC.

Atlas Radio Inc. USA are due to release a new Amateur transceiver line in Australia through their Australian agents, GFS Electronic Imports, in early April.

This new transmitter/receiver range, known as the "Atlas 110 Line", consists of a high performance amateur band receiver, the RX-110, covering 80 through 10 metres, and two "bolt on" transmitter modules, the TX-110L and TX-110H which, when combined with the RX-110, produce a high performance low cost transceiver. The TX-110L is a low power module having 15 watts input, while the TX-110H runs around 200 watts input.



Overall size of the combination is only 31 width x 9.5 height x 24.8 deep cms, which makes the Atlas RX/RT-110 ideally suited to a mobile installation.

Initially only the high power RX/TX-110H transceiver combination will be available from GFS Electronic Imports. Its expected price is around $499.

For further information on the Atlas 110 line and its accessories contact GFS Electronic Imports, 15 McKeon Road, Mitcham, Vic. 3137. Phone: (03) 873 3939. ■

HY-GAIN PRODUCTION UP AND NEW LINES ADDED

Since the re-opening of Hy-Gain Electronics in the USA, orders have outstripped production, according to the new Australian distributors, Audio Telex Communications Pty. Ltd.

"We are all delighted with the speed in which Telex Communications were able to restore production and re-introduce the fine range of Hy-Gain antennas," said Rod Craig, General Manager Audio Telex.

Apart from re-establishing existing lines, Hy-Gain have announced that the Telex range of headsets and headphones and microphones will now be combined with the Hy-Gain Amateur antenna range.

Telex make a wide range of headphones and headsets with boom mics, which are specially designed for amateur use.

"We are stocking the popular CM1320 and C1320 series," said Mr. Craig. "These models are well known in the amateur field, particularly in the CM1320 headset microphone with ceramic boom mic." Mr. Craig went on, "Now that Hy-Gain is a division of Telex Communications Inc., it is logical that products for the same market should be sold by the one group, and we at Audio Telex will be marketing these products through our Hy-Gain retailers." ■

ICOM RELEASES IC202S

The latest update to the popular 2m ICOM portable transceiver is the IC202S 3 watt model featuring both upper and lower sidebands. Previously this unit suffered the disability of having only one sideband.

The IC202S also incorporates a number of circuit improvements over the IC202E and the earlier, IC202.

The ICOM product range is distributed in Australia by VICOM (Amateur Radio Division), 68 Eastern Road, South Melbourne, Victoria 3205. ■

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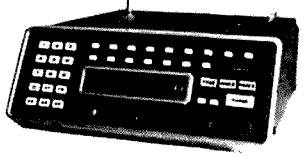
16 Chns.



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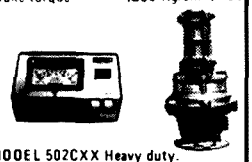

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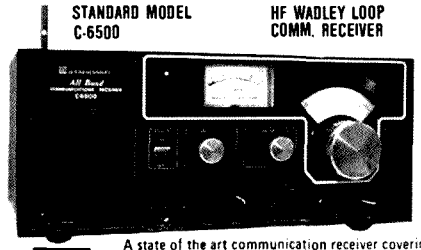

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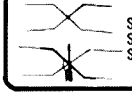

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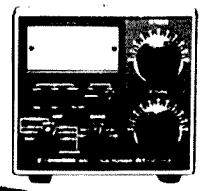

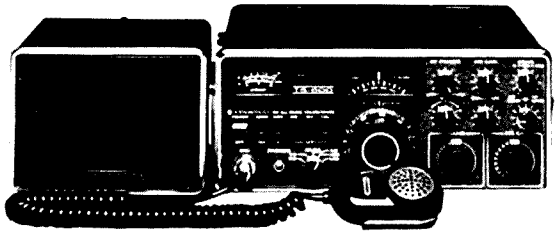

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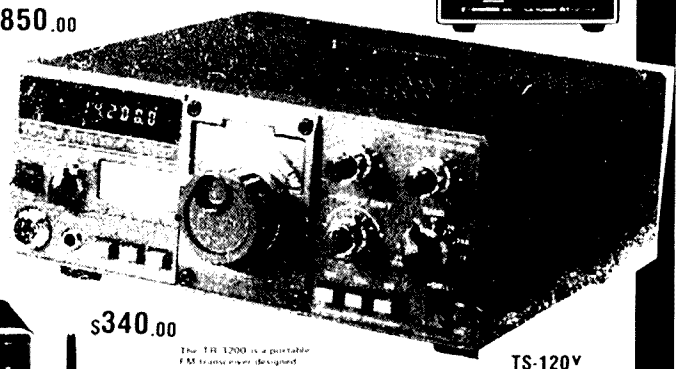
The TS-600 is an all-mode solid state transceiver which fully covers the 6 meter band. This transceiver is based on our many years of successful experience with the 6 meter band. Its features include SSB, FM, CW & AM operation with sending and receiving capabilities on 20 channels with 5 crystals. The TS-600 is an all-in-one type that comes complete with built-in speaker, power supply, and microphone. You can enjoy QSOs with domestic stations or DX especially when sporadic E occurs.



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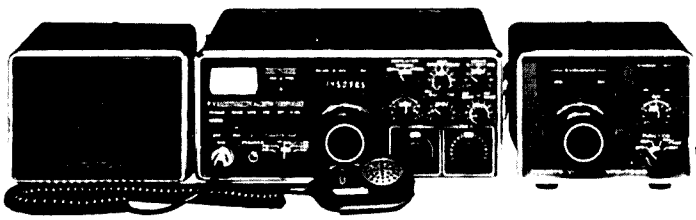
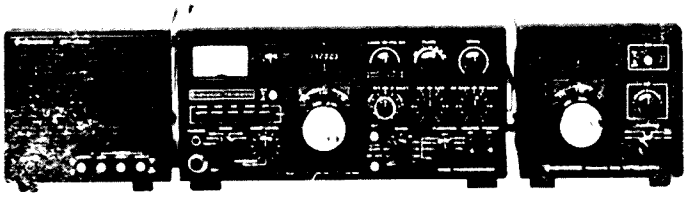
The TR-1200 is a portable FM transceiver designed for use in the 70 CM amateur radio band. It is small and light weight, and is equipped with 12 crystal-controlled channels for transmission and reception on FM.

TS-120V
$630.00



SP 700 $43.00 TS-700SP $875.00 VFO-700S $157.00

The TS-700S is the all-mode solid state transceiver that provides you with versatility plus over the entire 2 meter band. It's feature-packed design puts you on SSB, FM, CW, and AM. The AC and DC power supplies are built in which allows you to operate the TS-700S just about anywhere. Equipped with a VFO that enables continuous tuning from 144–148 MHz, the TS-700S comes complete with built-in digital frequency readout, receiver preamplifier, VOX, sidetone, and microphone.



SP820 $70.00 TS-820S $1150.00 VFO820 $185.00

The TS-820S is a 1.8 to 29.7 MHz SSB, CW, RTTY transceiver backed by our many years of successful experience and "know-how", as well as the most advanced electronic technology. The signal circuits of both the transmitter and receiver sections are quite simplified with the employment of a single conversion system for linearity. This transceiver also employs phase lock loop (PLL) circuitry. PLL technology allows accurate frequency

SP520 $33.00 TS-5205 $680.00 VFO-520 $153.00

The TS-520S combines all of the fine, fieldproven characteristics of the original TS-520 together with many of the ideas, comments, and suggestions for improvement from amateurs world-wide. Kenwood's ultimate objectives . . . to make quality equipment available at reasonable prices. The TS-520S provides full coverage on all amateur bands from 1.8 to 29.7 MHz. Kenwood gives you 160 meter capability, WWV on 15.000 MHz. And with the addition of the TV-502 and TV-506 transverters, your TS-520S can cover 160 meters to 2 meters on SSB and CW.

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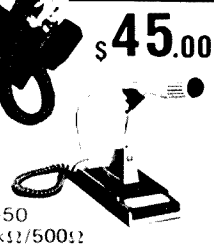

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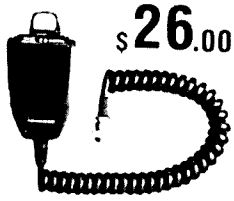

MC-30S (500Ω)
MC-35S (50 kΩ)
Dynamic Handy Mic.

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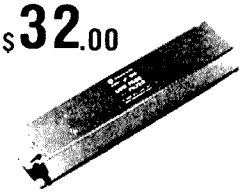

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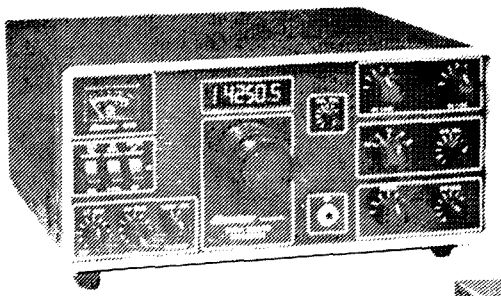

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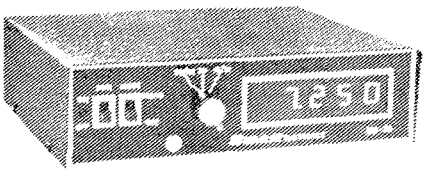

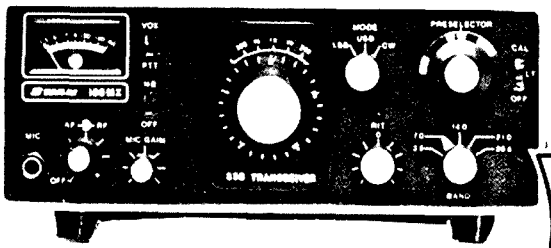

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Mike Bazley VK6HD
6 James Road, Kalamunda W.A. 6076

I was listening around on 20 SSB the other day and came across a QSO between a VK3 and a VK7. The VK3 had recently put up a 3 element mono-bander and was detailing the DX he had worked. Unfortunately the VK7 was not really impressed because, as he said, "DX was not for him as he could only find room to put up a 20 metre dipole at 40 feet and did not own a linear".

I just cannot agree with this statement. If one has room to put up a dipole on 20 then one has room to put up dipoles on 15 and 10 as well. All three antennas, if need be, can be fed from the same feeder. One hundred watts of CW can work the world.

Discounting most of the North and South Americas the majority of amateurs using the CW mode use a mixture of dipoles or ground planes and have an average power input of 50 watts. They can work the world, why should we not do the same?

Are you fed up with fighting the QRM on SSB? How about joining the mob on CW? It only takes a little practice to brush up that code speed, you did it once to get your ticket so you could do it again.

May I hasten to add that I have nothing against SSB, but in circumstances of low power and non-directional antennas CW has a distinct advantage for the DX lover. As a certain DX station recently remarked to me after an 80 metre QSO, "If we had tried that on SSB we never would have made it".

After last month's comments on the possible abuse of nets one might think that I was totally against them. Nothing could be farther from the truth provided they are well managed and a station is left to make or not make his QSO when his turn comes. For those who like to join in round table DX contacts the following should be of interest. C6ACA, together with FG0AYO and HR3JJR, often gather on 14160 at 1200 GMT, all are welcome. There is also the DX group, usually run by I1LLZ, that meets daily on 14220 at 0700 GMT. Also look out for the Carribean net which is now active again on 14175 from 1100Z.

P29JS is said to be holidaying in GW land at the time this was being written (late February) and rumour has it that he has all the necessary visas and permits to operate from the Andaman Islands. Rumour corner also states that VP8SU (South Orkneys) is off the air with transmitter trouble. How serious this is and whether the problem can be solved is not known.

3X1IX was heard the other day and disappeared under a monster pile up of Ws and Europeans. This writer never heard him again and doesn't know whether this is a genuine operation or not. The time was 2300 GMT on the low end of 20 CW.

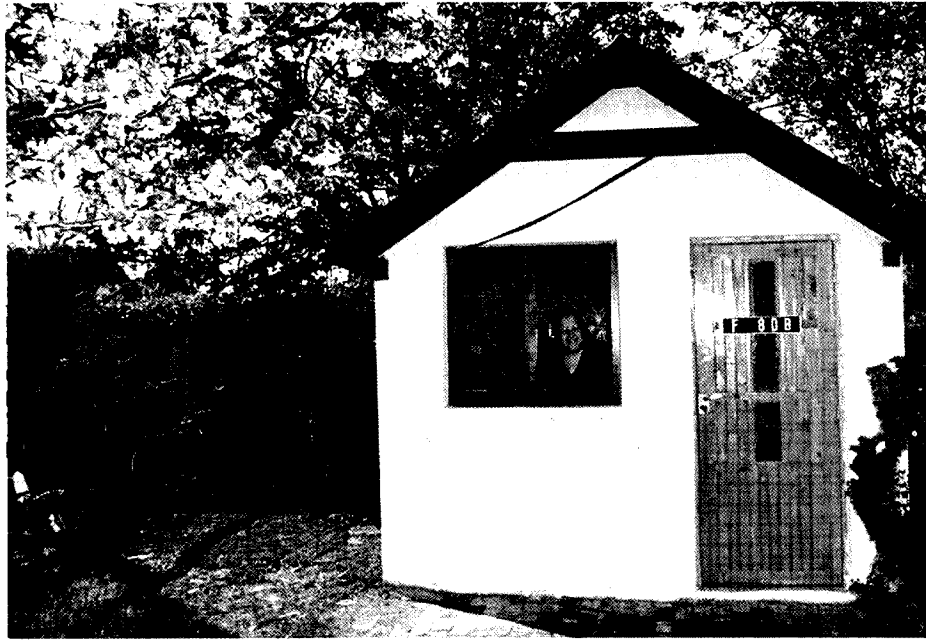
VE3BWK/4U has been worked from VK6 on 80 SSB. His location counts as Syria and he stated that he had a fixed beam on VK. It is believed that he would welcome other QSOs and VKs. OSL via WA3HUP.

VR6TC is reported to be awaiting the arrival of slow scan TV gear. This writer still needs him on any mode for a new one! VR6BJ is supposed to be active for a few days from April 19th, mainly on CW. There's hope yet!

The West Gulf DX Bulletin reports that ST0HF is in the Southern Sudan. He uses an SR-150 and SB 220 into a dipole and should be there until the end of April. OSL via G4GFT, which is his home call.

THE MALDIVES

If you worked 8Q7AF or 8Q7AG, Carl and Martha Henson during February, QSLs got to their home



A real ham shack — complete with OT.—Andre F8DB.

OTH — 8280 Chestnut Drive, Jonesboro, Georgia 30236.

The West Gulf OX Bulletin also reports that SM4MI could be going to 3X, Guinea, in April. Could this be the 3X1IX reported above or "Slim" jumping the gun?

Afghanistan, once a fairly common country, is now appearing on country want lists. YA1DD was worked on 20 CW at 1330Z doing a roaring trade and asking for QSLs via W4BW. No reports of whether he is genuine or not — best keep to the DXers' rule, work 'em first and find out afterwards.

A51PN, Bhutan, seems to be quite active these days either on 20 CW or in the South-East Asia net which meets at 1200Z on 14320. An A51PN was heard on 10 metres but the beam heading peaked towards JA.

Very many thanks to VK3DU and VK6HE who supplied information, and the West Gulf DX Bulletin published by WA6AUD. My June deadline is Wednesday, 25th April; any news, views or photos welcomed. Happy DXing.

QTHS YOU MAY HAVE MISSED

C6ACA: Barry Parkington, C/- St. Andrew's School, Box N 7546, Nassau, Bahamas.

J28AZ: Via I8JN, Guiseppe Mauro, Box 336, Napoli, Italy.

KG4HC: Harry Chamberlain, Box 12, FJO, New York City, 09593, USA.

VP2DAO: Clayton Balthazar, 47A Kennedy Avenue, Roseau, Dominica Island, West Indies.

VP2SAB: Via W2MIG, Edward Berzin, 47 Palisade Road, Elizabeth, 07208, NJ, USA.

VP2VBK: Ed White, Box 84, Road Town, Tortola, British Virgin Islands.

9V1TK: Via JA6RIL, Kyo Okazaki, 1 Ebisu, Nakatsu, Oita 871, Japan.

3D6AR: Via WA6AHF. ■

REPEATERS

Since Christmas, Victoria has had its fair share of repeater problems with 4 repeaters being off the air through various causes at the one time.

CH. 2 MELBOURNE

This repeater was vandalised in late November 1978. The receive cavity resonators were stolen, the receiver and control circuitry smashed beyond repair and the coaxial cable was severed.

The transmitter is still intact as it was housed in a separate building.

Damage is estimated at $1800-$2000, and an appeal has been launched from Melbourne Ch. 2 users to contribute towards its replacement. Further donations would be most welcome and will help speed the restoration process.

The opportunity has been taken to overhaul the complete system and to arrange for a more secure site to be located.

At this stage it is expected that the repeater will be back in service around late March-April.

It is also believed that the offenders who damaged the repeater are known to the authorities but nothing further can be said at the moment as charges may be pending.

CH. 5 MT. MACEDON

After a brief period of testing during November 1978, the system was taken off the air for completion. It is now due to be put into service on a permanent basis by mid-March.

According to reports from the initial testing, the Mt. Macedon system appears to have a service area far in excess of original expectations. Further details will be published after the system has been permanently installed.

CH. 4 BENDIGO

The Bendigo repeater was struck by lightning in late January and was off the air for about two weeks. Damage to the repeater itself was minimal, but a high gain antenna was destroyed. It is believed that the antenna was not connected to the repeater, as it was due to be installed to the system a few days later. Even so, capacitive coupling from the antenna to the repeater still caused some damage.

The system is now operational again.

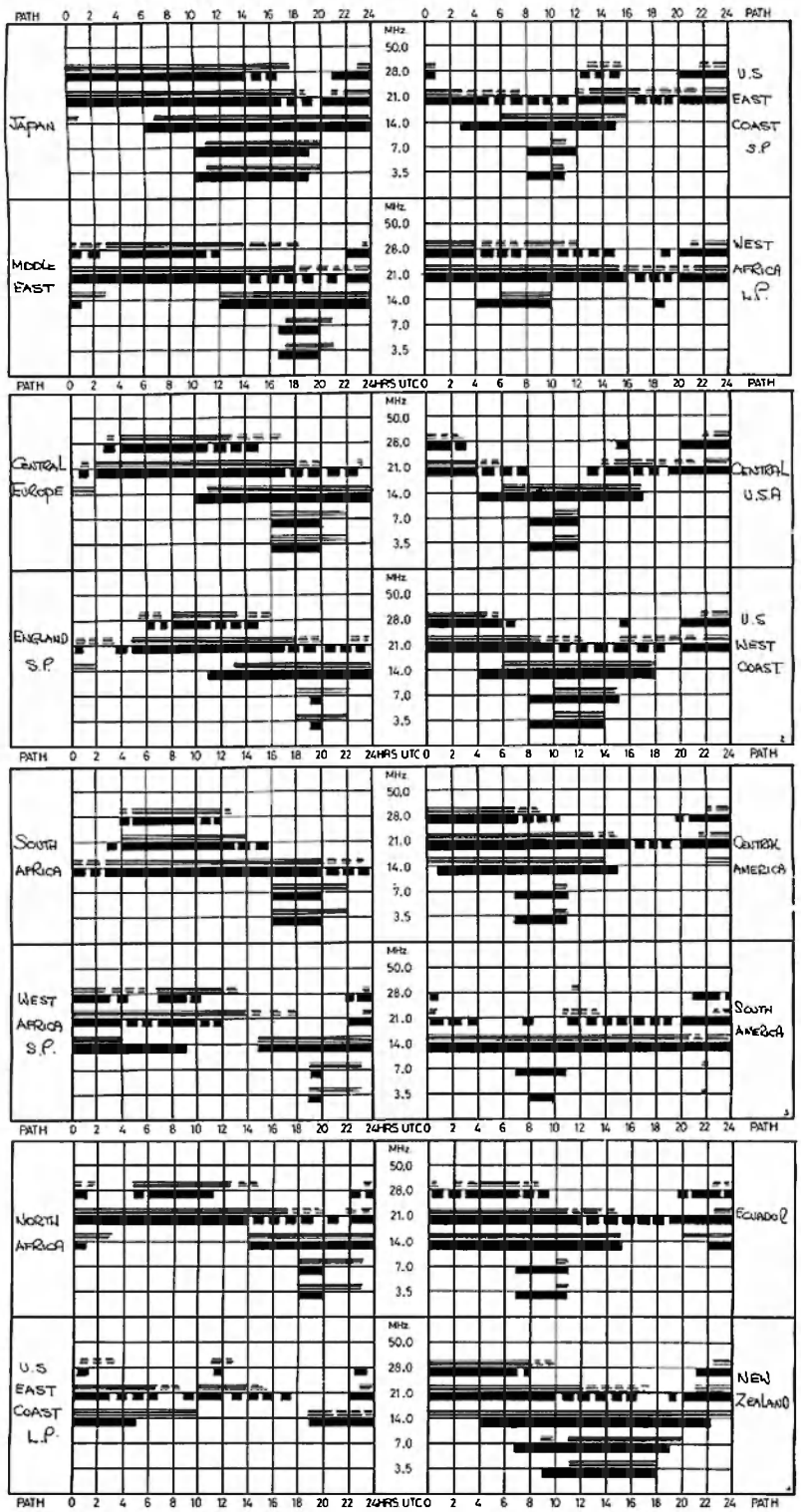
CH. 7 MT. WILLIAM

Gremlins struck this repeater during late January. The power supply decided to overheat and explode, causing severe damage to the transmitter.

The damage sustained was beyond economical repair and a stand-by unit was prepared for installation into the system. Ch. 7 was back on the air on 20th March.

Ch. 4 Traralgon and Ch. 6 E. Gippsland are to interchange during 1979 to minimise interference to other Ch. 4 systems throughout the State.

Editor's Note: Contributions on a regular basis from the various repeater groups and clubs are welcome for inclusion in this section. Please forward your group's comments to: The Editor, PO Box 2611W, GPO Melbourne 3001. ■



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- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

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Yaesu FT-301D Transceiver, fully solid state with digital readout with deluxe power supply FP-3010, $1200 ONO; also matching FV-301 remote VFO, $125. VK3AVE. Ph. (03) 64 4290 bus.

Heathkit SB610 Monitor Scope, 1.8-144 MHz, up to 1 kW power, with 2 tone test. L. White VK4AMF, 30 Oaklands Pde., East Brisbane, Q. 4169. Ph. (07) 391 6160.

Yaesu FT301D Transceiver, 160m-10m, with SSB, AM & CW filters, FP301 AC power supply and mobile mount for FT301D, $1230; 6 ft. 80m adjustable mobile whip aerial with spring, $40; AL48DXN 40m & 80m trapped dipole in original carton, $50. R. J. Lukeis VK3BRL, Box 18, Eaglehawk, Vic. 3556.

Systron Donner digital frequency meter, model 1034 with 8 digit display and crystal oven options. Operating manual and full circuit details. $95 ONO. 18 AVT 80m-10m trap vertical antenna, good condition, $85 ONO. Ray Roche VK1ZJR/4, 1 Heather St., Silkstone, Old. 4304.

Janel Laboratories (U.S.) Model 80PB 28-30 MHz low noise satellite pre-amplifier, 12V DC operation, complete with circuit diagram, two available, $25 per unit. Ross Treloar VK2BPZ. Ph. (02) 239 5267 bus.

Icom IC202 2m SSB Transceiver, complete and in exc. cond., $140. VK3KK, QTHR. Ph. (03) 469 4200 after 6 p.m.

Pye Leader Mod. MVA519 Lo Band AM Mobile Transceivers — Quantity 16, various conditions, majority functional, still commercially licensable, suit conversion to 6 metres — $200 the lot. B. Marsh VK3ZHI. Ph. (03) 725 7262.

Selwa SV230 2 Mx FM Txcvr, 25W, repeaters 2, 4, 6, 8 & simplex 40, 50, 51, good cond., $150. P. Willmott. Ph. (03) 772 1802.

Realistic DX160 Rx, ideal for listening and beginner, only 12 months old, $100. VK2VHP. Ph. (02) 84 2195.

Communications Rx Drake SSR-1, —0.5 — 30 MHz, solid state, battery & 240V AC operated, built-in speaker & antenna, as new, in original box & with handbook, $250. VK2ZFN. Ph. (02) 713 1831 AH (April).

23 Ch. 27 MHz Pace 1000m, full PLL, very suitable for 10m conversion and extensive channel range, $100. TRC 47 — 23 Ch. 27 MHz, all crystal, $100. VK3NSM. Ph. (03) 743 6992.

Yaesu FRG7, exc. cond., $275. Hygain VII deluxe 11m base station with digital clock and pwoer mic., easy conversion to 10m, power easily bosted to 25W PEP, $200. Johnson Viking 352D, 10m 20W PEP, thumbwheel dial up of frequency, with rocking armature mic., $175. Jim VK3CEE. Ph. (059) 62 4417.

Kenwood TS 700A, all mode 2m transceiver, as new condition, with RF stage and external VOX, operating and service manuals incl., $690 ONO. Tektronix Model 524 AD-5", single beam oscilloscope, DC to 10 MHz in first class cond., probes, manuals and spares, $220 ONO. RCA 3" Service 'scope, in god order, $75 ONO. VK2HF, QTHR. Ph. (02) 498 1955.

Yaesu FT75B, AC and DC power supplies (FP-75B and DC-75B), external VXO, mobile mount and manual, $400 ONO. VK5ATM, 26 Collingwood St., Port Pirie, SA 5540. Ph. (086) 32 2009.

Yaesu FRG-7 Rx, purchased 1978, as new, in carton, $250. Bob Guthberlet, 31 Bandon Tce., Marino, SA. Ph. (08) 298 4305.

Yaesu FLOX/FRDX 400 matched Tx/Rx, with manuals; 10-80m, 240W PEP, 2 and 6m converters, mint cond., FP, $500. Yaesu YP150 dummy load, $96 new. VK2NSE, Bank Lane, Quirindi 2343.

FC301 160-10m ATU, $240 ONO. FTV250 2m transverter, $290 ONO. Antennas with all mounts and coax., 15m dipole, 10m 5/8 stainless steel whip, 10m helical, 80m helical coax (long) RG8, RG58 with plugs, short bits also. Rotator, new with cable, light duty, $100 the lot. Contact Kearney, Ph. (03) 818 0321, ext. 135.

Swan MB80A miniature 80m SSB transceiver, up to 160W input, use as mobile, portable or base, $250. VK2AVQ, QTHR. Ph. (02) 88 2359.

Ham II CDR Ant. Rotator, unused, original packing, $150. TH3MK3 Tri-band Hygain antenna, unused, original packing, $210. 18AVT Hygain multiband vertical ant., VGC, $60. Constant voltage transformer with bridge rectifier, 38V DC at 16.5A (trans. could be tapped), $60. VK3BFB, QTHR. Ph. (03) 93 1638.

Honda E1500W AC & DC motor alternator, had little use, looks like new. **Yaesu FT101**, little use, looks good and works good, with manuals, $500 each. VK3SS. Ph. (051) 47 2265.

Linear amp with 2 x 500Zs in final together with PSU, max. secondary voltage 5000V. 240V primary with secondary winding, 20, 30 & 40V at 10 amps, each side of centre tap together with 2 bridge rectifiers at 2N3055s. H. G. Wilson VK4AGO, QTHR. Ph. (071) 72 4107.

Crank-up Tower, 2 section, solid galv., with Ham 'M' rotator attached & with indicator, $250. Drake R4A Rx, exc. condx., all ham bands 1.8-29 MHz, NB, $350. VK3LC, QTHR. Ph. (03) 509 2556.

Drake R-4C Rx, in mint condition, $500. 4WB noise blanker, $45. MS-4 speaker, $30. Also 8 auxiliary xtals, manual available. FT7 Transceiver, as new, $500, with separate PSU. FP-4, $60, complete with mic., all assoc. cables, etc., original cartons, manual. Ph. (03) 570 7592.

Ten Tec Argonaut 509, with matching 50W Ten Tec linear, $470. Multi-7 2m, most channels, $175. VK2SM, QTHR.

Kenwood 520D (AC/DC Model), $550. Yaesu FL2000B linear (2 x 572B triodes in GG), $400. Yaesu YC355D freq. counter, $300. VK2BOA, QTHR. Ph. (049) 61 1580.

TA33 Senior Triband Beam with 40m traps and element; also balun, $175 ONO. VK3ACN, QTHR. Ph. (054) 42-1288 BH.

Leader LSG 15 RF signal generator, in carton, with manual and cable, little used, $60. VK5NTF, Halbury, SA 5463 or Ph. (088) 63 1268 evenings.

TS820S, $900; IC280, $320; IC202, $170; IC502, $170; TCA1675 with Chs. 8 & 40, $55; TTL Mainline RTTY demodulator, $55; YC355D freq. counter, $200; all prices ONO. VK3BEJ, QTHR. Ph. (050) 24 5814.

Yaesu FRG7 Rx, as new, $280. Mini-Products hybrid quad compact beam, as advertised QST, 14, 21, 28 & 50 MHz, 11 ft. elements, 4ft. 6 in. boom, with balun, suit TV rotator and hardware. Ray VK3RF, QTHR. Ph. (03) 878 5305.

WANTED

For Swan SW 240, 3 band Transceiver, function switch SW1; four position control for off, receive, transmit, tune. VK4DO, QTHR. Ph. (079) 28 1550.

Parts for AR7 (HRO type) Rx, particularly coil boxes, circuit diagrams and even junk units, for overseas society, therefore donations most welcome. VK3CIF, QTHR.

Variable capacitors — transmitting — high voltage type. "Bill" Perry VK3BAV, QTHR. Ph. (03) 598 8665.

Yaesu FL2100B Linear, in good condition. J. E. Falkner VK3EB, QTHR. Ph. (03) 41 5037 bus.

Drake Equipment: T4XC Tx, R4 Rx, noise blanker, CW filters, speaker, etc.; urgently required. Please contact Peter Nesbit VK3APN, 78 Downshire Rd., Elsternwick, Vic. Ph. (03) 523 6932 AH, or (03) 317 9001 bus.

Type 3000 Relay, also circuit diagram of disposals test set D13 Type 1, Serial 16. Measures AC & DC volts 50-250-500V AC, DC current 1-10-50 amps. Prices to: Allan Bull VK2FB, 67 Fernleigh Rd., Wagga 2650, NSW.

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KLM Imported mono band beams for 40, 20 & 15 (ex-stock). Comprehensive range high gain beams for HF, VHF & UHF, suit amateur, novice & CB operators. 5, 8 & 11 el. models for 6 metre band. 7, 11 & 15 el models suit UHF-CB. Range of baluns and power dividers. Write for free catalogue. ATN Antennas, Box 80, Birchip, 3483. Ph. (054) 92 3211, ask for 264.

Rotators CDE, Ham III Rotators, complete with 33 metres Belden rotator cable, $325.00. Cushcraft ATB-34 4 element Tri-Band Yagi with balun, full size, best available, $290.00. Cushcraft ATV-4, 10-40 metre trapped verticals, $105.00. Alpha PA-76AE 1-30 MHz Linear Power Amplifier, uses 3 Elmac 8874 tubes, maximum legal power, plus continuous duty, $1995.00 — the ultimate. Contact James Goodger VK2JO, Australian Sound & Signal Research, 11 Edgecliff Rd., Bondi Junction, 2022 NSW. Telephone (02) 389 0428 — 389 7786 — AH (02) 36 7756.

XITEX "Glass Teleprinter", needs only a keyboard and TV set to originate and display 16 lines of 64 chars; switchable for 45.45 Baudot-110/300 ASCII, 20 mA or TTL interface; full U/L and Greek chars in ASCII mode, addressable cursor; feed on-board PSU 9-12V AC or plug into an S-100 slot; micro computer controlled pre-programmed; full kit, $169, including delivery and sales tax; suitable keyboard kit, $70. From The Micro Shop, Box 207, Gawler, SA 5118.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. R. E. EARLE	VK6LC
Mr. C. F. A. LUCKMAN	VK2JT
Mr. H. K. BAVISTER	VK2ZDQ
Mr. G. J. CLEMENTS	VK3TK

OBITUARY

CLAUD BURNS VK4CB

Claud, who was born in Maryborough in 1893 had ben an active amateur radio operator for over 54 years and in fact was active on the air up to within a few days of his death.

His first transmission was in 1924 from Rabaul, using morse code. His first amateur radio operator's licence was issued at Kingaroy in 1927 and his first call sign was A4CB. This call sign was later changed to VK4ZY, the call sign which will now be so sadly missed on the air wavas.

From the "Cairns Post", 27.11.78.

CHARLES F. A. LUCKMAN VK2JT

Charlie died on 21st January 1979, after a long illness.

Charlie was first licensed in Sydney in 1926 where he was employed as an electrician with the old Government Tramway workshops at Randwick. He was a leading light in the formation of the Lakemba Radio Club, VK2LR, being our first president.

He was a most likeable man with a keen sense of humour, ever willing to help in any way with a radio problem. I always remember his assistance in the late 1920s when I was trying to master the morse code as he gave up his leisure time to provide me with morse practice. He had the great ability to send morse on a hand key with the right or left hand equally well.

His wife pre-deceased him some years ago. This sad blow plus the fact that someone broke into his shack and stole his CR100 receiver, seemed to numb his interest in amateur radio and his health declined. After developing Parkinson's Disease he lingered for a few years, finally passing away, aged 77, at the Masonic Home at Glenfield near Liverpool.

Many of the old club members will remember Charlie for his kindness and great enthusiasm in the early 'thirties. Our sympathy is extended to his daughter Doreen, and two sons, Tom and Alf.

Gilbert Pollock VK2FU

ADVERTISERS' INDEX

* WIA WARC FUND SUPPORTER

A NOTICE OF INTEREST

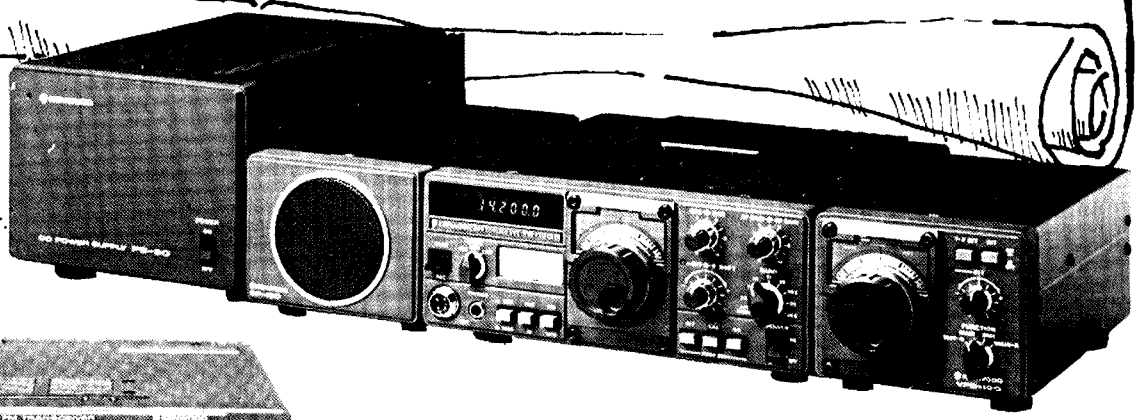
KENWOOD

The local hams in the colony of New Holland are duly advised that Trio-Kenwood have just received a shipment of the new Power Plus TS-120S series.

Engineered for the more discerning amateur operators. The TS-120S is the most recent successful result of Kenwood's advanced engineering capability, giving a compact, lightweight transceiver with 100W RF output power.

Another new arrival is the TR-7625 2 meter FM transceiver with memory, designed to permit multichannel (800-channel) operation.

You are respectfully invited to view this merchandise at your local friendly Trio-Kenwood retailer.



PS-30 20A Power Supply.
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P.S. We would like to inform all VHF buffs that we now have Phase III Satelite Equipment.

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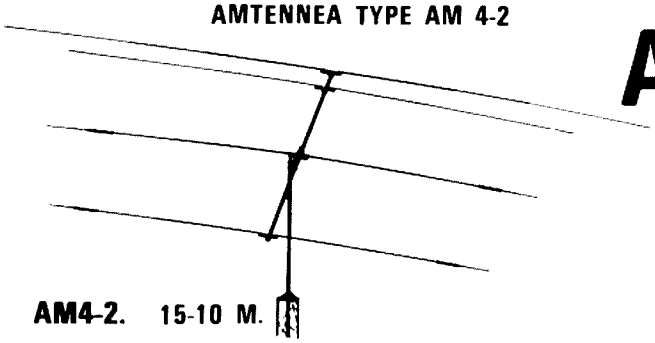

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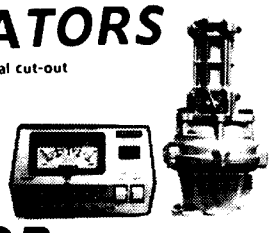

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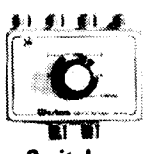

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AB 3-15 • 3 el. 15 M.	$89.--
AB 5-15 • 5 el. 15 M.	$139.--
AB 3-20 • 3 el. 20 M.	$129.--
AB 4-20 • 4 el. 20 M.	$159.--

Allow 10 days for delivery.

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amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 5 MAY 1979

FEATURED IN THIS ISSUE:

- ★ VOX ADVANCE
- ★ SIMPLE 10 GHz RECEIVER WITH TRANSMITTER OPTION
- ★ RETURNING THE 50-52 MHz ALLOCATION
- ★ EARLY DAYS IN RADIO
- ★ ISLE OF MAN

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The Editor,
PO Box 2611W, GPO Melb., 3001

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amateur radio

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Cover Photo

Manning the portable amateur radio station (VK4WIR) to cover the WIA Capricornia Amateur Radio Festival in September '78 are, from left, Novice operator Peter Logan who is waiting to be allocated his call sign, Doug Kraatz VK4ZDK, and Gordon Adams VK4GM. (See the report in November AR.)

Photo courtesy of the Morning Bulletin, Rockhampton.

WIRELESS INSTITUTE OF AUSTRALIA

Federal President: Dr. D. A. Wardlaw VK3ADW

Federal Council:
VK1 Mr. R. G. Henderson VK1RH
VK2 Mr. T. I. Mills VK2ZTM
VK3 Mr. J. Payne VK3AED
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Executive Office: P.O. Box 150, Toorak, Vic., 3142. 2/517 Toorak Rd., Toorak, Ph. (03) 24 8652.

Divisional Information (all broadcasts are on Sundays unless otherwise stated):

ACT:
President — Mr. A. Davis VK1DA
Secretary — Mr. F. Robertson-Mudie VK1NAV
Broadcasts— 3570 kHz and 2m Ch. 6 (or 7): 10.00Z.

NSW:
President —
Secretary — Mr. T. I. Mills VK2ZTM
Broadcasts— 1825, 3595, 7146 kHz, 28.32, 52.1, 52.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and ch. 3 and 6).

VIC.:
President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. J. A. Adcock VK3ACA
Broadcasts— 1825, 3600, 7135 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (5) repeater: 10.30 local time.

QLD.:
President — Mr. A. J. Aarsse VK4QA
Secretary — Mr. W. L. Gielis VK4ABG
Broadcasts— 1825, 3580, 7146, 14342, 21175, 28400, kHz; 2m (Ch. 42, 48): 09.00 EST.

SA:
President — Mr. C. J. Hurst VK5HI
Secretary — Mr. C. M. Pearson VK5PE
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

WA:
President — Mr. L. A. Ball VK6AN
Secretary — Mr. P. Savage VK6NCP
Broadcasts— 3600, 7080, 14100, 14175 kHz, 28.53 and 52.19 MHz and 2m (Ch. 2): 01.30Z.

TAS.:
President — Mr. I. Nicholls VK7ZZ
Secretary — Mr. P. T. Blake, VK7ZPB
Broadcasts— 3570, 7130 (AM) kHz with relays on 2m Ch. 2 (5), Ch. 8 (N), Ch. 3 (NW), 28.56 (AM), 52.525 (FM), 144.1 (AM) and 435 (FM) MHz 09.30 EST.

NT:
President — Dick Klose VK8ZDK
Vice-Pres. — Barry Burns VK8DI
Secretary — Graeme Challinor VK8GG
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal Information:
VK1 — P.O. Box 46, Canberra, 2600.
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h). P.O. Box 123, St. Leonards, NSW 2065.
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Weekdays 10.00-15.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (Incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 46, Canberra, A.C.T. 2600.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse, 83 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001.
VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP — Communication

(ACT OF IMPARTING [ESP. NEWS]; INFORMATION GIVEN; SHARING.) . . .

. . . The Concise Oxford Dictionary.

Listening to some QSOs, one is often astonished at the lack of knowledge about the WIA, exhibited, not only by members and non-members, but also by those who should know better.

The problem then, appears to be a communication stumbling block somewhere in the system, working, so it seems, both ways, executive — councils — members and vice versa.

After some six years on the council of the Queensland Division, I have come to the conclusion that the main stumbling block is usually the council-member-council network.

VK4 recognised the problem some four years ago and took steps to rectify part of the problem with the Institution of the Radio Club Workshop, which has just finished its fourth annual meeting. Its success may be measured by the fact that over forty constructive motions were presented and discussed by the affiliated radio clubs in Queensland.

Besides the direct communication link between council and club delegates, who, incidentally, represent some sixty per cent of the total WIA members in VK4, the federal councillor for Queensland is now able to state that his views at the federal convention represent the views of the majority of WIA members in Queensland.

Another direct communication link between council and radio clubs was established last year, the weekly radio club net whereby club representatives are able to have direct access to council and discuss problems, solutions and suggestions, without fear of misunderstanding or lengthy delays. We are happy to announce that this system works very well, something we, unfortunately, cannot as yet say about the council-member link, the Queensland net. But given time, it will work to the benefit of both the member and council.

These then, are but a few solutions Queensland is trying out to overcome one of the major communication stumbling blocks in a communication oriented hobby.

The necessary positive feedback is starting to come in from members, albeit very slowly, but it is nevertheless a hopeful sign that we are on the right track.

Next step is an effective inter-communication system between councils — we don't need one with the Executive, that is already satisfactory — and eventually we somehow could achieve Bob Arnold's idea, without losing our precious State identity.

Communications in times of stress (WICEN, channel 5A, channel 0) is near total, why not under "normal" conditions?

JOHN AARSSE, VK4QA
President, VK4 Division. ■

WIANEWS

This is the text of a letter sent to the Minister for Post and Telecommunications on 14th March, 1979 —

"Recent newspaper reports (Reference 1) compel the Wireless Institute of Australia, on behalf of the Amateur Service, to raise once again the whole issue of piece-meal approach to spectrum management in Australia and, in particular, the continued and planned use of TV Channel 5A.

Only in Australia, and nowhere else in the world, does a broadcasting allocation exist adjacent to the Amateur two metre band. The Institute seriously questions the wisdom of continuing to make use of incompatible frequencies for television broadcasting contrary to recognised international practice when compatible international spectrum is available but unused (UHF) (Reference 2).

From the information available, and in the light of recent investigations by amateurs and others in this country, it is obvious that the co-existence of amateurs and television broadcast stations on adjacent channels is a volatile combination (Reference 3).

The closure of amateur stations which may be alleged to cause interference to Channel 5A reception, as has been suggested (Reference 4), is considered by this Institute to be a dictatorial stand and unacceptable to the thousands of radio amateurs wishing to make use of their two metre spectrum allocation. This would be unnecessary if the broadcast spectrum were to be properly planned.

The Amateur Service has contributed, and is still contributing, to advances in technological and scientific areas and, on this basis alone, vigorously defends the tenancy of the two metre band — the only internationally exclusive allocation in the VHF and higher frequencies to 24 GHz, available to the Amateur Service and in particular the limited licensees.

Australia's contribution to the Amateur satellite programme is well known. It is iniquitous that Australia's amateurs should be denied access to an international resource merely because of a television station allocation unique to Australia.

The WIA therefore believes that, for the above reasons and for other sociological and technical reasons, the Channel 5A allocation should be withdrawn with the utmost speed and that all existing and proposed 5A services be transferred forthwith to UHF.

Reference 1: Hamilton Spectator 19/12/78 and 4/1/79.

Reference 2: ITU Radio Regulation 3580 (Footnote 279A) and Huxley.

Reference 3: Material supplied by Victorian Channel 5A Committee.

Reference 4: Letter from PM to VK3OT."

In a note circulated to Divisions on 7th with regard to WARC 79, the Federal President announced that in the Australian proposals for the work of the conference, it was proposed that footnote 3580/279A be modified to read —

> *"In Australia the band 137-144 MHz is also allocated to the broadcasting service for television until that service can be accommodated within the Regional Broadcasting allocation."*

This footnote presently reads —

> *"In Australia the band 137-144 MHz is also allocated to the broadcasting service for television."*

6m BAND

In his note the Federal President also advised that it is proposed to maintain the Region 3 allocation of 50-54 MHz with a modification of Footnote 3544/246 for Australia that the band 50-54 MHz is also allocated to the broadcasting service. At present, this footnote states that in Australia the band 50-54 MHz is allocated to the fixed, mobile and broadcasting services.

He also advised that Australia proposes the introduction of new world-wide exclusive amateur bands 10.1-10.2 MHz, 18.058-18.168 MHz and 24.15-24.35 MHz.

Australia, he wrote, proposes for 40m, an exclusive amateur band extending from 6.95-7.1 MHz and various additional allocations for amateur satellites in the existing SHF amateur bands between 2 and 11 GHz. No Regional or Australian change to existing amateur allocations were proposed.

The Federal President, it will be remembered, is Chairman of Committee 2 of the Australian Preparatory Group (APG) for WARC 79.

1979 FEDERAL CONVENTION

Mr. Ron Henderson VK1RH will be attending the 1979 Federal Convention in his own right as Federal Councillor of the ACT Division.

Additional Agenda Items for the Convention includes three from the SA Division relating to WICEN and one from the NSW Division on the same subject. VK2 also included an Agenda Item supporting the circulation of Convention Minutes to Clubs.

Since this newsletter is being written before the closing date for Agenda Items additional Items are expected to be submitted from both VK2 and VK4.

1979 CALL BOOK

Considerable discussion at Executive level, as well as in the Publications Committee, has been conducted in relation to the 1979 Call Book.

The unhappy situation reported in March WIANEWS has been resolved with most welcome co-operation from the P. & T. Department. Almost complete listings have been received tor all months from May 1978 to January 1979. Details for later months are also promised.

So many complaints were received about the use of the computer prints used for the 1977 Call Book that typesetting for the 1979 Call Book will be used. Ways and means to keep the price of the Call Book below $3 are being closely examined.

For many years a demand has been observed for the publication of monthly updates or possibly the production ot a mid-term supplement (i.e. 1980, etc.). Monthly updates in AR occupy space to the exclusion of other material unless the magazine's size is increased by additional pages at extra cost probably unsupported by additional advertising according to enquiries made. There are problems involved with producing a mid-term supplement, but these now appear capable ot being resolved, at little extra cost, by the use of a word processor either commercial or in-house.

EXAMINATIONS

A meeting on 17th March chaired by Mr. G. F. Scott, the Federal Education Co-ordinator, and attended by experts from VK2, 3, 4, 5 and the P. and T. Department, produced an AOCP syllabus jointly agreeable to all parties. A small amount ot residual work is required which should be finalised quite quickly. As a result, it now seems almost certain that the August AOCP theory exam will be multi-choice thanks to good co-operation shown by the Department. If this is achieved the marking of answer papers, even by computer possibly, will significantly reduce the delay of the past in announcing results.

The opportunity was also taken to discuss the Novice morse examination.

MEETINGS

Executive Meeting on 15th March also discussed the certificate sketches for the Ron Wilkinson Achievement Award, 1979 RD Contest opening address, Federal Treasurer, responses to WARC 79 appeals, workload of the Executive office arising from the greatly increased membership, the future production of AR and inter-related subjects, CCIR Seminar in Sydnev, medallions tor the 1979 VK/ZL/O Contest.

It was regretted that an NZART invitation to send WIA representatives to their annual Convention in June could not be accepted because of heavy involvement with preparations for WARC 79.

At the meeting of the Publications Committee on 6th March the 1979 Call Book production occupied much time to enable distribution to be made no later than about July or August, continued quality production of AR and the continuing need for photographs and technical articles.

Meetings of the VHF/UHF Advisory Committee on 27th February and 22nd March were occupied almost wholly in discussions on the Channel 5A situation and WARC 79 matters.

A routine meeting of the Federal Repeater Sub-Committee was held on 11th March. ■

ADVERTISERS' DONATIONS

The Federal President wishes to extend grateful thanks to our advertisers for generous donations towards the expenses of WARC representation

MARCH 1979	$
Dick Smith Electronics	500
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Bail Electronics	500
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These are entitled to the use of the WIA emblem and the words: "WARC Amateur Supporter" in their advertising displays.

Editor's Desk

Bruce Bathols VK3UV

YOUR MAGAZINE — AMATEUR RADIO

LETTERS TO THE EDITOR

Sometimes the cat gets amongst the chickens — going on some of the letters we receive *on varying* subjects. Space for letters must be restricted to approximately one page, however, we endeavour to publish most of the letters received. The probability of early publication of your letters is inversely proportional to its length — i.e. the longer the letter, the longer it may take to appear. Please try to keep your letters to less than 250 words. If you want to criticise AR or the WIA, do it by all means — but in a constructive way. No "Waffle" — please!! We can only judge our performance by your remarks.

ARTICLES

We are always looking for original material, however, we are not averse to publishing an item which has appeared in other magazines/journals, should the need arise, or if we consider it to be of importance and interest to our readers.

Space preference naturally will be given to our contributors' items. To keep printing deadlines and to allow for forward planning, it is necessary to keep a ready supply of completed articles three months in advance. This leads us to several problems which have been experienced by some authors in delayed publication.

In attempting to cater for nearly everybody, we strive for a balance between technical and non-technical material. Our readership is over 15,000 (proven by various surveys) and with almost as many different views.

We have been criticised for not publishing material especially for novices. To the "knockers", we suggest you have a look at the "Novice Notes" column from time to time.

Remember also our policy is to publish "original" material where possible — if you want more in Novice items, put pen to paper and let us have your ideas and submissions.

With nearly 2,000 Novices in our ranks, the column should be self-generating — but why isn't it?

Only you have the answer.

PREPARATION OF MATERIAL

As mentioned previously in AR, articles do take several months before publication is effected.

On receipt of your article, the details are recorded and an acknowledgement sent to the author — usually within 10 days.

All technical articles are perused by our technical editors (in their spare time), and it is then returned to the editor for grammatical editing. Sometimes it may be rewritten completely, but the main theme is always retained.

Drafting of diagrams is carried out by our draftsman (in his spare time). Some drawings, particularly logic and PCB laybuts, take many hours of work.

The average time taken to prepare an article to the typesetting stage is three months from date of receipt.

Unless you are able to provide material and drawings to the standard AR readers demand, we ask you to bear with us a little while we do the preparatory work.

After typesetting, we must then arrange to "slot" the item in with previously prepared material, and to strive for our balance of material.

Please keep the articles coming in; don't forget Novice items and photographs.

The editor's lot is not a picnic, but it can be very satisfying.

73s until the next time I can spare a few moments to write a column.

B. BATHOLS VK3UV. ■

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LIST No. 2

The Executive wishes to acknowledge with grateful thanks the receipt of the following donations from WIA members for WARC 79 (further lists will follow):—

EM & DRC (Sept. 1978)	$100.00
Anon. (at EM & DRC Sept. 1978)	10.00
VK8ZSB	7.00
VK3ATC	11.00
VK6MH	3.75
VK6AH	3.75
VK8CA	4.50
VK3NAJ	5.00
VK3NAJ	5.00
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VK3AOX	10.00
VK3CX	7.00
VK3SM	5.00
VK3YAY	21.20
VK3BMC	2.00
VK3MD	10.00

Are you checking our bands for

INTRUDERS

AND REPORTING SAME TO THE INTRUDER WATCH CO-ORDINATOR?

VOX ADVANCE

Evan Jarman VK3ANI

One of the problems of VOX systems is the time lapse between the presence of audio and the completion of the receive to transmit switching. While this delay is minimal with the solid state switching in later equipment, many rigs still depend on a relay which only extends the delay.

One of the effects of this delay is the clipping the of leading syllable of each over. Operating procedures have evolved to disguise this problem. These include extension of the leading syllable and saying "Ah" until the relay has pulled in. While these methods are considered as "trade marks" to some, they don't blend with articulate speech.

An alternative, which is developed here, is to delay the audio until the VOX circuit has completed switching.

Delay concepts have been used in other facets of audio electronics such as voice scrambling, reverberation and telephone time compression. Methods of delay have ranged through tape loops, long echo tubes and springs, but they have always been mechanical. Because of their complexity or unwieldiness, little use was made outside of musical effects techniques. With the advent of audio delay integrated circuits these mechanical methods became obsolete. Now some of these delay line integrated circuits, called bucket brigade devices, are generally available.

The basis of operation of a bucket brigade device (BBD) is to sample the signal at finite intervals and pass these samples along a chain of capacitor FET stages. The sampled signal then appears at the end of the chain with a time delay set by the number of links and that finite interval (determined by a clock frequencv).

Without delving too deeply into theory, any recurring wave such as audio, no matter how complex, can be resolved into a set of sine waves of varying frequency, phase and amplitude. This is the basis of Fourier analysis, after the French physicist Joseph Fourier (1768-1830). Also, any sine wave can be regenerated from a series of fixed values providing there are at least three values per cycle to work with. This means that the audio signal can be regenerated from the BBD output providing it yields at least three values, per cycle, of the highest frequency Fourier component. Of course, this is a theoretical limit for in practice about fifteen values, per cycle, are required for complete regeneration. This sampling, passing and regeneration is the basis of the BBD delay system.

The chip used is the MN3001, dual 512 link BBD in a 14 pin DIL package. It is made by Matsushita of Japan and distributed in Australia by the Elcoma division

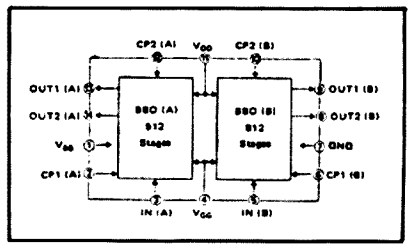


FIG. 2A: Block Diagram

of Philips. One off lots can be purchased at Dick Smith's.

Each link in the chain uses two FETs and a capacitor. It is wired so that in the presence of a clock pulse the capacitor's charge is revised to a value synonymous with the input. The tailing FET is a buffer allowing perception of the capacitor's charge with minimal interaction. Two clocking inputs are required (connected to

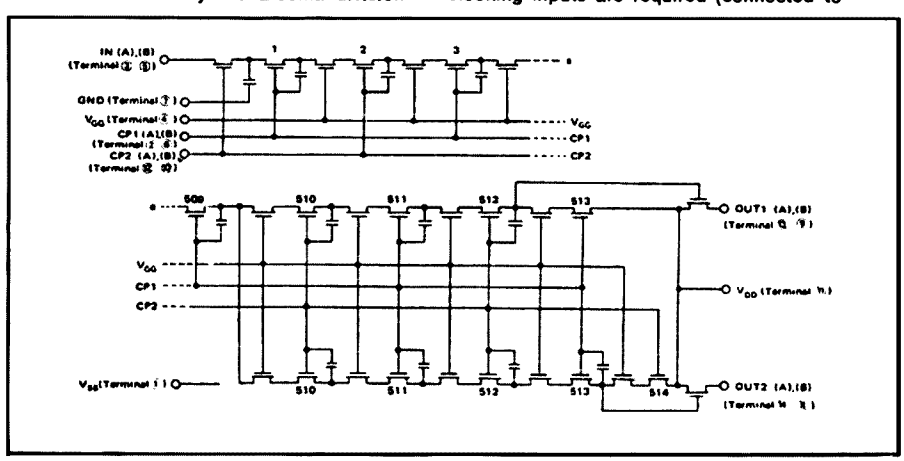


FIGURE 2B: Circuit Diagram

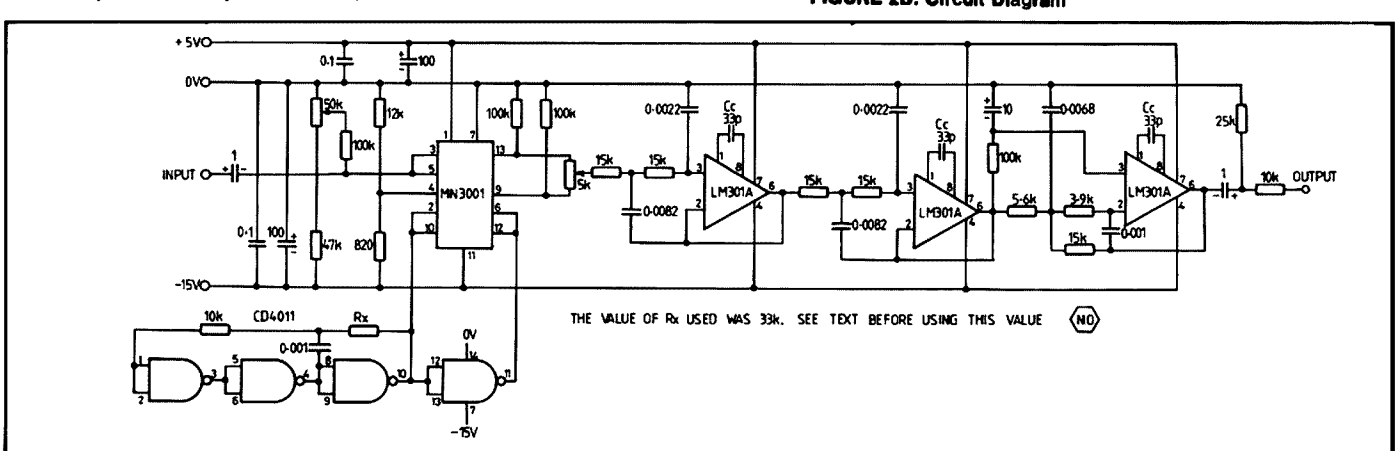


FIGURE 2: Schematic Diagram of VOX Advance Circuit

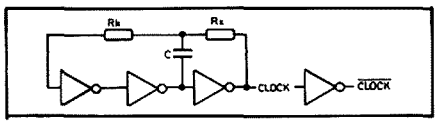


FIGURE 3

alternate links) to overcome the problem of revising capacitor charge while being read by the next link.

The chains operate in a master-slave form. While the clock is on, the first link (master) is set, and when the clock is off the second link (slave) follows the master. A separate not-clock, or anticlock, pulse is required to drive the slaves. Unfortunately as the master-slave requires two links, the number of effective links is half the actual number in the chain.

In the VOX advance the two chains are operated in a staggered parallel formation.

The parallel operation allows for higher bandwidth by passing a higher frequency Fourier component. This may seem a waste, but remember that relay type VOX systems have a greater delay than that which these chains normally cater to. Longer delays mean lower sampling rates and so imply reduced bandwidth

Operation in a staggered system means that the chains are alternately sampling audio. This is achieved by reversing clock lines to the second chain: clock becomes anticlock and vice versa.

The BBD does require a source of both clock and anticlock pulses; provided here by a CMOS logic oscillator. (Fig. 3).

The oscillator can use any inverting gate, or inverting combination of gates, however, due to pin configurations on the printed circuit board, only '4001 and '4011 chips can be used. As the inputs are tied together the difference in logic type is immaterial. The frequency of oscillation is

$$f\,clock \sim 1/2RxC\left(\frac{0.405Rk}{Rk + RX} + 0.693\right)$$

Further details can be found in National Semiconductor's AN118 (ref. 1). The complementary anticlock pulse is derived by passing the clock through the remaining gate.

The delay is indirectly proportional to the clock frequency; it equals the number of effective links multiplied by the clock period. So by using the frequency equation the delay can be expressed as:—

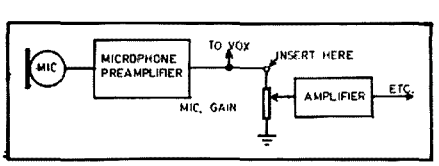


FIGURE 5

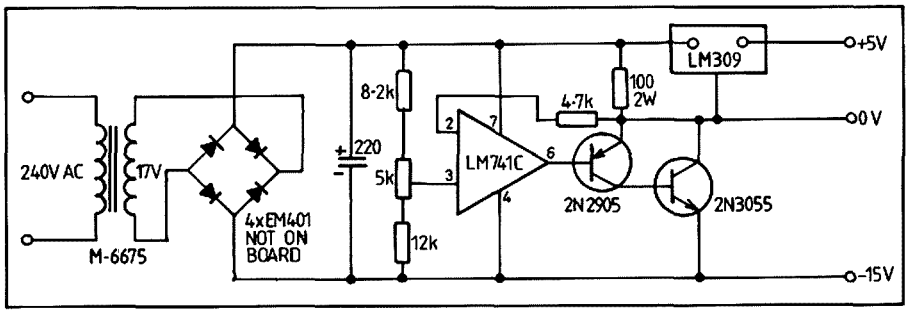


FIG. 4: Aux. Power Supply — Neutralisation Capacitors for LM309 not showing.

$$\Delta t = 512RxC\left(\frac{0.405Rk}{Rk + Rx} + 0.693\right)$$

The manufacturers specify a maximum delay of 25.6 msec.; probably due to capacitor leakage. On the circuit diagram I chose Rx as the frequency determining component. A plot of delay vs. Rx is included (Fig. 4) to assist choice of an appropriate resistor. Just remember that the actuation time of relays is 6 to 10 msec.

Although the staggered system eliminates the clock component from the BBD output, switching transients will still be present. These transients must be suppressed or they can lead to spurious emissions. The first two operational amplifiers, operating as low pass filters with a Q of 1 and a cut off of 2.5 kHz, achieve the suppression. If you wish to run an alternate pass characteristic, then I refer you to the good pragmatic discussion in the book by Hayward and DeMaw (ref. 2), page 80.

Suitable operational amplifiers are the LM307, uA741 and MC1439, all of which don't require the compensation capacitor (between pins 1 and 8), while the LM301 and uA748 can be used directly.

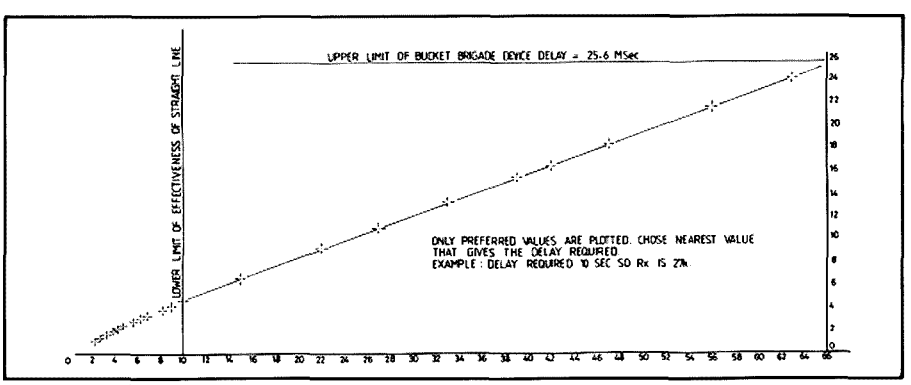
The last stage is an audio amplifier, with a gain of 8.5 dB, to compensate for the losses of the BBD. It, too, has a cut off frequency, but it is about the 6 kHz mark.

The MN3001 is a p-channel silicon gate device requiring a negative voltage; —15 volts. If you are unable to tap a source of negative voltage in the transceiver then an auxiliary supply will be required. In my example the voltage is split using an error amplifier referenced to a voltage divider. Although I used a 2N3055 due to a need for extra power for something else, a 2N3053 should be a satisfactory substitution. The 24 volts DC used to drive the system is arbitrary, although the LM309 will require at least 7 volts for good regulation. Drain on each supply is approximately 10 mA. The trimpot is adjusted to give —15 volts, the 5 volts being independent. See Fig. 4.

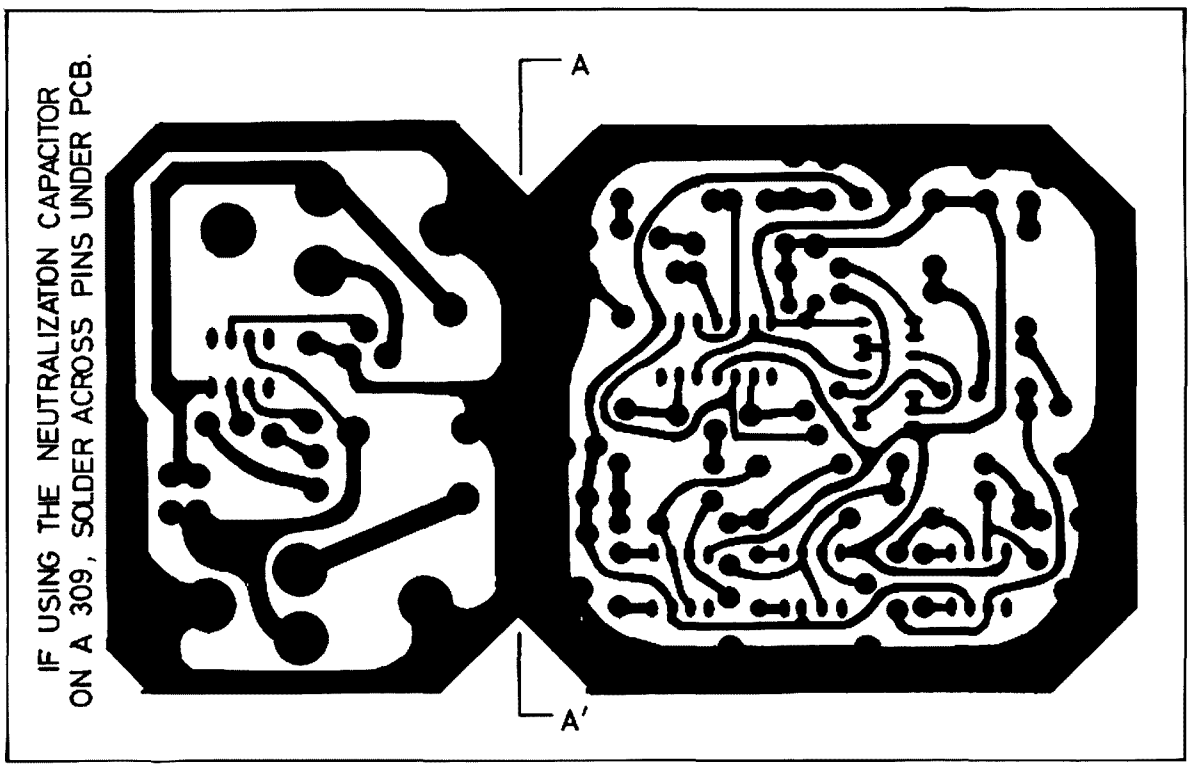
Of the transceivers I know, the audio input scheme seems to be as shown in Fig. 5.

The mic. gain, being a front panel control, is usually fed by wire from the audio board. The delay system is placed in this wire; I unsoldered the wire at the potentiometer. An extra point has been provided on the printed circuit board, in case the VOX line is soldered to the mic. gain potentiometer. Systems do vary so individual appraisal is necessary.

By the use of reverse logic the unit has been called a VOX advance. The advance can cope with most relay VOX systems for the average relay takes 6-10 msec. to actuate; maximum advance is 25 msec. The delay equation was quoted to allow tailoring to major variations. The VOX "delay" control will need trimming to accommodate the leading pause. Once the system is operational, please try to drop the opening flourish, or "Ah". Make clean articulate speech your "trade mark".



GRAPH: Plot of Delay (m/sec) Vs Rx (kilo-ohms)



LEFT:

Printed Circuit Board — Artwork — Full Size.

BELOW:

Component Layout for PCB.

REFERENCES:

1. National Semiconductors Application Note 118. Published in the CMOS Data Book, March 1975.
2. Wes Hayward and Doug DeMaw, Semiconductor Design for the Radio Amateur. ARRL 1977. (Available through Magpubs, see Book Review, AR 11/77.)

CALCULATED VALUES USED IN PLOT

$$\text{Delay} = 512\ \text{RxC}\left(\frac{0.405\ \text{Rk}}{\text{Rx} + \text{Rk}} + 0.693\right)$$

C = 1.0 nanofarads (1.0×10^{-9}F)
Rk = 10k ohm (10000 ohm)

Rx(k ohm)	1/2f clock(usec) 10^{-6}sec	Delay(msec) 10^{-3}sec
2.2	2.25	1.15
2.7	2.73	1.40
3.3	3.29	1.69
3.9	3.84	1.97
4.2	4.11	2.10
4.7	4.55	2.33
5.6	5.33	2.73
6.3	5.93	3.037
6.8	6.35	3.35
8.2	7.51	3.84
9.0	8.16	4.18
10.0	8.96	4.59
15.0	12.83	6.57
18.0	16.52	8.46
22.0	18.03	9.21
27.0	21.66	11.09
33.0	25.98	13.30
39.0	30.25	15.50
42.0	32.38	16.50
47.0	35.91	18.39
56.0	42.24	21.63
63.0	47.15	24.14
68.0	50.65	25.95 ■

A technical problem has arisen and to enable normal publication of this issue, the component layout for this item, will be published at a later date. Apologies to all concerned — Editor.

QSP

BLITZ ON CB RADIO IS PLANNED

The Federal Government is planning a blitz on CB radio users whose equipment interferes with television, radio and hi-fi reception.

They will face stiff fines and run the risk of having their equipment confiscated.

The tough regulations are part of a code the Government has drawn up to deal with CB troublemakers.

More than 23,000 complaints of CB users interfering with television and radio reception were investigated in 1977-78.

CB enthusiasts who use obscenities in their transmissions, broadcast false or misleading messages, or play music or advertisements will face prosecution.

The regulations were announced this week by the Post and Telecommunications Minister, Mr. Staley.

They follow a top-fevel review of CB radio operations and put new teeth into the Wireless Telegraphy Act.

From "Sunday Telegraph" 25-2-79. ■

ARRL EME COMPETITION

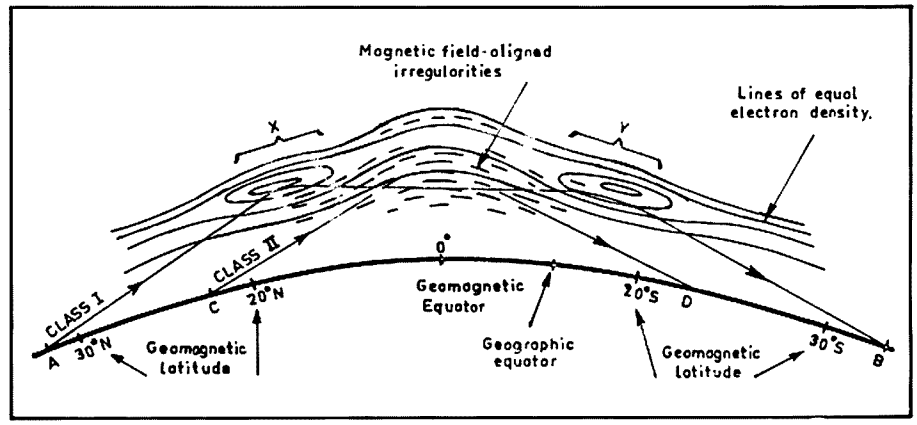
QST for September 1978 includes details of the first ARRL EME competition won by YV5ZZ. The only VK entrants was VK5MC operating on 2m. One entrant operated with a single 16 element yagi on this band but dishes seemed as popular as yagis, particularly at 70 cm. According to the November issue of the Propagator (Illawarra ARS) the University of Wollongong has now received the insurance money to cover the loss and damage of equipment and buildings at Dapto, so perhaps VK2ALU will be back on beam again before too long. ■

RETURNING THE 50-52 MHz ALLOCATION

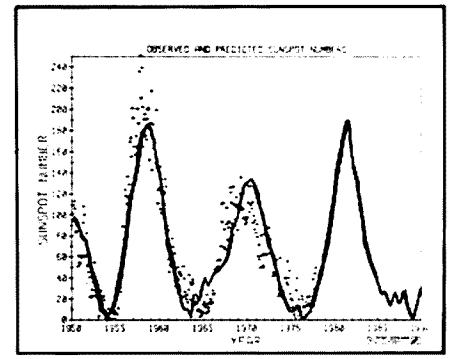
Roger Harrison VK2ZTB
14 Rosebery St., Balmain 2041

The existence of widely scattered amateur stations that may contribute to data gathering in propagation research would provide a broad statistical base on which to study and define the characteristics and morphology of certain (perhaps new) modes of ionospheric propagation in the Australian-Asian and Australia-Pacific regions in the lower-VHF portion of the spectrum.

The allocation of the 50-52 MHz would materially assist in this regard, providing knowledge that would be of importance not purely in propagation research, but perhaps of more pragmatic significance in the area of defence strategy.



ABOVE — FIGURE 2: The generally accepted propagation modes for afternoon-type (Class I) and evening type (Class II) transequatorial propagation. The regions in the F-layer marked X and Y indicate the 'equatorial anomalies' that will support propagation into the low-VHF region of the spectrum.



RIGHT — FIGURE 1: Predicted sunspot peak in 1981 may be as high as that in 1958. The solid line gives the Fourier series model (after Hill) predicted from observations from 1749 through 1975. The + symbols show observed monthly sunspot numbers from 1950 to October 1977.

in a less rigorous scientific sense, the "discovery" of new modes of propagation and/or the extension of existing data records by amateurs using the 50 MHz allocation is a distinct possibility. Modern VHF amateur stations are equipped to a much higher technical standard than existed 20 years ago (even 10 years ago), there has been an increase in the number of amateur stations populating the 6-metre band and an increased awareness of the possibilities available for unusual propagation, particularly as we approach the maxima of sunspot cycle 21. The number and extent, and the geographical distribution, of ionospheric paths that may support propagation in the lower VHF region, that may be "explored" by amateur operators using the common allocation of 50-52 MHz (where all the "action" is on the 6-metre band) is now considerably greater than for the last maxima of 1968-69 and the previous one, 1957-58.

LEFT:

FIGURE 3:

Circuit prediction issued by the Ionospheric Prediction Service. This is a 'GRAFEX' style prediction; note that the frequency scale extends from 3 MHz to 60 MHz, a recent change in form as most GRAFEX predictions cover 2-40 MHz.

PROPAGATION RESEARCH

Research into Transequatorial Propagation (1), (2) has significantly advanced in recent years — hampered somewhat by the sunspot minima and the economic recession, and will undoubtedly get a boost over the period of the coming maxima. Much of the detailed morphology and geographical distribution of TEP is yet to be researched and there is considerable scope for research into the morphology of TEP in a number of geographic regions. It is known that TEP is geomagnetically sensitive in occurrence and distribution but only rela-

tively limited paths have been researched to date — Japan-Australia, USA-Argentina and Cyprus-South Africa receiving the most attention. The Australia-North Africa, Australia-Central Asia and Australia-Trans-Pacific regions suffer from a dearth of data.

The morphology and characteristics of of Japanese Archipelago-Australia trans-equatorial propagation in the lower to mid-VHF region of the spectrum is reasonably well detailed and understood at present owing to fairly intense and continuous studies undertaken since the early 1960s, largely because both areas have "free" governments and co-operative scientific studies have taken place — occasionally involving amateurs who used the 6-metre band (3).

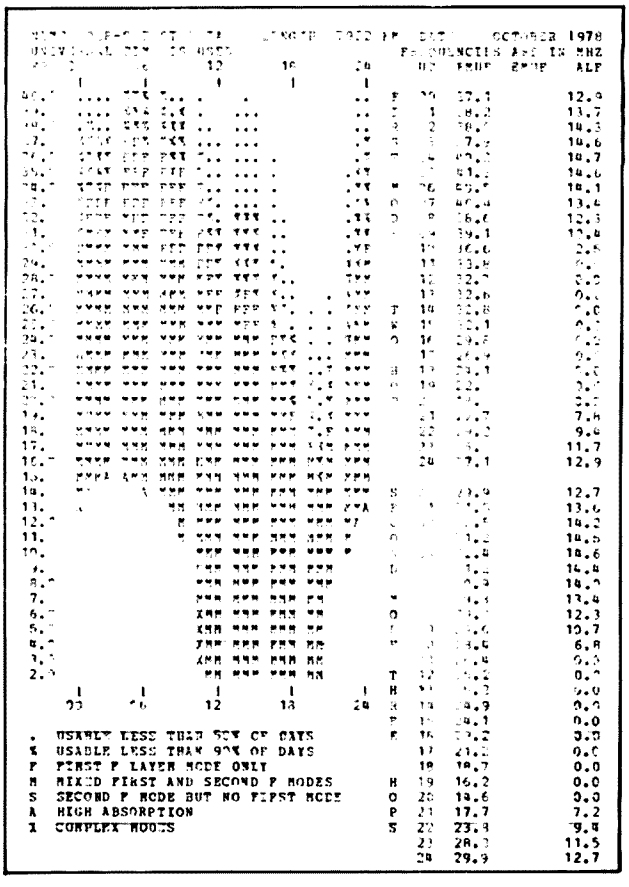
However, the morphology of trans-Pacific and trans-Indian Ocean TEP is almost totally uncharacterised at present . . . if it exists. We know that occasions of trans-Pacific 50 MHz TEP have occurred, however insufficient data is currently available to provide any reasonably detailed picture. Instances of trans-Indian Ocean TEP in the lower VHF region are exceedingly rare, dating back 20 or more years. A bigger "population" on 50 MHz in critical areas of the world (i.e., North Africa; Mediterranean — Cyprus amateurs have 50 MHz; India; South-Central Asia, etc.), including Australia, would almost certainly add sufficient observational evidence of unusual propagation modes for

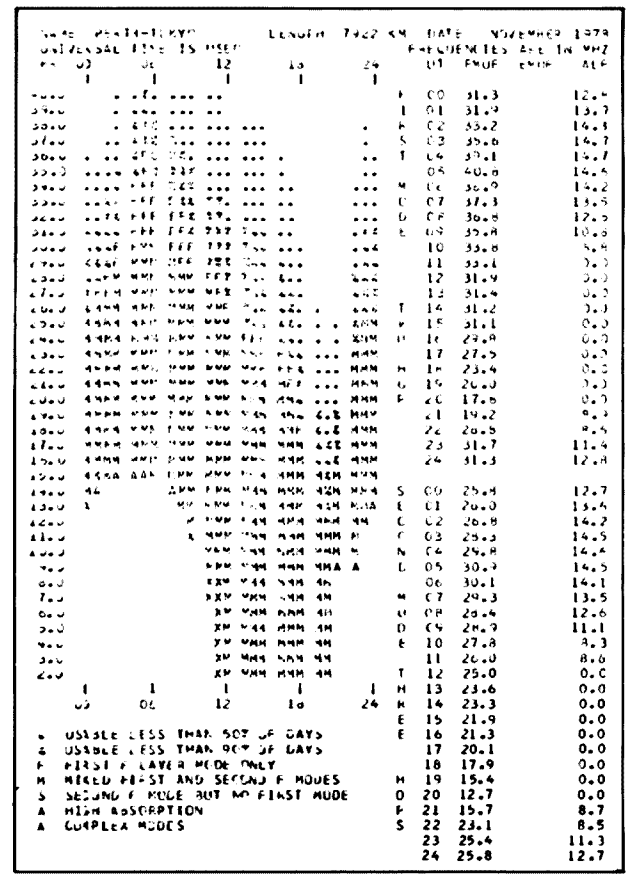
RIGHT: FIGURE 4A

LOWER LEFT: FIGURE 4B

LOWER RIGHT: FIGURE 4C

FIGURES 4A, 4B, 4C: Perth-Tokyo predictions for September/October/November this year show a promising pattern. Note how often the 'ordinary' F-layer mode supports propagation beyond 40 MHz. Peak median MUF in October reaches 41.3 MHz — and that's for two hops! On less than half the days of the month it is predicted to go considerably higher.





scientific institutions to advance research further.

Some HF backscatter ionospheric sounder research carried out by Queensland University from Brisbane in the 1960s has provided about the biggest body of data in this area to date, but does not cover a sunspot maxima (let alone a maxima and minima) nor did it extend into VHF.

Then again, research into propagation involving the southern "equatorial anomaly" of the ionosphere (which assists the TEP mode), which will undoubtedly assist 50 MHz propagation over odd paths in the southern hemisphere and certainly across the equatorial zone, is lacking. This zone of the ionosphere is important for a number of reasons — particularly in defence strategy as we shall see later. Complex propagation modes exist involving reflections from the equatorial anomalies of the ionosphere and the dense E-layer formations in the magnetic equatorial zone. These complex modes often support propagation in the lower VHF region, and have only recently been researched and identified. Further incidences of propagation, perhaps involving backscatter modes, in the 50 MHz region may provide additional research data or "jumping off" points for further research.

A recent (unpublished) paper by Ken McCracken VK2CCX, titled "Conduct of a Systematic Investigation of VHF/UHF Propagation Modes by the Amateur Service in Australia" (4), called "Project ASERT", details a method by which Australian amateurs may materially assist propagation research in a scientific manner. To the writer, the return of the 50-52 MHz allocation would greatly benefit this project.

The granting of 50-52 MHz to Australian amateurs would not only put them on parity with the same allocation in other areas of the world — particularly South Africa, South America, the South Pacific Islands, Japan and the US, together with efforts to have the allocation released in India and perhaps Russia, could materially assist research into the morphology of ionospheric propagation modes in the Australasian sector of the world.

Ordinary "extension" of F2 mode propagation (as propagates the HF range) is now routinely included in ionospheric predictions. Most "GRAFEX" style (computer plotted) Ionospheric Prediction Service charts are now produced with a frequency scale spanning 2 MHz to 40 MHz. Recently, the IPS have been putting out predictions with frequency scales covering 3 MHz to 60 MHz! (See example.) Many paths show extensions of F-layer propagation beyond 40 MHz at present, and the picture will certainly improve as we approach the maxima. The Australian to Central Asia (Novisibirsk, Russia being the terminal) predictions are of great interest. Complex ionospheric modes are almost certainly involved in extending propagation at times and to frequencies beyond the purview of the predictions. Again, the 40-60 MHz region of the spectrum is important and a 50 MHz allocation, coincident with the allocation in other countries, would be an advantage.

DEFENCE SIGNIFICANCE

Research into TEP and the propagation characteristics of the equatorial ionosphere is particularly applicable to Australia in a number of practical ways, not just in "pure" research. And this is secondarily of importance in itself as money and resources for research projects is granted to those which have practical or "pragmatic" goals — particularly in the short term. A pragmatic benefit from the allocation of 50-52 MHz to Australian amateurs lies in the area of its possible contribution to defence strategy.

A research project such as Project ASERT could provide propagation data, as mentioned previously, on the lower VHF region for equatorial and transequatorial circuits to the north of Australia.

Over-the-Horizon radar systems (5), suitable for early defence warning for Australia, are affected by equatorial and transequatorial propagation. Although currently using the HF part of the spectrum, OTH radar systems may, in the future, extend into the lower VHF region. In any case "odd" ionospheric propagation modes uncovered in the 50 MHz region affect the HF spectrum as well and may be more easily identified at 50 MHz.

VHF propagation In the 30-60 MHz region is of defence significance in another way. Military VHF communications in the Central Asian-China-Japan region may be monitored at times of enhanced propagation. Indeed, this is already done. Contributions to the study of the morphology of VHF propagation in this area would clearly have a bearing on military communications surveillance activities. Again, the return of the 50-52 MHz allocation is a prerequisite to providing assistance to such research, perhaps through Project ASERT. Besides, it's apparent that, if we provide ample evidence of enhanced propagation on the lower VHF region in these parts of the world, defence communications is likely to move elsewhere owing to the possible decreased security!

FUTURE COMMUNICATIONS POTENTIAL OF 40-60 MHz REGION

The communications potential of the 40-60 MHz region has been explored in the past in a practical, but limited, way. An experimental VHF propagation warning system was run as a trial by the Australian Ionospheric Prediction Service during March 1972. Some amateurs may remember participating in the experiment. In the report issued by the IPS on this experiment, "An Experimental VHF Propagation Warning System", by L. F. McNamara, IPS-R18 (6), Dr. McNamara states that ". . . at times communications on transequatorial circuits can be achieved at frequencies as much as 20 MHz above the predicted MUF (maximum usable frequency)" (from the Appendix). In the summary to this report (page 13), Dr. McNamara makes a number of observations I consider of importance to my arguments in support of the return of 50-52 MHz. They read as follows:

"The long term predictions of the probability of occurrence of TEP modes on various types of circuit were found to be reasonably accurate, even though they were based on very little data. More accurate predictions can only be made *when more observational data have been obtained.*" (My emphasis.)

"In retrospect, it can be seen that the TEP part of the WS (warning system) could be improved by:—

"1. Monitoring at Townsville all possible northern hemisphere transmitters operating between about 45-55 MHz and noting their frequencies, geographical locations and approximate signal strengths.

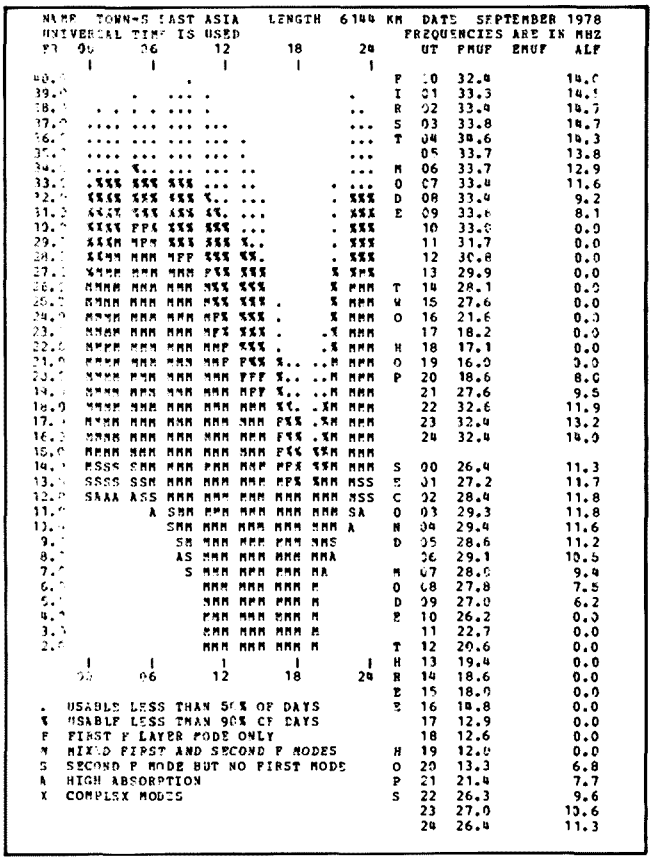
"2. Using the signal characteristics of the JA1IGY beacon (on 50.1 MHz) transmissions when they are received at Townsville to distinguish between the two possible TEP modes."

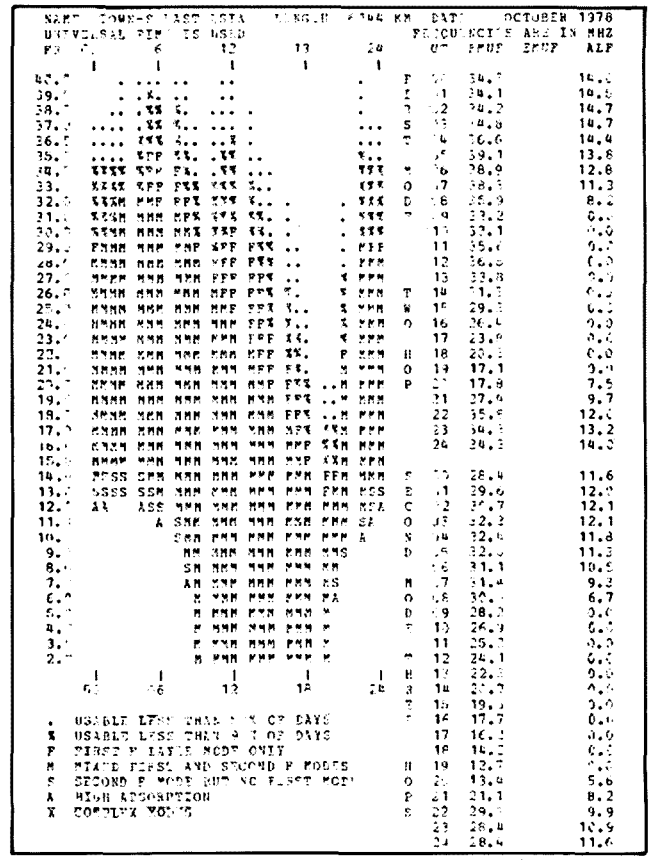
The significance of the 50-52 MHz band is readily appreciated. The assistance of Australian amateurs in this project was also acknowledged.

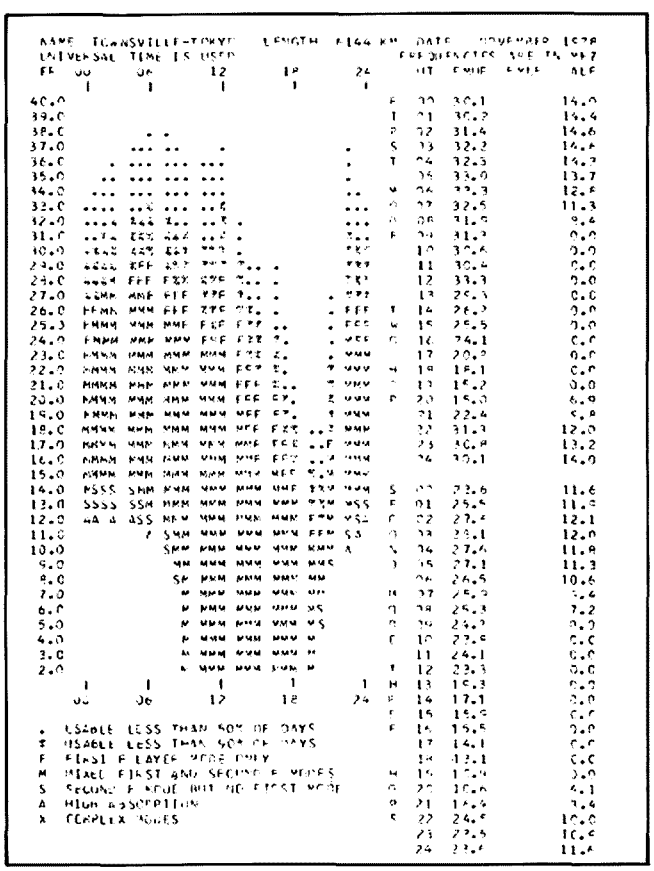
Mention of this warning sytem experiment, and how TEP can be used to improve signal conditions and reliability on transequatorial paths was mentioned in a paper by D. G. Cole and L. F. McNamara published in the March 1975 issue of the Proceedings of the IREE (1). In section five of this paper, headed "The Effect of Spread F on Ground and Satellite Circuits", Cole and McNamara say:

"If range spreading is present the transequatorial circuit performance can be improved in two principal ways. First, since the range spread is an indicator of likely VHF transequatorial propagation (TEP), *an increase in frequency up to the VHF band* (my emphasis) may allow propagation via the TEP mode. In this case the signal strength across the circuit will increase, to the extent that transmitter power may be reduced. A warning system using range spread as an indicator of TEP has been successfully tried."

By way of explanation, "Spread F" or "range spreading" is a phenomena observable on vertical-incidence ionospheric sounding equipment which plots the height variations versus frequency of the ionosphere using RF pulses reflected from the ionosphere. The record produced is called an "ionogram". When several closely spaced echoes are apparent over a range of frequencies and heights of the F-layer reflection on the ionogram, spread-F or range spread is occurring. The phenomena is produced by the reception of multiple echoes over a range of near vertical







ABOVE LEFT: FIG. 5A

ABOVE RIGHT: FIG. 5B

LEFT: FIG. 5C

FIGURES 5A, 5B, SC:

Townsville-Tokyo predictions for September/October/November also show a promising pattern. Here too, the 'ordinary' F-layer mode supports propagation beyond 40 MHz for part of the month. However, the median MUF in October peaks at only 39.1 MHz.

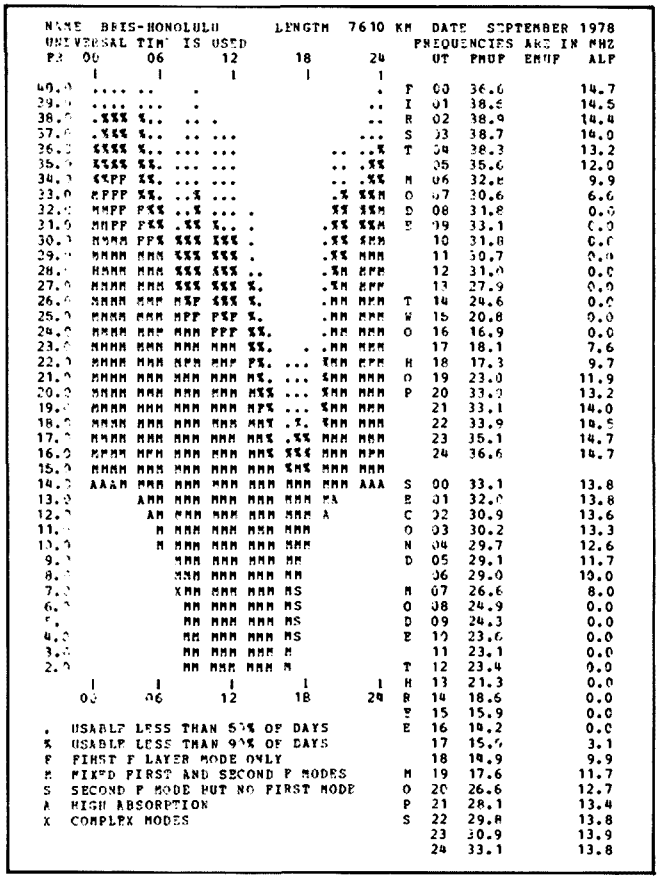
angles from discontinuities in the ionosphere. The discontinuities contribute to severe fading problems.

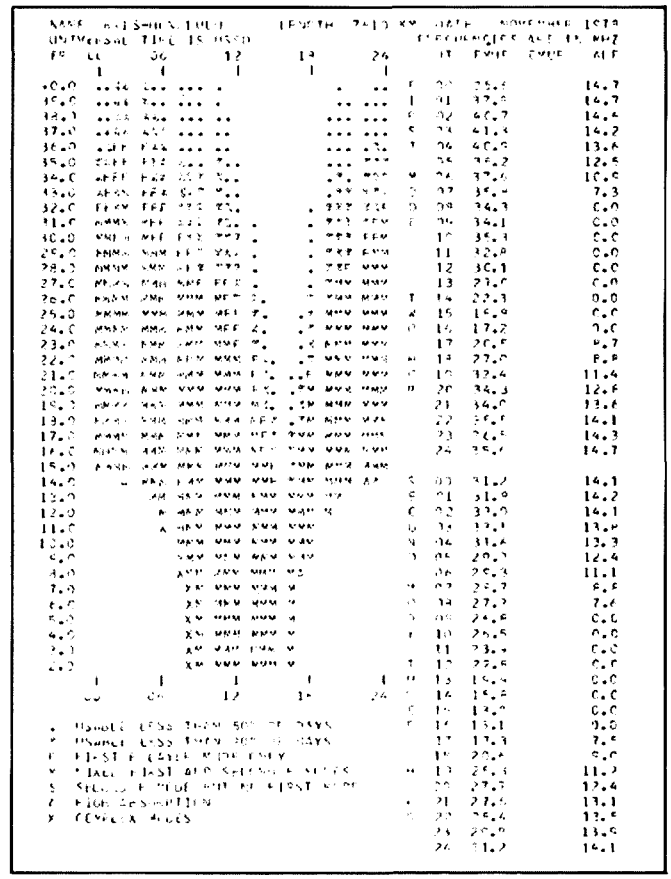
Correlation between signal characteristics on 21, 28 and 50 MHz would provide some observational and perhaps some quantitative data on the improvement possible as suggested by Cole and McNamara. Amateurs in Australia and Japan are ideally situated to provide such data. However, the 50-52 MHz allocation is not shared, although 52 MHz could be used. However, the incidence of TEP at 50 MHz is known to be greater than 52 MHz and more stations use the 50 MHz allocation in the northern hemisphere around the Japanese Archipelago.

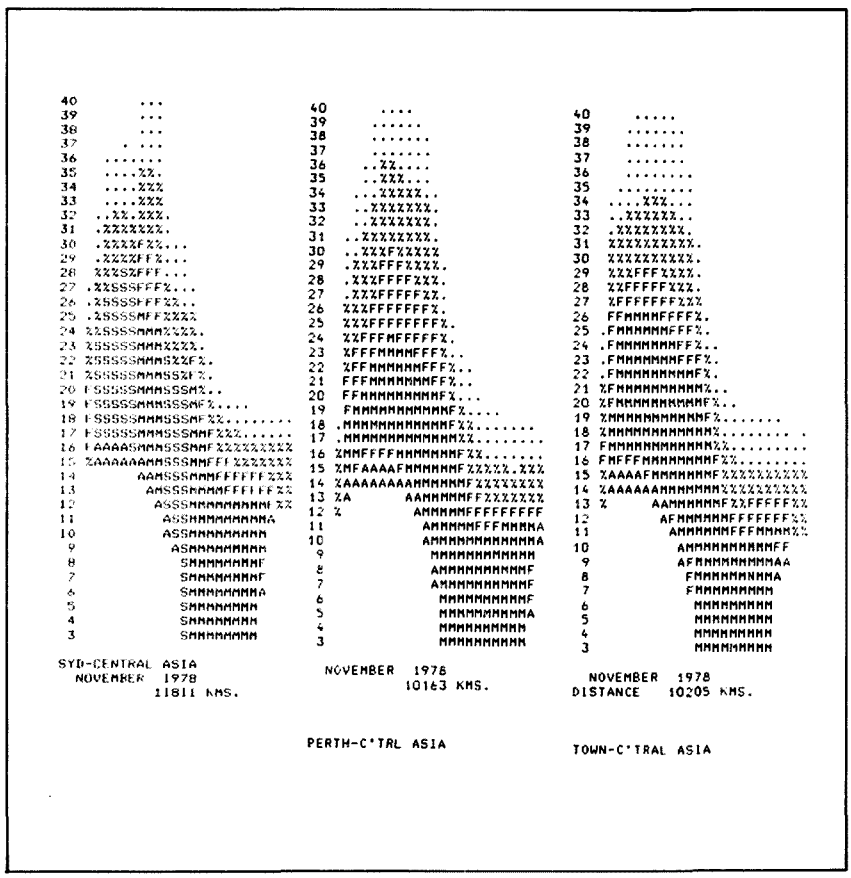
SUMMARY

The return of the 50-52 MHz allocation to Australian amateurs would materially benefit the Australian community, in defence, in scientific and in communications areas. The poor suitability of this region of the spectrum to television broadcasting use has been demonstrated on many occasions in the past and is likely to suffer increasingly as we advance towards the maxima of sunspot cycle 21. Returning 50-52 MHz to the Australian amateur service would serve a more useful purpose than maintaining it as part of a non-standard TV broadcasting allocation.

Putting Australian amateurs on a parity with other major nations and regions in







ABOVE LEFT: FIGURE 6A

ABOVE BIGHT: FIGURE 6B

FIGURES 6A and 6B: Brisbane-Honolulu is an interesting trans-Pacific path. Again, the ordinary F-layer mode will support propagation over 40 MHz. Peak median MUF in November is 41.3 MHz. Note how long the 'useable less than 50% of days' predictions cover 40 MHz.

LEFT — FIGURE 7: Propagation between Australia and Central Asia (Novisibirsk, USSR) is interesting and shows promise for the maxima years to come. Already, propagation beyond 40 MHz is possible on at least some days of the month.

regard to the 6 metre band allocation would see many benefits flow from such a decision in the years to come.

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LITTLE BOXES

One of the things which deters many experimenters who would otherwise build some equipment is the imagined difficulty in doing the mechanical work such as making a chassis and a box for the equipment they are building. I say imagined difficulty because it is often thought that to do sheet metal work one has to have an expensive workshop with all kinds of bending and cutting tools.

In actual fact, it is possible to make very good looking and perfectly functional boxes with the simplest of tools. Figure 1 shows how simple these tools can be. All that is needed is a couple of pieces of steel angle iron about 18 in. long, a clamp which can be bought at any hardware store (about a four inch clamp will do) and the kind of vice which can be found in practically every backyard garage. With these tools it is possible to bend aluminium sheet up to 18 gauge and if you want to use steel or galvanised iron, up to about 20 gauge. The sheet is simply placed between the angles as shown in Fig. 1 and the sheet is pushed over with one hand while the metal at the bend is gently hit with a hammer to work it over to a sharp bend. Fig. 1 shows the sheet of metal in position with the second bend completed. This particular box will have four bends and is about the simplest and most useful type there is. But it is not the only type of box which can be made. It is possible to make a wide variety of boxes and once you start you'll soon get the hang of it.

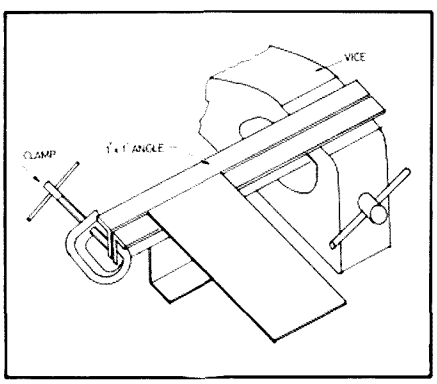

FIGURE 1

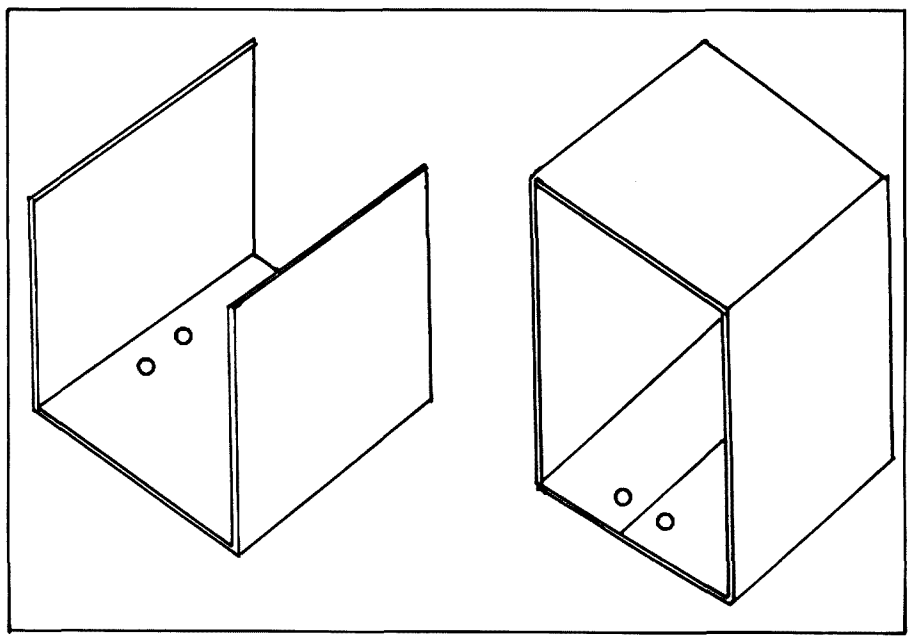

FIGURE 2

Fig. 2 shows the completed box. It is in two sections, one being the outer casing and the other the front and back panels and the chassis. You can see it is a very simple and convenient arrangement. Knobs and switches can be mounted on the front, and plugs and sockets can be mounted on the back and the circuit board or whatever can be mounted on standoffs on the main part of the chassis. The completed chassis can then be slid into the outer casing and a couple of screws through the outer casing into the chassis are enough to hold them together.

For cutting the metal the normal tin snips can be used but if you take the trouble to get a couple of old car springs and file the edges — they are not too hard to file — and bolt the springs to a couple of pieces of 3 in. x 2 in. hardwood you can make a first class pair of shears.

Another useful thing to know is that if you want to get a nice straight edge on a piece of aluminium sheet you can plane it with an ordinary wood plane as long as you are careful to take a very fine cut. The blade will not be damaged though it may need resharpening fairly often. Don't try the idea on steel or tinplate or you'll ruin the blade.

So don't be afraid to tackle sheet metal work even if you have only the simplest tools. There is nothing more satisfying than to see a home made box exactly the right shape and size, spray painted with an aerosol tin of hammertone or wrinkle enamel and have someone say, "Where did you buy that box? It's exactly the size I need."

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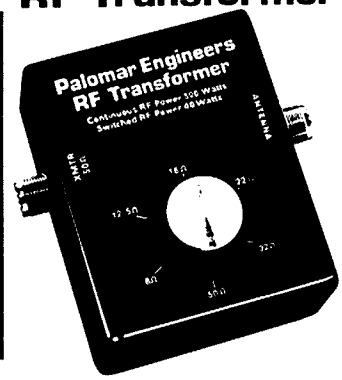

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D. Evans G3RPE, and C. Suckling G3WDG

INTRODUCTION

During recent years amateurs have had much success with simple 10 GHz equipment. Usually this has consisted of transmitters generating a mere 1-20 mW, receivers using point-contact diode mixers and with an IF bandwidth of 100-200 kHz, and horn or dish antennas having gains of 20-35 dB. Provided that the equipment is operated to take advantage of low-loss propagation modes, such as that over line-of-hight paths or of super-refraction via ducts, then contacts over paths hundreds of kilometres long can be achieved virtually as a matter of routine.

Both calculations and direct measurements show that this size of equipment usually has a reserve of system gain of tens of decibels. This reserve means that it is not even necessary for the equipment to be working well for it to be successful: an overall efficiency of one per cent may be all that is required to cope with most low-loss paths. It also means that "compromise" techniques, such as the use of a Gunn oscillator as a self-oscillating mixer (and usually also as the transmitter), are quite satisfactory under these propagation conditions *provided* that the rest of the systems is working reasonably well.

However, for paths containing obstructions the path losses are normally very much greater. Losses 60-80 dB (1-100 million times) greater than those over unobstructed paths are not untypical. In order to work over these obstructed paths, the overall systems gain has to be correspondingly increased and it becomes necessary to start counting every decibel. The receiver described below, although it is simple to construct, is intended to be efficient at this level. An unusual feature is the flexibility of the design. Because of its particular configuration, a small amount of the local oscillator power is radiated and obviously this can be modulated and used as a transmitter. By a simple modification the output power can be increased if desired, but at some expense of the performance of the receiver.

DESIGN AND CONSTRUCTION

The receiver is shown schematically in Figure 1. It consists of a simple mixer assemply which is connected directly to a Gunn oscillator of the type which defines its cavity by an iris. The mixer uses a length of waveguide into which is fitted the mixer diode, the hot end of which is decoupled and feeds the IF amplifier in the conventional way. Diodes of the 1N23 type are recommended; those with later prefixes (E, F, G) are preferred for their lower noise figures. The signal-input end of the guide can be of any convenient length, and it is fitted with a matching screw or screws to match the mixer diode to the waveguide. The length of the waveguide at the local oscillator end is critical: it needs to be made electrically an odd number of quarter guide wavelengths, i.e. $n\lambda/4$, where n is 1, 3, 5, 7, etc., as is convenient. This rear cavity is closed by the same iris as is used to define the Gunn oscillator cavity.

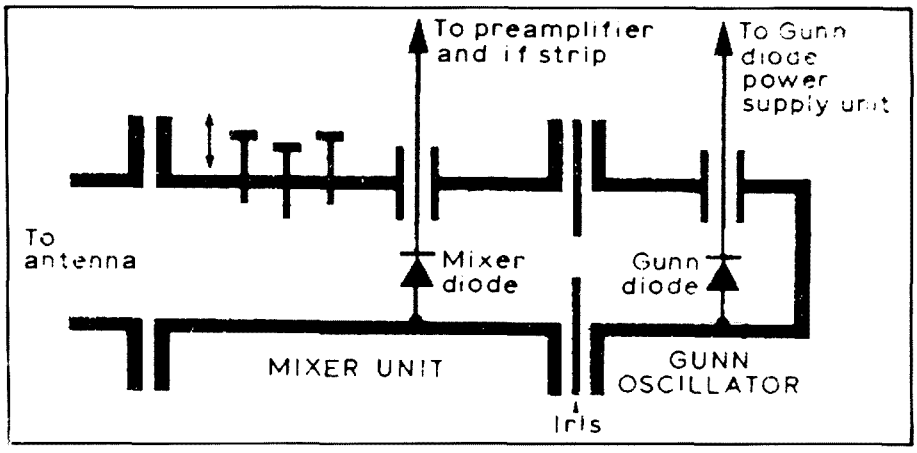


FIGURE 1: General arrangement of the receiver

A basic problem in the design of receivers is how to couple the local oscillator drive into the mixer while keeping to a minimum the amount of signal loss by its coupling with the local oscillator circuitry. A feature of the present design is that this isolation is provided simply by using the iris to undercouple the Gunn oscillator. Apart from the simplifying construction

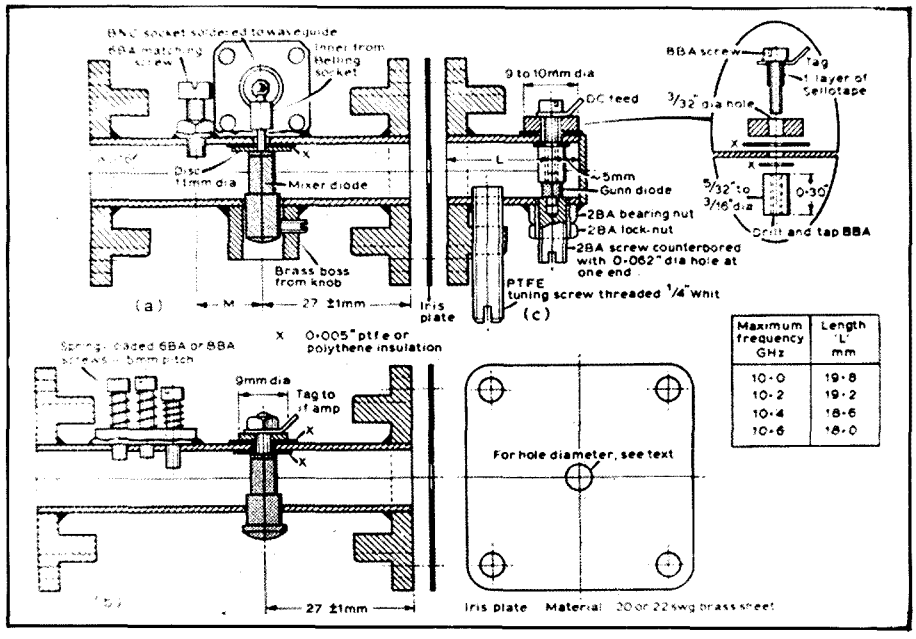


FIGURE 2: (a) One form of the mixer assembly. The single matching screw fits In one of two holes tapped close to the centre line of the guide, with the length M 11 mm for 10.0 to 10.1 GHz and 10 mm for 10.3 to 10.4 GHz. (b) An alternative configuration tor the mixer. The position of the matching screws is not critical; they can be placed any convenient distance from the diode. (c) A modified design of Gunn oscillator.

compared with other methods of achieving isolation, for example by using a directional coupler, the present method has the important advantage of enabling the loaded *Q* of the Gunn oscillator to be significantly increased. This means that the stability of the Gunn oscillator is improved, which in turn raises the overall efficiency of the receiver.

PRACTICAL DETAILS

Two forms of the mixer assembly (which were developed quite independently) are shown in Figs. 2(a) and 2(b). Also shown as Fig. 2(c) is a recommended design of Gunn oscillator which is the G8APP design [1] with a fixed rather than adjustable RF short. A feature of the design given in Fig. 2(a) is that it requires the minimum amount of tools in its fabrication. Points that can be made with respect to its construction are:

(*a*) First drill a hole about 3/32 in. diameter centrally through the broad faces of a suitable length of waveguide 16 and open one of the holes to 0.25 in. diameter.

(*b*) Remove the brass centre boss from a knob intended to be used with a 0.25 in. diameter shaft by breaking away the surrounding bakelite. Fit the two flanges in their positions and solder these and the boss in a single operation. The latter may be jigged using a 0.25 in. drill. Note that the position of the input flange is not critical in any way, but that at the oscillator end it should be within about 1 mm of that specified.

(c) Drill and tap the holes for the matching screw. Remove the excess waveguide projecting from the flanges by sawing, filing and finally by grinding on wet silicon carbide paper backed by a sheet of glass. Carefully remove burrs from the inside of the guide, especially where the Insulation is to be fitted.

(*d*) Carefully file away the lip from the mixer diode large connection (or from the adaptor if the diode is of the reversible type) so that the connection is uniformly 0.25 in. diameter.

(e) Drill the hole in the capacitor plate so that it is a tight fit on the diode pin. When assembling, press the diode against the wall of the guide before tightening the grub screw.

The construction of the design given in Fig. 2(b) is similar, but in this case the diode is bolted to the bypass capacitor at one end, while the other end is made a tight fit in the wall of the guide. In mixer diodes that are reversible it will be found that one connection pin is solid and, preferably, this is the one that is tapped. The pin is undersized for the 8BA thread specified, so the forces involved in tapping the thread are small: it can be done while holding the diode with the fingers.

The fabrication of the Gunn oscillator should present few problems. Constructional details are given in [1] if these are required. The heatsinking in this design is certainly adequate for the low power diodes which generate up to 20 mW and which dissipate about 1W. It is insufficient for high power devices which dissipate about 10W. Note that for many low-power Gunn diodes the connection with the flanges should be made negative.

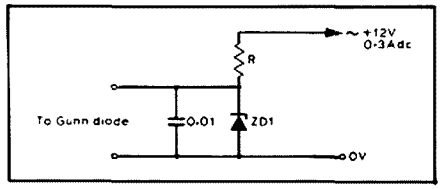


FIGURE 3: A simple zener diode PSU. The working voltage of ZD1 is normally 7-9V (see text)

ALIGNMENT

The preferred method of aligning the mixer is as follows:

(a) Connect the input of the mixer via a variable attenuator [2] to a suitable RF source, which can conveniently be the *local* oscillator to be used. Inject RF at *signal* frequency and adjust the matching screws to maximize the mixer current while, at the same time, setting the variable attenuator so that this maximum occurs at the optimum value for the particular mixer diode being used. For point contact diodes, a current of 250-500 μA is suitable. The matching screws should then be locked in position. During this operation, the rear end of the mixer cavity should be closed with either the iris to be used or by a blank plate.

(*b*) With the input connected to a matched load [3], and the Gunn oscillator fitted in its normal position, alter the size of the hole in the iris plate until the diode current is the same as that during (*a*). Obviously the size of the hole will depend on the output power of the oscillator but will normally be in the range 3-5 mm diameter.

In an alternative method used by G3WDG, the receiver is assembled with the antenna and waveguide run which is to be used. For initial tests an iris about 4 mm (3/16 in.) is suggested. The matching screw (in the appropriate hole in the G3WDG design) is then adjusted to set the mixer current at about 250 μA. If the current is greater than this, even when the screw does not penetrate into the guide, then the iris should be reduced in diameter. Conversely, if the mixer current obtained with up to the maximum recommended penetration of 3-4 mm is still less than the optimum value, then the size of the iris should be increased. If the size exceeds 6 mm, then there is a risk that the stability of the Gunn oscillator might be adversely affected. If the mixer current is still too low, then a fault in construction, a poor mixer diode or a badly-matched antenna should be suspected. The latter can be checked by substituting a large horn (or any other well-matched load) for the antenna in question. If correct operation is obtained, then the matching of the original antenna should be improved using, for example, another set of matching screws fitted to the antenna.

ALTERNATIVE CONFIGURATIONS

The critical dimension of the mixer assembly is the length of the guide between the diode and the iris. This was determined experimentally by fabricating an adjustable iris from 0.02 in. thick sheet 0.9 in. wide which was bent into the form of a square "U" with the base 0.4 in. wide. Using the set-up described under Alignment (a), the position of the iris, the penetration of the matching screws and the insertion loss of the attenuator were adjusted at signal frequency to peak at the optimum current for the mixer diode. It was found that moving the iris away from its best position by up to about 1 mm could be compensated for by readjustment of the matching screws. The value given in Fig. 2, 27 mm represents a compromise length between 10.0 and 10.5 GHz. It is

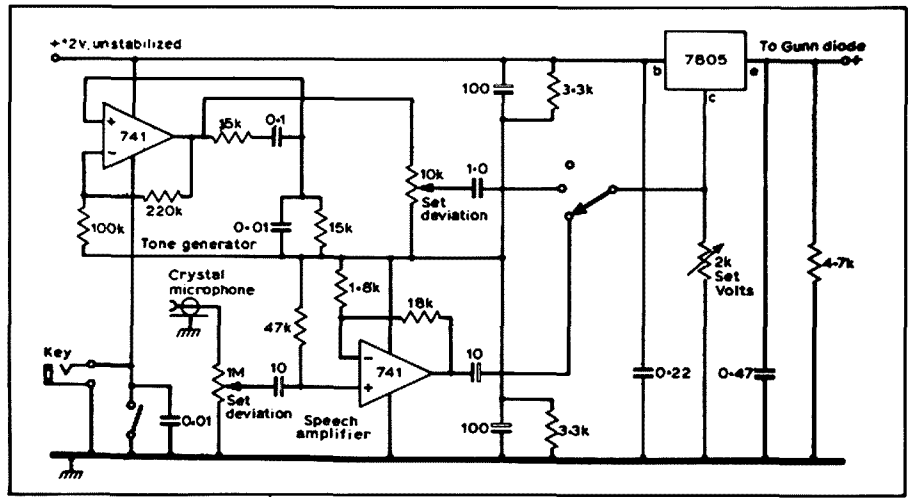


FIGURE 4: Speech amplifier and Gunn diode supply modulators

somewhat smaller than the values calculated for 3λg/4 at these frequencies, namely 29.8 and 27.4 respectively.

The same procedure is recommended if it were desired to optimize the mixer assembly at another frequency, or to lengthen the cavity by making it 5λg/4 or 7λg/4 in order to fit a wavemeter.

Other Gunn oscillators which employed an iris at the output flange can be substituted directly. Examples are given in [4].

As noted earlier, some of the local oscillator power is radiated from the antenna port and may be used as a low-power transmitter. By increasing the size of the hole in the iris plate the amount radiated may be increased to make the transmitter *more* effective, although the reduced Q of the oscillator cavity resulting from this change means that the efficiency of the receiver will be impaired. Despite this, the performance of such equipment should be competitive with that of most other transceiver configurations. The size of the iris should not exceed about 6 mm diameter, otherwise the stability of the Gunn oscillator may be seriously affected.

POWER SUPPLY UNIT

The simplest practical PSU consists of a zener diode stabilized circuit as shown in Fig. 3. If, as in this case, the receiver local oscillator is not to be modulated, then the working voltage of the Gunn diode will be close to that which produces maximum power output. This can be checked by operating the oscillator via a variable resistor (e.g. 47 ohm 3W) from a 10V 0.3A DC supply, and using the mixer diode current as a power indicator. A zener diode of the optimum working voltage and 1W rating can then be fitted, and the value of resistor **R** set so that the zener diode passes 50-100 mA with the Gunn diode connected.

It is of advantage to be able to frequency modulate the receive local oscillator with tone since this enables CW signals to be detected. If there is a chance that the unit will be used as a transceiver, if only as a low-power spare equipment, then it is worthwhile also to build in speech modulating facilities. A recently developed circuit produced by G8AGN/G8ZCO is given in Fig. 4. A deviation of about 100 kHz is usually employed, this being suitable for standard broadcast FM components.

RECEIVER PREAMPLIFIER AND IF STRIP

One of the advantages of having a separate receiver is that there is a wide freedom of choice for the IF frequency. In fact almost any frequency can be used in principle since its value will be taken into account during the final calibrating process. With single-ended mixers of the type described above, there are advantages in using a relatively high IF in the region of 100 MHz. A convenient form for this can be a standard FM broadcast receiver, which may have limited AFC facilities built in — as well as a tape recorder. Some receivers of this type can tune 150 MHz, which is a useful IF in that the receiver can be made to tune 10,000-10,100 MHz on one channel, and 10,300-10,400 MHz on the other. Suitable preamplifiers using either BFY90 or 40673 devices are given in [5].

A useful check on the overall performance of the receiver is to measure the difference in its noise output when the antenna is pointed at the sky or at objects such as the ground. This technique is described briefly In [6].

REFERENCES

RC = *Radio Communication; M* = *RSGB VHF/UHF Manual*, 3rd edn.

[1] *RC* February 1976, p. 123.

[2] *RC* December 1972, p. 280; also *M*, Fig. 8.39.

[3] *RC* December 1972, p. 741; also *M*, Fig. 8.36 and 8.37. Horn antennas normally represent a well-matched load.

[4] *RC* May 1974, p. 288, Figs. 6, 7 and 8. Figs. 7 and 8 are also shown as Figs. 8.52 and 8.53 in *M*. Also *RC* September 1976, p. 667, Figs. 1 and 2.

[5] *M*, Figs. 8.74-8.78.

[6] *RC* July 1972, p. 541.

Reproduced from "Radio Communication", June 1978. ■

THE 1979 FACT SYMPOSIUM

The "Future Amateur Communications Techniques" Symposium, held in Sydney in May last year, turned out to be one of the most important events in amateur radio for 1978. The success of this venture has created a demand for a "return" performance.

Accordingly, the 1979 FACT Symposium will be held over the long week-end of 29, 30 September-1 October this year at a venue in Sydney, to be announced.

This year's FACT Symposium will again be organised by Roger Harrison VK2ZTB, and the NSW VHF and TV Group Committee.

CALL FOR PAPERS

The organisers invite any amateurs, or interested perons, wishing to present a paper at the 1979 FACT Symposium to present a written abstract or synopsis on a topic of your choice — but related to communications techniques — to the committee by or before 30 May, 1979. Successful papers will be judged on originality, informativeness, possible future importance and amateur applications.

It is intended to publish the Symposium Papers before the event this year.

To enable interstate amateurs, who may not be able to attend, to contribute to the Symposium, the committee invites abstracts from authors who, if accepted, would be invited to submit a paper for publication in the Symposium proceedings.

For further information, contact the FACT Symposium Committee, C/- 14 Atchison Street, Crows Nest, NSW 2065. ■

ALL-BAND SCRAMBLE: COUNTRY STYLE

Not bad weather for a field day?
It's pretty good I guess!
What with jokers down from the *country*
It'll be a great success.
There's a couple from up country —
by their looks it's Dad and Dave.
Heck! They're In the all band scramble —
this'll be a rave!
By the looks of their equipment,
it oughta be condemned.
I'd like to see that rig receive —
Let alone it send!
That tuning gang is driven by
a length of cycle chain,
wrapped aroun' a stick of wood!
They gotta be insane.
They're not using coax for their feed:
they're using some barbed wire!
Their SWR must be near 10 to 1.
And if it ain't — it's higher!
They've gotta couple of tractor springs
and using them for coils.
And every time they switch to CW —
The electrolytic boils!
For valves they've got a few light globes —
and it would be my guess
That the first valve that De Forest made,
Is somewhere in that mess!
They don't use gens or batteries.
Or anything else as subtle!
For volts, they light a big log fire —
and heat a thermocouple!
Hey, mate! It's about to start.
Let's watch these country blokes.
I'd bet a monkey's uncle —
They'll be good for a couple of jokes!
Geez! Lookit that bloke pound the brass —
close to twenty words a minute!
At the rate he's making QSOs —
no one else is in it!
Great Scott! He's won the thing!!!!
with sixty-five or more.
an' none of them fancy amateurs —
comin' anywhere near his score!
I *reckon* I'll chat these blokes
and tell 'em what I've said.
'Bout them crummy commercial rigs
and how 'ome brew leaves 'em dead!!
—From Westlake R.C. Newsletter, Dec. 78. ■

ISLE OF MAN

GD3PBD

A new prefix "GT" will be used during the period 0001h BST on 30th June 1979 to 23.59h BST on 8th July 1979. Many expeditions to the island are expected which will boost the efforts of the resident 50 or so licensed Manxmen. The Isle of Man Amateur Radio Society asks visitors to send them details as advice and assistance will be readily available; write to GD4FWQ, 20 Terrence Avenue, Douglas.

Rad. Comms., Jan. '79

The use of this new prefix is to mark the millenium of Tynwald, one of the most ancient legislative assemblies in the world. This comprised the King, two lawmen (later termed Deemsters), 24 Keys and the Freemen or Folk as fashioned on the Norse system of government when the island was conquered by King Orry — Godred Crovan. Tynwald is also remarkable for the retention of so much of its original form, procedure and ceremonial. Today, almost a thousand years later, it comprises the Lieut.-Governor representing the Sovereign, an appointed Legislative Council and an elected House of Keys.

Tynwald is not subject to the British Parliament (except in matters previously agreed between the two) but to the Sovereign. It enjoys legislative independence and the right to order the civil, judicial and financial administration of the island. A ceremonial is held each year on Old Midsummer Day, which is now July 5th, on Tynwald Hill, St. John's near Peel.

Mannanin Veg Veen, Mona of the Romans or Man is indeed a tiny island in the Irish Sea. From the top of Snaefell, some 900m high, five countries can be seen on a clear day as well as the rolling green hills of the island with its tree-clad glens. The climate is generally much milder than surrounding areas and helps to explain the main industry of summer tourism, assisted, no doubt, by the Casino. The island is even more famous for the international Motor Cycle TT races (dating from 1904) in August, during which many of its roads are closed to all other traffic.

On the way from Douglas to Castletown the road crosses a small creek where all visitors should salute "the little folk". Perhaps its long history of severe hardships, conquering hordes and periods of isolation has much to do with superstitions. Nevertheless, Manxmen are proud of their island, of their beautiful music — especially Ellen Vannin, by Eliza Craven Green, of the early 19th century — and their service "to King and country".

Manxmen can be found in most places as their names testify — Christians of Pitcairn Island from the Bounty, Quayles, Caines, Clagues, Kennaughs, Quilliams, Kellys and many more. Perhaps as famous are Manx cats and the three legs of Man emblem.

Nearly 30 years ago I worked a GD station but no way could I get a QSL card out of him as I needed it for some award or other. I even sent him cards made out ready for him to sign and return in the envelope supplied with IRCs. It took the visit of a friend of mine, some 12 years later, to collect it in person. That was an exceptional case, because the last time I joined in the Isle of Man ARS monthly meetings the talk was about QSLing during the excellent teas we enjoyed. A fine island, full of beauty, history and charm. ■

EARLY DAYS IN RADIO

E. C. Reading VK2LT
"Karnak", Dunoon Rd., via Lismore 2840, NSW

As a result of our "Early Days" request from "Old Timers" on amateur activities in the years 1925-1935, the author has submitted the following story.

"My present call sign is VK2LT, which I got in 1963, having caught the bug again.

Owing to pressure of work and other hindrances I let my previous licence lapse (2RG) from 1925 to about 1929, my old licence was dated 14-2-1925, Certificate No. 67, signed by Radio Inspector W. T. Crawford, Chief Manager J. Malone.

I was fairly active during 1925 to 1927, was living in Bangalow then, not far from the sea.

In about the years 1920 to 1921 I built a small two cylinder engine with the help of my brother, who was with an engineering firm in Brisbane. The machining of some of the parts such as the crankshaft and boring out of cylinders was done in Brisbane; the rest was done by myself on a small lathe, which was also made mostly by my brother, and finished and put together by myself.

I became interested in radio in about 1921-1922, made several receivers, picking up 2FC and 2BL, and entertaining the local townspeople, several of whom got me to make them a BC receiver. From then on I became interested in Amateur Radio, making several receivers, mostly picking up morse from ships, which helped me a lot to learn the code.

When I obtained my radio licence and was able to use a transmitter, I got on the air, using batteries for a power supply for a while. I then made a generator for the HT supply, which was connected to the two cylinder engine; it generated 800 volts 2 amps DC, and using batteries for the LT supply. I was on the air with the 50 watt Radiotron valve. I used this until the AC power was connected through to Bangalow.

I was fairly active during 1925 to 1927. Unfortunately none of the gear used has been kept. I have a few QSL cards. I think the best of the cards are at the Richmond River Society's Museum in Lismore. QSL cards still in my possession are: America (6AZY, 6CHY), Australia (8) VK2s, (6) VK3s, (4) VK5s, (4) VK7s; had more but they have been mislaid over the years; also (10) New Zealand cards.

My first receiver was 3 coils, 4 valves; transmitter 1 valve (200). Later the transmitter used a 50 watt Radiotron valve, Hartley Circuit Power Supply, home-made transformer, stampings cut out with snips and trimmed up with a file, etc., 800 volts HT. The rectifier was a number of glass bottles filled with 20 mule team borax with electrodes of lead and aluminium. They were a beautiful sight, a lovely blue colour when the key was pressed. Wavelength 35-80-87 metres, aerial 35 ft., with 4 wires, 40 ft. fan-shaped counterpoise. Receiver used then low loss 3-coil, 2-stage AF. Later used Phone, using carbon mike; contacts mainly VK2s.

I have belonged to the local Summerland Radio Club since it began and am active on VHF using a Multi 7.

I have made several caravan trips around Australia. In 1967 used a Swan 350 with helical whip aerials, 20, 40, 80, and made many contacts and friends on the way. I was in contact with VK2BU, Newcastle, who kept our daughter, now at Raymond Terrace, informed of our progress, etc., and don't think we missed a "sked", mainly on 40 metres at around 7 p.m."

Editor's Note: Contributions from OTs regarding their early experiences, etc., around 1925-1935 (or earlier and later) are most welcome. (VK3UV.) ■

NOVICE NOTES

TESTING CAPACITORS FOR LEAKAGE

Gil Sones VK3AUI

Many capacitors found in older receivers and in TV sets being stripped for parts are leaky. However, the leakage is often not evident at the low voltage used by a conventional ohmmeter.

A simple check can however be made using a neon tube and a series resistor if a source of between 200 volts and 400 volts DC is available. Only a very small current is required to produce a glow in the neon tube. Thus leakage current and breakdown at typical working voltages may be readily found.

When the switch is pushed the neon will light and then extinguish as the capacitor charges. The duration and intensity of this charging flash gives an indication of the capacitance of the capacitor

1000 pF to 0.01 mF charge quickly with a small flash which may be easily missed.

0.1 mF charges with a noticeable flash.

1.0 mF charges with a very noticeable flash.

Thus you may also roughly gauge the order of the capacitance with a little practice.

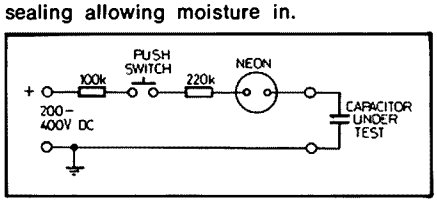
If the capacitor is leaky the neon will pulse rapidly if very leaky and slowly if leaky.

If the capacitor breaks down under voltage the neon will remain alight continuously.

Electrolytics cannot be tested in this manner as they depend on some leakage current to maintain their dielectric film.

Small disc ceramics are generally of too low a value. Also discs often fail due to plating flaking off the ceramic and so reducing capacity.

However the many paper and plastic film capacitors can be checked. They usually deteriorate due to failure of their sealing allowing moisture in.

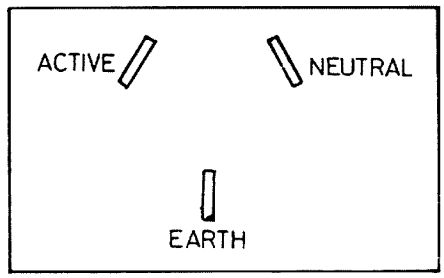


Capacitor leakage tester

With a little practice you will become quite adept at sorting out the good ones. At about the same time you will probably be able to predict from the look of the capacitors which ones are crook. This skill used to be put to good account by TV servicemen in fixing up the older style of TV sets. ■

AC MAINS PLUG CONNECTIONS

Australian Standard AS3000 recommends that when viewed from the front of the outlet the pins should be Earth, Active, Neutral when rotating in a clockwise direction.



AC mains outlet

The cord flexible conductor colours are —

Active — Brown.
Neutral — Light Blue.
Earth — Green or Green/Yellow.
Older electric cord colours were —
Active — Red.
Neutral — Black.
Earth — Green. ■

☆ ★ ☆

ONE FLASH AND YOU'RE ASH

JOTTINGS FROM WESTLAKES RADIO CLUB

Young members visiting the clubs for the first time get some wild ideas.

Back in the early days, one 12-year-old was very upset that he didn't get on with building his TV receiver in the second lesson!

The whole idea of attending the radio club at all is to learn the disciplines of electronics. Discipline is "doing as ordered".

Now nobody is going to order you about as if you were on the parade ground.

But all the experienced members will tell you that it is dangerous to assume that because you are a radio club member you will automatically know all about electricity.

The funny phrase, "One flash and you're ash!" is all too true when one thinks about mains electricity.

Mains electricity is present at the mains three-pin socket on the wall; inside the TV set, the radio set, the toaster, the mixer, the shaver and all other electrical appliances.

You can't *see* mains electricity and this is what makes it so dangerous.

A spider or a snake or a shark *look* dangerous, so you keep out of the way of them if you are wise.

But mains electricity is much more dangerous than all of them and you can't even see it!

Then what should you do?

It is just as stupid to be afraid of mains electricity as it is to think that it's harmless.

It is much better to treat it with *respect.* Make it your servant but *never* assume that it is your friend, because mains electricity can kill you.

I'll tell you a true story about how dangerous it can be.

Years ago, when the club was very young, one member, about 13 I suppose, mistakenly thought that because he had had a few lesson in the Elementary class he knew all about wiring up a three-pin plug.

His confidence nearly caused the death of his father.

The house in which he lived had been wired so that a power point on the wall had no switch. This was dangerous in itself but that's only part of the tale.

This boy, thinking that he would do a good turn for the family, set about putting a new plug on the mains lead to the refrigerator. He just connected the three wires to the three pins.

If you think about it mathematically, you can imagine that there would be many ways to do it and still finish up with some degree of safety. But this boy connected the red active lead to the earth pin. His father arrived home just as he finished. He took the lead from the boy because he didn't know about these things either. He plugged it in and reached for the door handle to see if the light came on. Fortunately, someone pulled out the plug soon enough. But it could have been fatal.

DON'T DO IT UNTIL YOU HAVE BEEN SHOWN HOW.

From Westlakes RC Newsletter, February 1979. ■

BOOK REVIEW

RADIO FREQUENCY INTERFERENCE
HOW TO IDENTIFY IT AND CURE IT

With the amount of electronic equipment installed in the average home increasing every year the identification of RFI and its elimination is becoming more important. This **ARRL** booklet will show you how to identify the interference, find its source and suggest means for its elimination — often in the equipment being interferred with, sometimes in the transmitting device.

For many years the producers of electronic power generators have been conscious of the need to produce equipment to a high standard which does not produce "spurious" outputs.

Makers of reproduction equipment have, in many instances, because of a desire to produce such equipment at low cost, been prone to overlook the effects that a nearby source may have upon their products.

All aspects of the problem are dealt with in this sixty-four page publication.

Publisher: The American Radio Relay League Inc., Newington, Connecticut, USA.

Available from Magpubs — price $2.60. ■

NEW ATLAS 110 LINE

• 250 WATTS • $499 • 80–10Mx •

RX/TX-110 Transceiver $499
PS-110 Power Supply $109
MM-110 Mobile mount $58

Now for only a fraction of the outlay previously necessary you can run up to 250 Watts on 80 thru 10 Metres, work CW or SSB, operate from the Car, or home QTH using the RX/TX-110H and its AC Power Supply, PS-110.

• • • • • • •

For color brochure with complete specifications write to us, phone us or just drop in and have a look at the RX/TX-110.

At GFS, Australia's Atlas agents, we are proud to introduce a real breakthrough in HIGH POWER, LOW COST, amateur transceivers.

First came the receiver, The Atlas Rx-110 . . . A performance plus Amateur Band Receiver incorporating high sensitivity, selectivity and dynamic range. Couple that to a "bolt-on" Transmitter Module, the Atlas TX-110H . . . which has low spurious and harmonic radiation, high carrier and unwanted sideband rejection and 250 Watts in-put. You now have the unbelievable Atlas RX/TX-110H top performance transceiver which costs . . . NOT $950 . . . NOT $750 . . . NOT even $650 but just **$499**

• • • • • • • • *MORE OUTSTANDING FEATURES* • • • • • • • •

- **Frequency Coverage** 3.5-4.0 MHz, 7.0-7.5 MHz, 14.0-14.5 MHz, 21.0-21.5 MHz, 28.0-29.0 MHz
- **All Solid State.** High Performance Design. Excellent sensitivity, selectivity and dynamic range superior to most receivers currently on the market.
- **Receives and transmitts CW and normal SSB.** LSB on 3.5 and 7.0 MHz bands, USB on 14.0, 21.0 and 28.0 MHz bands.
- **Semibreak-In CW** is a standard feature
- **Built in** speaker and CW sidetone.
- **Modular Design** provides much easier service and maintainance. This is a piece of equipment that you can work on yourself if you wish, because you can get at everything with ease.
- **Choice of** 12-14V DC for mobile or 220-240 V AC for home operation with the Atlas PS-110 Power Supply.
- **Superior Size** RX/TX-110 measures just 31W x 10H x 25D cms.

WHY SETTLE FOR A SECOND HAND TRANSCEIVER WHEN YOU CAN NOW BUY A BRAND NEW ATLAS TRANSCEIVER FOR AROUND THE SAME PRICE?

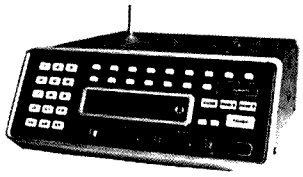
* * * * * * * * *

NEW!!!

SX-100 PROGRAMMABLE VHF/UHF 16 CHANNEL SCANNING RECEIVER.

It had to come. A Keyboard Entry, **Microprocessor** controlled VHF/UHF Monitor Receiver from Japan with the following outstanding features:

- Wider frequency range, 30-54, 140-180 and 410-514 MHz.
- 5 KHz Channel Spacing on VHF and UHF.
- Covers 6, 2 and 0.7 meter Amateur Bands.
- Over 32,000 Channels.
- 0.5 uV Sensitivity.
- 220-240 VAC and 12-16 VDC operation.
- Large Green readout, showing channel number, frequency, time, day and date.



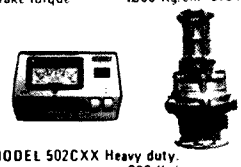
$392 incl. S.T.

Write for a brochure or drop in for a demonstration of this remarkable receiver

Because the **SX-100** covers such a wide frequency range, virtually any of the thousands of VHF/UHF **Commercial, Amateur** and **C.B. two-way services** in Australia can be monitored at the press of a button, e.g. **FIRE BRIGADE, POLICE, VHF MARINE OPERATIONS, CFA** and many, many more.

EMOTATOR ROTATORS

MODEL 103LBX Medium duty.
Rotation torque – 450 Kg/cm
Brake torque – 1500 Kg/cm **$164**



MODEL 502CXX Heavy duty.
Rotation torque – 600 Kg/cm
Brake torque – 4000 Kg/cm **$249**

MODEL 1102MXX Extra Heavy Duty
Rotation torque – 800 Kg/cm
Brake torque – 10,000 Kg/cm **$358**

1211 Mast Clamp for 103LBX $19
1213 Mast Clamp for 502CXX $31
1215 Mast Clamp for 1102MXX $48

AR-22XL CDE Light-Medium Duty rotator $150.

ATLAS 210X Now Only $695.00

While current stocks last.

STANDARD MODEL C-6500

HF WADLEY LOOP COMM. RECEIVER

SR

$339

A state of the art communication receiver covering the range 0.5-30MHz using a Wadley Loop for rock solid stability. Unlike some other receivers that use only one filter in the IF and exhibit poor selectivity The C-6500 has two filters, giving good selectivity on SSB and AM. For more details write to us for a brochure.

MFJ ANTENNA TUNERS & ACCESSORIES

MFJ-941B New updated Tuner, now has 6 Position Coax Switch, more inductance as well as SWR/POWER Meter, Balun and 160-10mx 300 Watt capability $139.
MFJ-943 Same as 941B but less Meter, Switch and Mounting Bracket $109.
MFJ-1030DX 10-30MHz Pre-Amp 20dB Gain $78.
MFJ-202 RF Noise Bridge 1 to 100 MHz. Reads actual Resistance (0-250 ohms) and Reactance (±0-150 ohms) $78.

DENTRON RADIO CO.

MLA-2500 2KW PEP Linear $1190.
MT-2000A 3KW Antenna Tuner/Co-Ax Switch $270.
BIG DUMMY Oil Cooled 2KW Dummy Load $43.

IS THERE A DX-555D FREQUENCY COUNTER SIGNAL GENERATOR IN YOUR SHACK?

If not now is the time to update your test gear with this popular instrument.

$249

Featuring a 220 MHz counter upper limit and 30 MHz generator upper limit.

Generator frequency is read directly on the counter.

A MUST FOR EVERY HAM SHACK.

Technical Data:
10Hz to 220MHz counter.
0.4 to 30 MHz generator.
600Hz tone oscillator.
2mS and 200mS gating time.
5 Digit LED display.
Switchable KHz and MHz

MULTI Palm II

Multi Palm II	**$229.00** Inc 1 chn and Ni-Cad Batteries
Leather Case	**$11.50**
Battery Charger	**$9.00**
Extra Channels	**$3.00 per chn.**

H.F. Operators watch our future advertisements for details of a brand new revolutionary form of 10 metre communications never before available in Australia in this form.

SCOOP PURCHASE

Telex Headsets, commercial type complete with boom mounted NOISE CANCELLING MIC. Limited quantity only.

• • • • • • • • • • **JUST $24** •

GFS TOWER 6metre Self Supporting mast **$75**

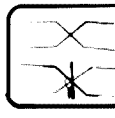
Wide Range of Semiconductor Spares available as used in YAESU, KENWOOD, STANDARD, etc.

HEAVY DUTY TRI-BANDER

Hidaka VS-33 3 Element 20/15/10 Mx Yagi, 8 dB Gain, 4.3 Metre Boom, 2 KW PEP

SPECIAL $249.00 While stocks last

CALLBOOKS	
Foreign Callbook	$17.95
USA Callbook	$18.95
World Prefix Map	$3.00
Kit of Maps	$5.00

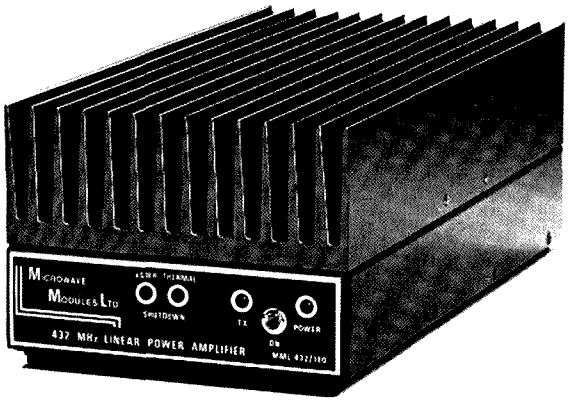


SWISS QUADS
SQ-20M – **$ POA.**
SQ-15 – **$159.–**
SQ-10 – **$149.–**
Offar high forward gain (up to 14dB) narrow beam width and good front to back ratio.

Now available **Free WORLD TIME CHART** & World QSL Bureau Listings (allow 20c postage)

FINANCE AVAILABLE TO APPROVED PURCHASERS **Also available many other accessories.**

G.F.S. ELECTRONIC IMPORTS 15 McKEON ROAD, MITCHAM, 3132. (03) 873 3939



MML 144/100 Watt Linear Power Amplifier

* 80 watts minimum RMS output 100 watts RMS typical.
* Fully protected against poor load VSWR overheating and excessive or reverse supply rails.
* Equipped with RF VOX and manual override.
* Frequency bandwidth 144 – 148 MHz at – 0.5 dB.
* 10 watts nominal for 80 watts output.

PRICE AMATEUR NETT: $265.00

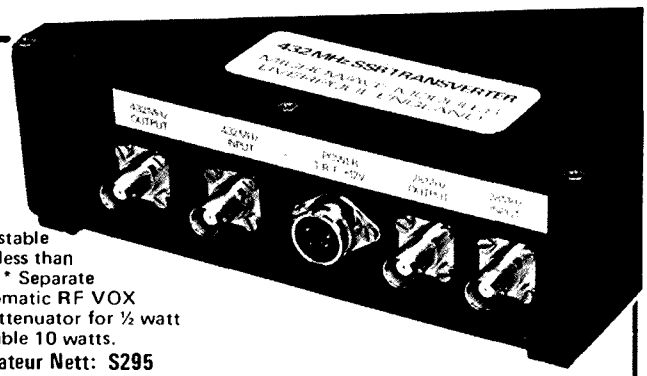
100 Watt 432MHz Linear Power Amplifier

* 100 watts minimum output 10 dB minimum gain.
* Fully protected against poor load VSWR, overheating and excessive or reverse rail.
* Equipped with RF VOX and manual override.
* Frequency Bandwidth 435 MHz – 15 MHz @ – 1dB.
* 10 watts nominal input for 100 watts output.

PRICE AMATEUR NETT: $395.00

Tronsverter Model MMT 432/144'S'

UTILIZING an IF of 144MHz * 10 WATTS DRIVE of ½WATT * VOX OPERATED, TWO SELECTABLE RANGES 432 - 434/434 - 436 MHz. FEATURES EXTENDED COVERAGE FOR OSCAR 8



FEATURES: High quality double-sided glass fibre printed board * Highly stable zener controlled oscillator stages * PIN diode aerial changeover relay with less than 0.2 dB through loss * extremely low noise receiver converter, typical 3 dB * Separate receive converter output gives independent receiver facility * Built-in Automatic RF VOX with override facility * Built-in 10 watt 144 MHz termination, selectable attenuator for ½ watt * Use of the latest state of the art Power Amplifier transistors provide reliable 10 watts. continuous output.

MODEL MMT 432/144 'S' Price Amateur Nett: $295

Transverter Model MMT 432/28'S'

FEATURES EXTENDEO COVERAGE FOR OSCAR 8

Second Crystal Oscillator gives two ranges: Low 432 – 434 MHz – High 434 – 436 MHz programming available to either Transmit/receive both Low, both High, or a mixture of the two. Adjustable Drive Level is now provided by an input potentiometer. Optional RF VOX. Power Output 10 watts minimum * 28 MHz IF * Drive 1 mW to 500 mW * Aerial Changeover by PIN diode switch * Modern Microstrip Techniques * Power requirements 12 volt nominal at 150 mA 2,5 amp peak * Case size 187 x 120 x 53 cm * Spare 432 input socket.

MODEL MMT 432/28 'S' Price Amateur Nett: $245 MODEL MMT 144/28 Price Amateur Nett: $185

NEW READY-TO-OPERATE MODULES AVAILABLE IN THE SALES PROGRAM OF VHF COMMUNICATIONS.

All modules are enclosed in black cast-aluminium cases of 13cm by 6cm by 13cm and are fitted with BNC connectors. Input and output impedance is 50 ohms. Completely professional technology, manufacture, and alignment. Extremely suitable for operation via sattelite or for normal VHF/UHF communications.

10 METRE MOSFET CONVERTER: Input frequency range 28 - 30 MHz * IF output frequency 144 – 146 MHz * Overall gain 15 dB min * Overall noise fig. 1.8 dB * DC Power requirements 11 – 13.8V at 50 mA. **PRICE AMATEUR NETT: $45.00**

6 METRE MOSFET CONVERTER: Featuring 24 MHz local oscillator output for transverter use. Input frequency 52-54 MHz. I.F. Output frequency 20-30 MHz. Typical gain 30 dB. Noise figure 2.5 dB. Typical image rejection 65 dB. Crystal Oscillator frequency 24 MHz. Power requirements 12 volt ± 25% at 35 mA. **MODEL MMC52/28LO PRICE AMATEUR NETT: $49.00**

2 METER MOSFET CONVERTER: Noise figure typ. 2.8 dB. Overall gain typ. 30 dB. IF: 28-30 MHz. 9-15 V 20 mA. **PRICE AMATEUR NETT. $45.00**

DUAL RANGE 432 – 434 MHz & 434 – 436 MHz Converter. Type MMC 432/28 'S' & MMC 432/144 'S' Input frequency ranges 432-434 MHz (low), 434-436 Mhz (high). I.F. output frequency 28-30 Mhz or 144/146 Mhz. Typical gain 30 dB. Noise figure 3 dB maximum. D.C. Power requirements 11-13.8 volts, 12.5V nominal. Current consumption 50 mA maximum. **PRICE AMATEUR NETT: $67.00**

1296 MHz CONVERTER; Mircostripline, Schottky diode mixer. IF: 28-30 Mhz or 144-146 MHz. Noise figure: typ. 8.5 dB. Overall gain 25dB. Power requirements: 12 volts DC ± 25% at 50 mA. **PRICE AMATEUR NETT: $65.00**

VARACTOR TRIPLER 432/1296. Max. input at 432 MHz. 24 W (FM,CW) – 12 W (AM) Max. output at 1296 MHz. 14 W. **PRICE AMATEUR NETT: $74.00**

500 MHz COUNTER Model MMD050/500 PRICE AMATEUR NETT: $175 .00

BNC CONNECTORS – Excellent quality, fully imported from U.K. U.S. Mil. No. UG88E/U. **PRICE AMATEUR NETT: $1.35 each.**

CONVERTERS PACK & POST $2.00

AMATEUR ELECTONIC IMPORTS IS THE EXCLUSIVE AUSTRALIAN DISTRIBUTORS FOR THESE PRECISION BRITISH MADE UNITS FROM MICROWAVE MODULES LTD.

All prices subject to change without notice. Onwards forwarding please add sufficient for freight or postage. Excess will be refunded.

Amateur Electronic Imports

P.O. BOX 160, KOGARAH. N.S.W. 2217
TELEPHONE: (02) 547-1467
CABLE: "AMATEURIMPORT, SYDNEY"

CHIRNSIDE ELECTRONICS

FRED SWART — VK3NBI

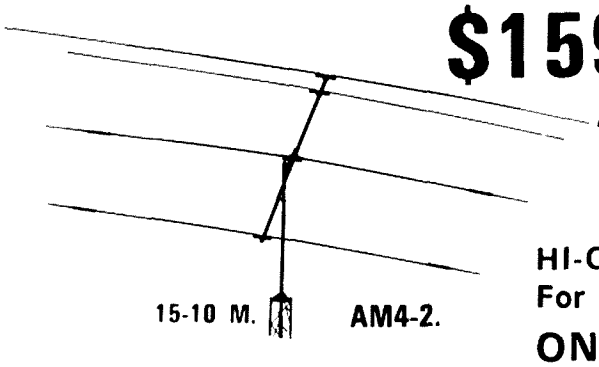
All prices in this advertisement concerning Yaesu, Kenwood and Icom equipment are only a guide, to obtain our firm price please ring us on

(03)726 7353

and we will try to pleasantly surprise you!!

AMTENNEA.

$159



15-10 M. AM4-2.

"LOOK"

HI-Q Balun
For dipole or beam.
ONLY **$15.95**

Support CHIRNSIDE ELECTRONICS
and you will support WARC also.

CHIRNSIDE ELECTRONICS are now Victorian distributor for SKYBAND Mobile Antennas.

PRICE LIST:

SKY 80	6 feet long 3.5 MHz	$28
SKY 40	3 feet long 7.060	$26
SKY 20	6 feet long 14.150	$26
SKY 15	6 feet long 21 .00	$25
SKY 10	6 feet long 28 500	$24

EMOTATOR ROTATORS

201AXX. New Model	$175
103LBX. Medium Outy.	$169.
502CXX. Heavy Duty.	$249.
1102MXX. Extra Heavy Duty.	$369.
1103MXX. Extra Extra Heavy Duty	$395.
502 Mast Clamp	$32.
103 Mast Clamp	$22.
VCTFX-7. 7 Core Cable. per Metre	$1.20
VCTF-6. 6 Core Cable. per Metre	$1.00.
VCTF-5. 5 Core Cable. per Metre.	$0.90.

ACCESSORIES

SWR-200. Large dual meter SWR.	$75.
590G. 5 position coax switch	$39.
Diawa 2 Pos. Coax Switch.	$25.
LP-42. Drake Low Pass Filter. 200W.	$19.
TWS-120. 2 Position slide coax switch	$18.
M330. Diawa Mic. compressor	$70.
SD-fb. Foam filled coax double shielded 2.02 dB loss per 100 feet	$1.20 per metre.
RG-58U. Thin coax. per metre	50 c.
PL-259	65 c.
PL-259 to suit SD-FB	$1.50
FF-501DX. Low Pass Filter	$40.
Bumper Mounts 3-8x 24 Thread.	$10.
Wide Range of Coax Cable and Connectors in stock.	
MC-440. RF Speech Processor	$135
Porcelain Egg Insulators	50c.
CN-620 DAIWA SWR Meter	$95.
WESTON trap-set 80-10 M. Incl. balun	$50.
HI-Q Balun 1:1	$15.95

ICOM

IC-701. HF 160-10M Transceiver.	$1299.
IC-202E. SSB Portable Transceiver.	$229.
IC-22S. FM 10 Watts 2M Mobile Transceiver.	$299.
IC-211. ALL Mode 2M. Transceiver.	$799.
IC-280. Mobile 2M. Digital Transceiver.	$449.
IC-701PS. Power Supply.	$250.

2 80-10M. Traps for dipole. **$50.-**
Complete with balun and insulator.

KENWOOD

THESE ARE KENWOOD RECOMMENDED RETAIL PRICES
NOT OUR PRICES!!!!

TS-520S 160 10 M. Transceiver AC	$755
VFO-520S Ext. VFO for 520	$163
DS-1A DC-DC for TS-520	$79
TS-820S 160 10 M. Transceiver	$1392
VFO-820 Ext. VFO for 820	$195
TS-120V 80-10 M. Transceiver	$630
VFO-120V Ext. VFO for 120.	$148
PS-120 Power supply for 120	$110
SP-120 Ext speaker TS-120	$40
TL-922 Linear Amp.	$1399
SM-220 Station monitor scope	$440
BS-5 Panoramic adaptor for 520S	$66
BS-8 Panoramic adapter for 820S	$66
AT-200 SWR meter, antenna coupler	$185
RD-300 Dummy load 150 mHz-300W	$79
TR-7625 2 M.-25 W. Digital	$465
MC-10 Hand mic.	$21
MC-35S Hand mic. noise cancel	$26
MC-50 Desk mic.	$49
YG-3395C CW filter for 520	$59
YG-88C CW filter for 820	$59
YK-88C CW filter for TS-120	$38

HI-MOUNT KEYS

HK-708	$21.
HK-707	$23.
HK-706	$25.
HK-710	$49.

YAESU

RSL base mast inc. 2 M.	$29
80 M. Resonator	$22
40 M. Resonator	$21
20 M. Resonator	$20
15 M. Resonator	$20
10 M. Resonator	$20
FT-101Z 160-10 M Adj. N/B IF shift	$775
OPTIONAL. FAN	$39
DC-DC for 101Z	$79
FT-7	$389
FT-901DM Transceiver	$1549
FV-901 Ext. VFO FT-901, FT-101Z	$439
FC-901 Antenna coupler	$269
YO-901 Panoramic adapter, monitor scope	$499
TV-901 6M, 2M, 70 cm All Inc.	$839
SP-901 Ext. speaker for 901-101Z	$53
FRG-7 Communication receiver	$339
FRG-7000 Communication receiver	$629
LF-2A Narrow band filter FRG-7	$20
FT-7B 80-10 M. Transceiver 100W	$639
YC-7B Digital display for FT-7B	$123
YE-7A Hand Mic for FT-101Z	$21
YD-148 Desk Mic for all Yaesu	$49
YP-150 150 Watt dummy load and Watt meter	$112
FL-110 Solid state amp. 160-10 M.	$239
FL-2100B 1200 W. Amp.	$585
QTR-24 24 hour world clock	$33
YC-500 Freq. counter	$POA
FT-227R 2M. Digital transceiver	$329
FT-227RA 2M. Scanning digital transceiver	$399
FF-50DX Low pass filter 2 kW.	$40
YO-101 Monitor scope for FT-101E	$379
YC-601B Digital display, Freq counter FT-101E	$279
FT-101E 160-10 M. Transceiver AC only	$745
Optional X-tall filters FT-901, FT-101Z	$69

equipment sold by Chirnside Electronics is pre-sales checked and covered by 90 day warranty and expert after sales service.

All prices include Sales Tax. Freight and Insurance extra.
Prices and specifications are subject to change without notice.

We handle and stock most Yaesu. Kenwood. Icom. Equipment.

CHIRNSIDE ELECTRONICS. 26 Edwards Road, Lilydale, 3140. phone (03) 726 7353.

THE INTRUDER WATCH IN REGION 2

Alf Chandler VK3ALC
Federal IW Co-ordinator

At the January meeting in Miami this year the ARRL adopted a resolution, the text of which I quote hereunder —

On a motion they "unanimously VOTED that the Board of Directors commends the performance and contributions of those amateurs who are actively participating in the Intruder Watch programme and instructs the General Manager to give maximum support to this important activity, particularly during the remaining year to the World Administrative Radio Conference".

They go on to say — "During the past year, 1978, the FCC Treaty Branch was sent numerous reports concentrating upon the all-too-familiar 40 metre foreign broadcast interference into exclusive amateur frequencies. The voluminous reports served as the basis for the reports sent to Washington, and we appreciate all that you have provided us. Please keep things going at your present level of activity as your continued reports will be of great assistance with regard to the ARRL efforts on behalf of amateur radio at the WARC sessions later this year in Geneva."

This applies equally here in Australia too.

It is becoming common knowledge that the Peoples Republic of China is contemplating legalising amateur radio, and it is therefore hoped that after WARC those annoying broadcasts may be minimised, especially if they interfere with their own amateurs!

I am appealing for somebody to take over the Federal Co-ordinator position.

Ivor VK3XB has all he can handle with the VK3 co-ordination, and with my change of QTH and mounting commitments I have all that I can handle with Region 3.

Will somebody come forth?

It does not necessarily mean a VK3. Anybody with some enthusiasm can do the job successfully.

How about it?

My new QTHR is — 15 Point Avenue, Beaumaris 3193. ■

QSP

CALL SIGNS WITH ADDRESSES

A number of members wrote their call signs on the subscription notices when they sent them in with payment. Most of these were already on record but some were not and the membership records were duly amended — thank you.

A few asked why their call signs could not have been included with the computer name and address as printed on the subscription notice. The subscription notice is a once a year document but the AR address labels are used once each month. The call sign or SWL number is on the AR address label as an additional line which also includes membership details in the form of grade, Division, pro rata (not used yet — all are 00), mail distribu-pro rata (not used yet — all are OO), mail distribution code, zone (not yet in use), call sign.

The subscription notices, however, have to fit into standard commercial window-faced envelopes of post office preferred size. The notices were pre-printed in bulk to take advantage of better price for bulk. The address data on the notice has to show through the window face but there must be some latitude otherwise problems arise in inserting the notice into the envelope and also latitude in trimming the notices to size must be allowed for.

If you take these factors into account you will observe that there is only sufficient space for three lines of print, hence the different addressing format for the AR address label where four lines can be used and still remain within the computer page formatting suitable for Cheshire machine labelling of AR labels. The call sign cannot be included after the surname on the subscription notices because of a limitation in the number of characters available to cope with long names such as apply to clubs, etc., and the need for the post code to stand out clearly.

Yes, the printer left no margin for error when printing the subscription notice name and address panel in relation to the right and left hand margins used for the printing on the notice. This introduced a trimming problem where a computer letter or two on the left side of the name and address became hidden out of view from the window face. The proof reading copy of the notice was fine but there were errors which required correction and the printer compensated by taking the print lines too far to the right. The fun and games we do have!! ■

AMATEURS vs. HAMS

Amateur radio is in a sense like the art of fishing. Anyone with a triple set of hooks, a 15 pound test line and a rod the weight of a telephone pole can eventually land his fish. The chap with the light tackle is up against it, but he gets more out of the game when he does catch one. A station running comparatively low power will never make the lists of high scoring stations in one of those RST races of course. And it is not likely that some amateurs, now we have the gear available to run legal limits and above, will ever again go back to luck and skill which are the alternatives to brute power — even if the multipliers or other condition do favour turning the gain down. Those of us with moderate output should make our weight felt just by getting on and into whatever action is taking place as well as accepting the fact that we will not win any prizes, but letting others know that with our handful of watts we are in there batting — not for a silver-plated medal but for the very perverse fun of making contacts.

The oft-used expression "this is what separates the men from the boys" should be turned around to read "what separates the radio amateur from the ham is the ability to talk".

From Westlakes RC Newsletter, February 1979. ■

MAGPUBS

WIA Car Stickers now available:

Send only 20 cents each — GET ONE NOW. Send only self-addressed stamped envelope with 20 cent stamp —

Direct to your Division or from Box 150, Toorak, Vic. 3142.

New rates for 1979 subscriptions:—

VHF Communications by —

Surface mail	$8.20
Air Mail	$12.40
Single issues, when available from Magpubs for 1978/79, will be each	$2.10

MAGPUBS — A WIA Membership Service, Box 150, Toorak, Vic. 3142.

GEELONG RADIO AND ELECTRONICS SOCIETY

The Geelong Radio and Electronics Society enjoyed a good participation of many new members during the recent J. Moyle Memorial Field Day.

The venue was at the Scout Camp, Eumeralla, near Anglesea.

Regular meetings are held at the Society's rooms on the Belmont Common.

Visitors are welcome. Mail enquiries may be directed to the Secretary, GRES, PO Box 962, Geelong, or ring Geelong 21 3658 for further information. ■

Reg VK3NOF with the TS120V on CW for VK3ANR

TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hamads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be $10 for 4 lines plus $2 per line (or part thereof), minimum charge $10, prepayable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes. ■

MEET THE "THUGS"

The "Thugs" is a name adopted by members of the VK3 Division Thursday Group Socialisers. They meet from approximately 12 noon to 2 p.m. each Thursday for luncheon in one of the local hotels near the VK3 rooms.

Attendance varies from six to 20 at times, and includes some YLs and XYLs.

Come and join the "Thugs" for a bit of socialising if you are a WIA member and travelling near the area on Thursdays.

Photos courtesy Mike O'Burlill VK3WW, 3 Maxwell Street, Lalor, Victoria, and to whom enquiries re the "Thugs" may be directed. ■

PHOTO No. 1

PHOTO No. 2

PHOTO No. 3

PHOTO 1. L. to r. — Maurice VK3AIG, John VK3ZAZ, Doug VK3ZOO, Fred VK3YNC — whose shout next?

PHOTO 2. "If you missed the floor show, just wait until you see the waitress", seems to be the Div. President, Eric VK3ZZN's thoughts.

PHOTO 3. Derek VK3ZVG, Div. Treasurer, "This is what I call general business."

AOCP EXAM — FEBRUARY 1979

POSTAL AND TELECOMMUNICATIONS DEPARTMENT

AMATEUR OPERATOR'S CERTIFICATE OF PROFICIENCY

SECTION M (Theory), BOOK 2
February 1979

(Time allowed — 2½ hours)

NOTE: SEVEN questions only to be attempted. Credit will not be given for more than **SEVEN** anawers. All questions carry equal marks.

1. (a) With the aid of a circuit diagram, explain one method of producing single sideband suppressed carrier signals.
   (b) Discuss the importance of carrier frequency stability in this type of transmission.
2. (a) Assisted by diagrams explain the theory of operation of a silicon-controlled-rectifier (SCR).
   (b) Explain why interference to radio reception may be caused by equipment which employs SCR devices and suggest a method of reducing this type of interference.
3. (a) Describe with the aid of a diagram the operation of a reactance-modulator used to frequency modulate a transmitter.
   (b) Does the power output of an FM transmitter vary with modulation?
   (c) Is linear amplification necessary in the power amplifier stages of an FM transmitter?
4. (a) What is meant by the term "Dielectric Constant" in relation to a capacitor?
   (b) Three capacitors of 2, 3 and 6 microfarads respectively are connected in series. Calculate the total capacitance of the group.
   (c) Discuss briefly the losses which may occur in a capacitor.
5. (a) The tank circuit of an RF amplifier is tuned to resonate at 7 MHz. State, giving reasons, whether the plates of the variable capacitor have to be rotated in or out of mesh to retune the circuit to resonance at 7.1 MHz if the value of inductance is held constant.
   (b) Explain why and how the anode current of a Class C radio frequency amplifier varies as the tank circuit is brought into resonance.
   (c) State, giving reasons, whether the anode current of a PA stage will vary when the antenna coupling is reduced.
6. (a) Explain briefly the theory of radio transmission via the Ionosphere.
   (b) Discuss the effects on high frequency transmissions of the daily variations in the Ionosphere, the seasonal changes and the sunspot cycle.
7. Sketch and describe the constructional details of a permanent magnet moving coil type meter. Explain the theory of operation and show how the meter could be adopted to measure alternating currents.
8. (a) Describe, with the aid of a sketch, the operation of a type of microphone suitable for use at an amatur estation.
   (b) Draw a circuit diagram of a pre-amplifier suitable for use with a high-impedance microphone.
9. A power amplifier stage of a transmitter operates with a grid current of 15 milliamperes through a 2000 ohms resistance to earth. The total cathode current is 115 milliamperes and the total operating bias is 80 volts. What is the value of the cathode resistor? ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

34 Toolangi Road,
Alphington, Vic. 3078.
8th March, 1979.

The Editor,
Dear Sir,
Thank you for the letter of 5th March informing me that I received the Technical Award for 1978.

I have pleasure in donating the amount involved towards the expenses of WARC 1979 *and* enclose a cheque for 25 dollars.

All best wishes,

Your sincerely,
Roy Hartkopf VK3AOH. ■

1821 South Lakeshore Drive,
Chapel Hill, North Carolina, USA.
March 8, 1979.

The Editor,
Dear Sir,
Your February editorial covered the need for concise and non-ambiguous Amateur Service regulations but that is only a small part of the "over-regulated" situation we Australian amateurs are in. How about the outmoded regulation which prevents us using ASCII code for TTY transmission and transfer of microprocessor programs? Or the continuance of regulations preventing phone patch or third party traffic? It's significant that the latter regulations only exist in countries with governmental monopoly common carriers such as the former PMG. These carriers have an obsession in seeing that patch or third party "privileges" are not granted to *amateurs in* case they lose some business (in Canada and the US where patch and third party are allowed, studies have shown that no business has been lost).

In the PMG days, we had the unhealthy situation where they were both the regulators and the main benefactors of the regulations and in that environment it was virtually impossible to get equitable regulations. Now that a separate organisation, the P. and T. Department, is the regulator and supposedly has the interests of the whole community at heart, they will, hopefully, not continue these stifling regulations which only serve to suppress the growth of the amateur service.

(ASCII is permitted in VK.—Ed.) ■

Leo Powning VK5ALP/W4.

5th March, 1979.

The Editor,
Dear Sir,
I would like to thank VK3AMK for his suggestions and corrections to the VK/ZL Contest 1978. Jock White of the NZART completed those rules and this year it's my turn. We try to give the entrants the kind of contest they want, and any suggestions we receive are most welcome. Now to some observations. 24 hours versus 48. Most operator's comments show a preference for 24 hours of operation. However I have included an 8 hour section this year to test for support.

Why start at any other number than 001? Jock changed it, I do not know why. Australian produced rules always start at 001. Enough said. With the inclusion now of prefixes for scoring the serial tells the listener very little as to how the other station is scoring.

For log checking, I am interested in the fact that a valid contact took place and was recorded for contest purposes and regulations. It could have been 5/7 ABC, 5/90000 or just 5/9. It makes little difference, so long as it was recorded by both operators correctly. The check of the contact is easily carried out by use of GMT in the log, without the aid of a cypher. I agree we do not want this contest to turn into a message handling exercise. As to the GCR suggestion, this has been considered now for years. But what do you do when up to 50 per cent of the logs have to be re-scored BY THE CONTEST MANAGER, or simply reject them?

The prefix rule will be looked at, with JK1AA/5 being considered as JA5, for scoring purposes. JA5 *is the most common* prefix in the "5" call area. But please keep in mind most rules need altering sooner or later.

I do not see the necessity for writing out a log three times, or even twice. A carbon copy for the station log and the original sent away to the contest manager is all that is required.

A contest manager's desire to receive logs (this manager anyway) mostly overrides the log being presented, as a model of neatness, beautifully presented, or on special paper. Just so long as I can read what is written and the format follows the rules, that's it. After you have received 400 to 500 overseas logs for checking in a contest, that are written in every conceivable way, on paper that ranges from high quality parchment to the cheapest flimsiest imaginable, in languages from Russian to Spanish, you become very adept at reading logs written in English (Australian) and its various forms.

I realise this may be a pill for some operators to take, preferring to enter a well presented log, but the fact remains you do not score any points for that. But I like to receive them.

It has been our intentions (NZART and WIA) to encourage participation in any possible way. Your suggestions are desired. This year the WIA is offering medals and medallions as well as certificates and trust this will give some operators the incentive.

Will any Club, Division or Group offer a trophy for the contest?

I'll leave you with a question, to which please write me your answers — Should we have contests?

Neil Penfold VK6NE,
WIA Contest Manager for VK/ZL Contest. ■

35 Rutland Street,
Coorparoo 4151, Queensland.

The Editor,
Dear Sir,
PHONE PATCHING!!
I am writing to invite your assistance in possibly obtaining information from Mr. Geoff Swift VK2NCJ/YGE, whose address is not known to me.

In describing his radio room and integrated units of equipment he mentions "a phone patch board".

I wonder if he would favour readers of AR with more information on this interesting device, i.e. is it home constructed? is it permanently connected to his telephone and how does it work? How does he use it? If it is a commercial unit, from whom can these be purchased?

I am aware that phone patch units are readily available in Australia in manufactured form. The Yaesu Musen SP901P Phone Patch/Speaker is a typical example, but this is the first mention of a "phone patch board" as Geoff puts it.

They are, of course, widely used in the USA and Canada. In fact, I seem to have noted some references to inbuilt phone patch facilities as normal provision in some amateur transceivers.

I have on one occasion, during a visit to Canada, spoken from my motel room to a G3 in the UK!! — via the station of an amateur equipped with a phone patch unit, and it functioned perfectly.

It is interesting to reflect that, given the phone number of an American *amateur*, I could, via International STD, call him and be patched back to VK on say 14 MHz, and have a QSO with a nearby amateur in my suburb!! The possibilities are innumerable. Has anyone tried this sort of working?

G. Harmer VK4XW.

Editor's Note: The use of phone patch equipment in Australia is illegal under current P. and T. regulations (VK3UV). ■

The Editor,
Dear Sir,
I would like to add my voice to those of VK2YA and VK3?? (AR February 1979) in criticizing your article about the "Wooley Bum" club and add some further comments.

This kind of occurrence is the direct result of the lowering of the standard of the novice examination.

The last two novice theory exams have, in my opinion, been far too easy. And yet there is now talk of dropping the Morse requirement.

There has been some mention in AR recently of a lowering of standards of on-air operation, and yet there are those who want to further simplify the entrance requirements to Amateur Radio. It is this simplification which has allowed such elements as the Wooley Bum group to infiltrate the ranks of the Amateur Service. Fortunately, at present they form a small minority.

However if this trend is allowed to continue, their numbers will increase, the overall standards within the Amateur Service will fall, and those who oppose our allocation of frequencies will have more ammunition to use against us.

I strongly urge the WIA to press for the maintenance of a reasonable standard in all examinations for Amateur licences.

(Name and address supplied) ■

10 David Street East,
Springwood 2777.
1st March, 1979.

The Editor,
Dear Sir,
I notice on page 57 of "QST", October 1978, that the Canadian administration is working on an entirely new Amateur Radio Syllabus for its examinations which are held FOUR times a year — while our Australian authorities can only "run" to half that number.

I note, too, that the Canadians propose "replacing the multiple-choice questions on theory with straight problem-type questions". It is pleasing to see that not everyone is thoroughly bemused by the multiple-choice format, which is, in fact, only one of a number of "easy marking quick answering" types. It is hoped that the P. and T. Department does NOT incorporate into its Novice and AOCP Syllabuses a rigid prescription that permits only the multiple-choice type to be used. That would mean a DEAD HAND approach to Amateur Radio examining for the next 50 years! It is hoped that the wording of any revised Regulations on "Examinations" will be flexible enough to permit the Departmental Examiners to offer a more flexible approach to testing of candidates. However, after over 50 years of testing AOCP candidates WITHOUT A GUIDELINE IN THE FORM OF AN AOCP SYLLABUS one cannot be too optimistic. So far it seems that P. and T. knows only two question formats — multiple-choice and essay types. While in no way decrying their technical competence in Radio and Electronics, one wonders what specific training and qualifications they possess in the equally important areas of education, instruction and examining.

Yours faithfully,

Rex Black VK2YA. ■

F3/59 Milton Avenue,
Henley Beach, SA 5022.

The Editor,
Dear Sir,
I am writing this letter to inform you of the views I have formulated since joining the amateur ranks some eight months ago.

1. Nobody condescends to use AM any longer, which for a "shoestringer" like myself is particularly infuriating. I don't have either the test equipment or money to assemble a flashy full-blown SSB rig. I have heard that if I attempted to use DSB I would get the same silence.

2. I came into the amateur scene naively believing that most amateurs' major items of equipment were home-built, and that older amateurs would have been the most active builders. That belief was quickly broken by the overwhelming weight of evidence to the contrary. In particular I remember talking to a grey-haired old gentleman at a WIA meeting some months ago. When asked whether he knew of any amateurs that used AM he said he didn't know of any in SA, but there was an AM net in Victoria on 80m. He then espoused the virtues of his latest purchase — an FT901! *Given* that sort of "*encouragement*", *it is* little wonder that I am a rabid anti-commercialist.

3. The use of net frequencies and channel numbers. If you are using crystal controlled operation as I am, you need two crystals — one for the net frequency and one for another frequency to conduct your QSO. If you use just the one crystal not on the net frequency, your CQs are just a cry in the wilderness.

In short, net frequencies have discouraged people from looking across the bands to hear what is available, and it is "tough" if the crystal you obtained from the disposals store isn't near the net frequency.

My opinion of channel numbers are that they are great provided you have got a shop-bought rig that displays them! I mean, why bother with actual transmitted frequency, it is such a technical old thing anyway! If you happen to have a chart depicting how this channel system works, fine, if not, you become as hopelessly lost as I am when trying to figure out what frequency Channel 6 2m FM repeater represent.

4. Use of high power linear (or otherwise) RF amplifiers. Like the Kenwood TL-922 2kW PEP and the Dentron Radio MLA2500, 1 kW DC input on CW. As the institute knows these power levels are illegal for the ARS and yet these amplifiers are used, sold and advertised as if they are a normal item in many amateur shacks. If the ARS is to have any integrity in view of the public, of commercial operators and of the P. and T. Department, this practice must stop.

5. The advertisement of "illegal" equipment. Both of the amplifiers mentioned in (4) are advertised in the WIA journal AR (i.e. Vol. 46, No. 10, October 1978). The institute cannot cry ignorance of this type of equipment being advertised in AR, for in the same issue there was a front page announcement apologising for a mix up in prices between the Dentron MLA2500 and some other item in an Emona Electronics advertisement.

Now I could stretch my credulity to believe that the busy staff of a monthly magazine simply don't have time to check every advertisement for the offering of illegal equipment — but not after that lot! For that statement to have been made, someone would have had to look up that advertisement to confirm that the prices were in fact wrong. Also that person would have had to realise the intrinsic value of the 1 kW amplifier in order to end the apology statement with ". . . must have thought that Father Christmas really did exist." In any case these adverts have appeared in the three issues of AR I have at hand. To suppose that the staff of AR have not perused these issues after publication and, further, that they have not noticed the advertising, especially in Emona Electronics' case, of illegal equipment is ludicrous!

The WIA is the representative body of Australian amateurs, who are a group of people interested in observing the Wireless Telegraphy Act as pertaining to the ARS. As such the WIA has the responsibility of behaving like an "ideal" amateur with regard to regulations. Further, it has the responsibility to ensure that such regulations are observed, or at least encouraged, by amateurs through the medium of AR and other avenues.

If the WIA neglects this responsibility by allowing repeated advertisements of unlicensable equipment, it can't expect any respect from either the Australian amateur, the P. and T. Department and, most importantly, WARC 79. If it's just a matter of commercial pressure, then increase the price of AR by $0.50 or $1.00 and tell these firms that persist in displaying unlicensable equipment what to do with their adverts. I am sure any reasonable amateur would support this move.

6. The sham of today's ARS. The intrusion of commercialism into amateur radio activities is so deeply entrenched and widespread, that "amateur" and "commercial" equipment is almost synonymous. Also there are now firms that cater on a regular basis to the repair of most types of commercial amateur equipment. Further, to claim that the technical level obtained in the passing of the AOCP exam is such that the widespread repair of this highly sophisticated equipment is possible by amateurs without professional servicemen is just plain piffle and utter hypocrisy.

As I see it, the quandary can be put thus: How on earth can anybody claim to be an amateur when their major items of equipment are designed and built by professional companies. When their equipment has a major fault it is repaired by professional repairmen and when their QSOs are more of a social than technical nature. The answer is, of course, they can't and it's about time the ARS and in particular the WIA started openly declaring this! Failure to do this honestly will only lower our esteem in everybody's eyes.

7. The only ways that would ensure the continuance of the ARS under these conditions is to declare:—

(a) That we are a viable on-going commercial concern that stimulates economic growth, generates employment in the order of tens of thousands and generates cash flow in the order of millions of dollars world-wide. Also, due to the competition between major producers of amateur and other communications equipment, the ARS, together with similar services, generates technological advancement of communications at a pace that would have been otherwise impossible.

(b) With an investment of between $500 to $2000 by most amateurs in their own commercial equipment, they're not fool enough to submissively accede to any demands that some amateur bands be given over to commercial interests. After all, we're just as much a commercial concern as these other interests, and as with other vociferous groups in society, we have just as much right to have our collective demands listened to and acted upon favourably. If nothing else, amateurs are a group of people on this earth that have a right, along with other groups, to a fair share of this earth's resources and that includes the electro-magnetic frequency spectrum.

(c) The amateur radio service is a group of people where you can either be the instigator of, or participant in, the subject being discussed. No other mass communications medium has this ability of complete flexibility and immediate feedback of information. In any QSO, a statement can be made, questions asked, answers given on any subject that ranges from local neighbourhood events to the feelings of average people on recent happenings in their distant countries. From short hop "gather-rounds" to world shrinking DX technical discussions, amateur radio fills the bill in the most cost effective and enjoyable manner we presently have available for the financially funds limited person.

8. Finally, and I'm sure you've read similar proposals, it only half of the above is true then some way must be found to allow all responsible people to a fair share of the electro-magnetic spectrum. The best way to do this is to allow these *people to become part of* the ARS by the passing of a simple operating techniques exam. This exam would test their ability to correctly operate a commercial amateur rig, or several rigs, representative of the range of operating techniques required. Also it would test their ability to correctly set up and tune a number of commercial antennas. Finally it would also test their knowledge of regulations as pertaining to the ARS.

Yours,

G. L. Moore VK5AGL,
F3/59 Mitton Grove,
Henley Beach, SA 5022.

P.S.: I have included $2.50 for WARC 79, you're going to need it!!

EDITOR'S NOTE

Our readers would have to agree that this is an unusually long letter for AR to publish, but I have allowed its publication without any alteration, as we have always believed in the freedom of speech and this column is a forum to air your views. Perhaps our correspondent has a message in his letter from which we all might learn from. I trust that some of his frustrations have now worn off.

Publication of these long letters is not to be taken as a precedent.

Acknowledgement: Many thanks for the $2.50 donation to the WARC fund — we do need it — and much more!! (VK3UV.) ■

TECHNICAL CORRESPONDENCE

6 Torring Road,
East Hawthorn, Vic.
26/2/79.

The Editor,

Dear Sir,

Dr. Dayal Abeyasekere's letter, published in February 1979 AR, has proven most useful and informative in further work on the system described in my article "Optical Communication for the Amateur" (AR January 1979).

However, I feel that Dr. Abeyasekere has not recognised several important practical considerations applying to the amateur constructor, which we considered carefully prior to publication.

Specifically, I would take issue with Dr. Abeyasekere's statement that the solid state systems used for optical communication possess "better signal-to-noise ratio than the vacuum tube systems described . . ." That statement may prove to be very difficult to substantiate.

It will be noted from Figure 13 of my article that the mercury lamp modulator is a simple, relatively high current class A amplifier. That it is a vacuum tube amplifier is irrelevant. Any suitably rated power transistor could have been used in an appropriate circuit to perform the same duty. This amplifier used valves, since all of the parts could be salvaged from an old TV set, with the exception of the output valves, which are readily available from disposal sources. Many amateurs would have these components on hand.

A number of solid-state optical communication systems were tried by the author and fellow experimenters between 1968 and 1976, using such varied equipment as LEDs, electro-luminescent panels, photo-conductive detectors, photo-transistors and photo-diodes. All of these were abandoned when we achieved vastly improved signal-to-noise performance over practical distances with the mercury arc/photo-multiplier combination. It is significant that the only other published experiments over similar test distances to ours in Australia (Burlinson, Aust. EEB, December 1972) employed a similar system.

The insuperable problem lay in finding an LED of comparable price to a mercury arc, giving a similarly intense light output. 100 watt mercury lamps are readily obtainable from any electrical wholesaler for about $8. I could not say the same for the availability or the price of high output LEDs.

As Dr. Abeyasekere has found with LED-based systems, and I quote from his letter, "The test link . . . at its best so far had a 40 dB S/N ratio for a 10 kHz bandwidth over the length of a 50 foot corridor".

Pioneer experimenters Bell and Tainter, using nothing more than vibrating mirrors and selenium cells with reflected sunlight, spanned 700 feet in free air and full daylight. That was in 1881. Refer: "The Photophone" by W. Ackroyd (1883).

With the mercury arc system I described, John Eggington VK3ZGJ and the author maintained a 2-mile optical link between December 1975 and May 1976. It was a 2-way link, with 30 to 40 dB S/N in one direction and 20 to 30 dB S/N in the other direction, owing to smaller aperture optics in the return link. These noise figures were maintained on the vast majority of nights, which were relatively clear. During heavy rain, this would fall to about 5 to 10 dB S/N, and the only time that the system broke down completely was in very heavy fog just before dawn on a very cold morning. A usable signal could be transmitted whenever the transmitting site was visible at the receiving site. The S/N figures I quote were with the full 10 to 15 kHz bandwidth of which the system was capable.

Though this level of reliability may, as Dr. Abeyasekere has pointed out, make it unsuitable for commercial use, amateurs do not necessarily require a service giving a very high percentage of usage time. Such is the case with ionospheric propagation on HF. Commercial services are steadily moving up to satellite communication, yet the amateurs are still perfectly happy to use HF bands, even if they open up for only a small percentage of the day.

The working model of the system is still operable. I would invite and would welcome the opportunity of making a series of further S/N tests on the equipment, plotting this against such parameters as humidity, temperature and wind. All that I need is the assistance of an interested party with access to a car.

Dr. Abeyasekere states that, "Assuming that a S/N ratio of 20 dB is acceptable . . . and that input S/N seldom exceeds 50 dB, it is evident that 30 to 40 dB of signal degradation with respect to noise is all that can be tolerated". That seems quite reasonable. However, Dr. Abeyasekere continues, "A light drizzle or moderate fog is all that is needed to introduce over 100 dB of attenuation over distances as short as 100 metres". From my own experimental work, I would assume that this is an extreme figure. However, to continue, "It is only when there are very clear atmospheric conditions . . . that less than 30 to 40 dB signal degradation with respect to noise can be achieved". Here, I must disagree. Firstly, signal attenuation is not the same as received signal-to-noise ratio. In radio communication, signals may be transmitted with 50 dB S/N and can be attenuated by many hundreds of dB before reaching the receiving antenna. Provided that the noise figure of the receiver is low, and the transmitted signal is significantly more powerful than external noise, received signal-to-noise ratio could still be up near 50 dB. Secondly, Dr. Abeyasekere's analysis takes no account of the transmitters' power with respect to ambient noise, which is probably the most important single consideration in any communication system's ability to convey intelligence.

Admittedly, the LED systems are an elegant solution to the problem. They have extremely fast response times, while the mercury arc is limited by its ionisation time to an upper modulated frequency limit of about 20 kHz for full modulation. But this is no disadvantage for a single-channel voice system.

And LEDs do have very low power consumption. But even Dr. Abeyasekere admits that ". . . the total light output and beam energy flux density (of the LED systems) are less than 1 per cent of those from common . . . hand-held torch lights". With such low power, it is little wonder that Dr. Abeyasekere has noticed that the signal drops below ambient light levels very quickly as transmission distances increase. The "brute force" method of using an arc lamp presents, for our purposes, a rougher, less efficient but infinitely more practical solution.

As to costs, a series of priorities must be established. Despite their high cost, we decided to employ photo-multipliers as the detection device in our proposed system. They have an intrinsic freedom from thermal noise at room temperature with respect to semi-conductor light detectors, owing to their low infra-red sensitivity, photo-emissive nature, and high post-detection gain. An analysis of this is described at length in the book "Laser Receivers" by Monte Ross, listed at the end of my January article. In any case, we obtained these PM tubes very cheaply on a number of occasions from disposal sources. Should these prove hard to obtain, SSTV clubs or commercial television stations could be approached for old PM tubes which have been used in telecine chains and have fallen below broadcast specifications. This tactic proved to be rewarding on a number of occasions.

The SLR lenses used by Dr. Abeyasekere are not ideal for optical communication work, being unnecessarily high in optical quality, and insufficiently large in aperture. The 5-inch double convex lenses sold by Coles & Garrard for $5 would have been a better choice, I feel. For a reflector behind the arc, we used a 12 in. traffic light reflector, sold quite cheaply by Eagle Signals.

There are a number of other reasons which I could give for the excellent results obtained with the mercury arc system which I won't elaborate on here, owing to space.

To conclude, Dr. Abeyasekere states that ". . . telecommunications authorities are not likely to prevent amateurs and others from conducting research into optical communication". There has already been a conviction against a business organisation in Melbourne which continued to use an IR link between two city buildings after repeated requests by the P. and T. Department to cease operations.

In view of this conviction, intending experimenters should approach the licensing authorities for the requisite permit before making their results public.

Yours faithfully,

Chris Long. ■

MAGAZINE INDEX

Syd Clark, VK3ASC

BREAK-IN October 1978

The Amateur's Code; Digital Control Interface; A Pre-selector and Adjustable S Meter for HF Transceivers; TVI; Basic Antenna Facts; The Good Companion CW Monitor; Solid State Version of the LM and BC221 Frequency Meters; Trans-Tasman Commemorative Flight, 1928-1978; Whither Communications.

BREAK-IN November 1978

The "Galbraith" Power Supply; A Battery Charger for Penlite Ni-Cad Batteris; Galbraith RF1 VHF Pre-amplifier; Taming the Regenerative Detector; Mobile in the Late 70s; The Royal Air Force Amateur Radio Society; 50th Anniversary of the Tasman Crossing.

CQ November 1978

Amateur Radio Serves the News Media — A Safari with the President; Constructing Simple High Current Power Supplies; A Multitester for RF; The Radio Amateur's Nasty Weather Primer; CW WW DX Contest All-Time Records, Phone, CW and USA; The Heathkit Model IM-4190 Bi-Directional RF Wattmeter Kit; A Two Metre Transmitter for AM; The SW-5 — A Pioneer Amateur Receiver; A Cheap and Easy Memory Keyer; Wire All-Band Antennas; Solid State Vacuum Tube Equivalents; Temperature Control of Electronic Circuitry; Amateur Radio Station Grounding, Pt. 3.

HAM RADIO August 1978

10-GHz Transceiver; Frequency-Lock Loop; Locating TVI Caused by Metallic Rectification; Seven Element Forty Metre Quad; High Resolution Frequency Synthesizer; Automatic Noise-Figure Measurements; Electronic RTTY Keyboard; Improved Grounding for the 1296 MHz Microstrip Filter; Simple Monitor for Accurate Reports on Two-Metre FM; Single Code Decoders; Electronic Bias Switching for the Henry 2K4 and 3K4.

HAM RADIO October 1978

High-Frequency Communications Receivers; Low-Noise 432 MHz Pre-amplifier; Tracking Calculations for Superhet Receivers; CW Signal Processor; Low-Noise 30 MHz Pre-amp; 1296 Local Oscillator Sidebands; Synthesized High-Frequency Local Oscillator System; Reciprocating Detector; RTTY Demodulator; High-Sensitivity Pre-amp for Frequency Counters; Twin Diode Microwave Mixer; Two-Metre Pre-amplifier.

QST September 1978

Meet the Remarkable but Little Known Vacker VFO; Designing a Vertical Antenna; Prescaler Updates the DVM/Frequency Counter; An Auditory Dip Oscillator; A Solid-State Transverter for 70 cm; An Inexpensive Capacitance Meter; Direction Finding — European Style; JG1DFW, First Solo Explorer to Reach the North Pole; Operation Outreach; Ask Not What Amateur Radio Can Do for You; DXCC Honour Roll; Results, First Annual ARRL EME Competition; Dawn of an Era; WARC 79; Moved and Seconded; Amateurs Lose on Reconsideration of 10 Metre Amplifier Ban; We Are Not Alone.

QST October 1978

A Newly Discovered Mode of VHF Propagation; The Canadian Wonder; A 25 kHz Calibrator for the HW-8; Build This High Performance Top-Band Converter; SSTV Pictures from Your Microcomputer; Medium Scan Television — A New Frontier; Build This Sardine Sender; You and Your Log; How Safe Is Your Ham Shack?; A Different Kind of Courage; Sweepstakes for the Little Guy; Try a Hamfest Code Contest; They Made It — W50PC/Double Eagle II; QST Abbreviations; Straight Key Night; 45th ARRL November Sweepstakes Announcement; Results, 1978 ARRL International DX Competition; Double-Digit Damage; Hams Five by Nine with WARC Comments; ASCII at Last; Now There's Something You Can Do.

QST December 1978

A 20 Metre VXO Controlled 6 Watt Transmitter; A Baseband Communication System, pt. 2; Some Experiments with High Frequency Ladder Crystal Filters; What Next After Moonbounce? Venus Bounce!; An Inexpensive Multi-band VHF Antenna; The Club Filler; Give Your Repeater Some Identity, The Aerial Performers of the Radio Circuits; The Contester; The Easy Way to OSCAR 8 Mode J, Pt. 1; Three Feet of Rain; Simulated Emergency Test Announcement; Rules 32nd VHF Sweepstakes; Hertz not Parts . . . A Sine of the Times; Results First ARRL UHF Contest; 1978 September VHF QSO Party WARC 79; Region 2 Amateurs Review WARC Progress; Amateurs Have Their Say on the Communciations Act of 1978; FCC Prohibits Autopatch on Automatically Controlled Repeaters; Africa, Asia and Amateur Radio.

WIA EDUCATION

Graeme Scott VK3ZR
Federal Education Co-ordinator

Here is a bibliography of texts, etc., which are suitable for use by amateurs and intending amateurs.

RSGB PUBLICATIONS

Technical books:
Amateur Radio Techniques.
Guide to Amateur Radio.
Morse Code for the Radio Amateur.
RSGB Amateur Radio Call Book.
Radio Amateurs' Examination Manual.
Radio Amateurs' Examination Revision Notes.
Radio Communication Handbook.
Radio Data Reference Book.
SSB Equipment.
Service Valve and Semiconductor Equivalents.
TVI Manual.
VHF/UHF Manual (2nd ed.).
World at their Fingertips (Paperback (De-Luxe).

Maps and charts:
Amateur Radio Prefixes (World) Map.
Countries List.
Great Circle DX Map.
QRA Locator Map (Western Europe) (In tube).
QRA Locator Map (Western Europe) (on card).
VHF/UHF band plans (on card).

USA PUBLICATIONS

Radio Publications Incorporated:
Beam Antenna Handbook.
Better Short Wave Reception.
Cubical Quad Antennas.
Simple, Low-Cost Wire Antennas.
VHF Handbook.

American Radio Relay League:
Antenna Book.
Course in Radio Fundamentals.
Hints and Kinks.
Mobile Manual.
Radio Amateur's Handbook (Paperback).
Radio Amateur's Handbook (Hardback).
Radio Amateur's Operating Manual.
Single Sideband for the Radio Amateur.
Understanding Amateur Radio.
VHF Manual.

CQ (Cowan Publishing Corporation):
Amateur Radio DX Handbook.
Antenna Handbook, Vol. 1.
Antenna Roundup.
Mobile Handbook.
RTTY A-Z.
RTTY Handbook.
Shop and Shack Shortcuts.

OTHER PUBLICATIONS

Books and Maps:
Basic Electricity.
Basic Theory and Application of Transistors.
Counties Map.
Dictionary of Electronics.
Foundations of Wireless.
Guide to Broadcasting Stations.
How to Listen to the World.
Mullard Data Book.
Radio Amateur Operator's Handbook.
Radio Valve and Transistor Data.
Simple Shortwave Receivers.
Transistor Audio and Radio Circuits (Mullard).
World Radio-TV Handbook.

MORSE INSTRUCTION AIDS
G3HSC Rythm Method of Morse Tuition —

Complete Course (two 3-speed LP records and one EP record plus books).

Beginner's Course (one 3-speed LP record and one EP record plus books).

Beginner's LP (0-15 w.p.m.) plus book.
Advanced LP (9-42 w.p.m.) plus book.
Three-speed simulated PO test, 7 in. DS EP record.

USA LESSON OUTLINE FOR AMATEUR ADVANCED/EXTRA CLASS STUDY

FIRST NIGHT
The advantages to owning an amateur advanced or extra class ticket as expressed in the FCC regulations. Topics include definitions of types of station (e.g., military recreation and auxiliary link), HAAT, frequencies and emissions allowed to advanced and extra class operators, special call signs, remotely controlled stations, and others.

AC THEORY
Circuit theory emphasizing phase. Topics include crystal and mechanical filters, time constant, phase angle, power factor, transformers, filter sections, and the bridge rectifier.

SOLID STATE DEVICES
The theory of operation and uses for various devices including transistor characteristics. Topics include transistor amplifier circuits, zener diodes, field effect transistors, SCRs, transistor biasing, voltage regulation, current control, and special types of solid state devices.

VACUUM TUBES
Operation at VHF and above is stressed. Topics include lead inductance and transit time, triodes and grounded grid amplifiers, single cavity Klystrons, vidicons, and lighthouse tubes.

AMPLIFIERS AND OSCILLATORS
Special purpose amplifiers for various applications and transistor oscillators. Topics include RF power amplifiers, cathode/emitter follower circuits, push-pull and parallel amplifiers, phase inverters, frequency multipliers, Klystron amplifiers, the Colpitts harmonic oscillator and others.

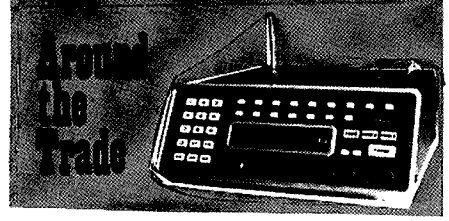
ADVANCED MODULATION CONCEPTS
Involving capabilities and problems of AM and FM emissions with methods of modulation and sidebands. Topics include modulation capability, overmodulation, splatter, deviation, modulation systems, carrier wave distortion, FM sidebands, and others.

EXOTIC MODES OF COMMUNICATIONS
SSTV, RTTY, FAX, satellite, moonbounce. Topics include classification of emissions, modulation mode versus frequency, circuit and system diagrams, operating principles and practices, and others. This should be a topic of major emphasis.

ANTENNAS AND FEEDLINES
Types of antennas and their characteristics and the factors effecting power handling capabilities of feedlines. Topics include end fed Hertz, end fed Zep, folded flat top dual band and other antenna types, directive antenna construction, characteristics, and nomenclature, and discontinuities, resonant lengths and electrical lengths of transmission lines.

ADVANCED PROPAGATION
Topics include aurora, absorption, sporadic E, attenuation by the atmosphere, meteor bursts, and other phenomena that effect signal propagation.

TESTING AND ELECTRO-MAGETIC INTERFERENCE
Measuring field strength and RF power and current, theory of the cathode ray tube oscilloscope, radio frequency interference including TVI, and automotive interference are topics covered in this part. ■



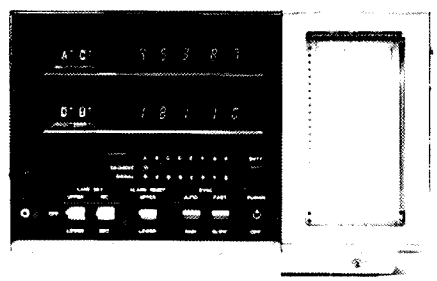
OMEGA RECEIVER FROM JAPAN RADIO COMPANY LTD.

The high performance Omega receiver from JRC is the result of extensive development and experience gained from their already respected range of VLF receivers.

Measuring only 29 cm across, the Instrument is noteworthy for its compact chart recorder and its ability to automatically track up to eight phase coherent Omega stations.

Constant monitoring of measuring conditions of the Omega stations is accomplished by use of LSI CMOS technology. Should any stations signal to noise ratio become unacceptable the operator is warned of a possible tracking anomaly by an audible tone and station identification lamp flicker. For added convenience, automatic lane centering is maintained. Segment synchronization is also automatic although manual operation can be performed at the touch of a button.

Improved reliability and performance and reduced power consumption, size and price put the instrument into the grasp of everyone.



Improved specifications read:

Model JLA102: Frequency, 10.2 kHz; sensitivity, 0.01 uV; dynamic range, 90 dB; resolution, 1 CEL; frequency reference, 4 MHz of 2 x 10^{-8} stability offering an operating temperature range of —10° to +50°C; power requirements, 110V AC/240V AC/24V DC.

Power fail protection available as an option. Whip antennas and other accessories also available.

For other information contact Vicom Inernational Pty. Limited, Professional Products Division: 68 Eastern Road, South Melbourne 3205, Victoria. Phone (03) 699 6700. ■

NEW PROGRAMMABLE 16 CHANNEL VHF/UHF SCANNING RECEIVER

GFS Electronic Imports at Mitcham, Victoria, have just announced the release of a new Crystal-less Programmable VHF/UHF scanning monitor receiver. The receiver, manufactured in Japan by JIL, for whom GFS are Australian agents, is known as the SX-100.

Using microprocessor control any 16 of approximately 32,000 channels between 30-54 MHz, 140-180 MHz and 410-514 MHz can be programmed into the SX-100's memory by just punching up the required frequencies on its control keyboard. Unlike similar units the SX-100 covers the 6 metre, 2 metre and 70 cm amateur bands as well as the UHF CB band.

Frequency readout, channel number, time and date display are all provided by a large green digital readout. Both scanning speed and scanning delay can be varied from front panel controls. Sensitivity is very high at 0.5 uV.

The SX-100, which works from 220-240V AC or 12-16V DC power, is ideally suited (Its size is 21H x 7W x23D cms) to Installation in the car or for base operation from the home or office. It represents quite an advantage to the Hams, UHF, CBers and those just interested in listening.

The SX-100 sells for $299 plus sales tax (or $392 Incl. sales tax). For more information contact GFS Electronic Imports, 15 McKeon Road, Mitcham 3132, or phone (03) 873 3939. ■

NEW 3½ DIGIT LAB DMM

Parameters announce the new B & K-Precision Model 2830 3½ Digit Lab DMM which is well suited for all types of lab or bench operation. The bright 0.43 in. high LED display is visible under virtually all types of lighting conditions.

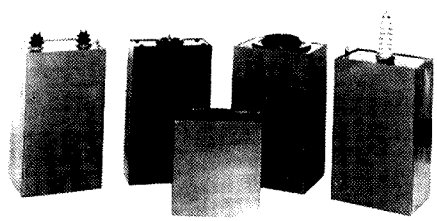
Current ranges are to 10 amps and voltage ranges extend to 1000 V DC and 750V AC. Seven ohms ranges provide measurement capability from 0.01 ohm to 20 megohms.

All ranges and functions of the 2830 are well protected against the accidental application of +1000V DC, —450V DC or 300V AC RMS.

For further information contact Bruce McCarthy, Parameters Pty. Ltd., 68 Alexander Street, Crows Nest, NSW 2065. Phone: 439 3288. ■

ENERGY STORAGE CAPACITORS

A new Series of "Energy Storage Capacitors", manufactured by Capacitor Specialist, Inc., is now available from Singer Products Company, inc., New York.



These capacitors use a dielectric system of film, paper, and non-inflammable, non-PCB oil. This new ES Series offers 127 models in bushing styles.

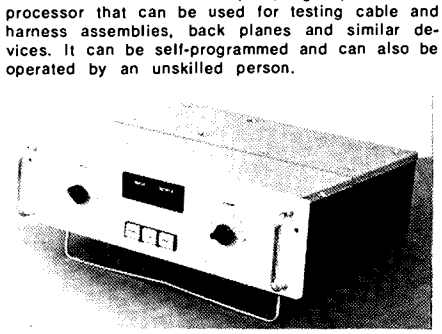
Voltage ratings from 3 kV to 125 kV are available with current ratings to 250 kA. The widest temperature range ever of —35°C to +70°C and the lowest losses yet (.0012 maximum), allow operation at up to 100 PPS. Energy storage up to 8750 joules in a can 11 x 14 x 25 inches is available in small quantities at prices of 10-13 cents per loule, depending on the voltage.

For additional information, contact Mr. Gil Williams, Electronics Division, Singer Products Company, Inc., One World Trade Center, New York, NY 10048. ■

AUTOMATIC CIRCUIT TESTER

The Model 703 Circuit Tester, manufactured by Slaughter Company, is now offered by Singer Products Company, Inc., New York, NY.

The Model 703 Is a compact, high speed microprocessor that can be used for testing cable and harness assemblies, back planes and similar devices. It can be self-programmed and can also be operated by an unskilled person.



The microprocessor provides up to four pre-established permanent programmes of up to 250 conductors each. Digital readout is provided to Indicate not only the nature of the fault detected, but also its location.

For additional information contact Mr. Gil Williams, Singer Products Company, Inc., 1 World Trade Center, Suite 2365, New York, NY 10048. ■

THE PERFECT MOBILE RIG . . .

ATLAS 210X/215X — 5 BAND — 200 WATT All Solid State HF SSB/CW Transceiver

STILL THE MOST POWERFUL MOBILE RIG ON THE MARKET.
PRICE WITH NOISE BLANKER INSTALLED: **$852** INCLUDING TAX.
GENERAL SPECIFICATIONS
FREQUENCY COVERAGE WITH INTERNAL VFO: 1800-2000 kHz (Model 215X only), 3500-4000 kHz, 7000-7500 kHz, 14,000-14,500 kHz 21,000-21,500 kHz, 28,400-29,400 (Model 210X only). Note that 10m band may be easily owner adjusted to cover any 1000 kHz segment.
FREQUENCY CONTROL: Highly stable VFO common to both receive and transmit modes. Less than 1 kHz drift during the first 30 minutes. Less than 300 Hz per hour after 30 min.
ALL SOLID STATE DESIGN: 4 ICs, 18 transistors, 32 diodes.
MODES OF OPERATION: SSB (USB, LSB), CW.
MODULAR CONSTRUCTION: With plug in PC boards.
PLUG IN DESIGN: Antenna, mike, extension speaker and power *supply connections, etc., are automatically made when* set is plugged into special mobile mount or AC power supply console.
POWER REQUIREMENTS: 12-14V DC, 16 amps peak on transmit, 300-600 mA in receive.
DIMENSIONS: 24.1 cm wide, 8.9 cm high, 24.1 cm deep.
WEIGHT: 3.1 kg (6 lb. 14 oz.).

ACCESSORIES

DMK — Plug in mobile mount for mobile and maritime mobile use	$63
DD6-C — Self-contained digital readout	$236
10XB — Self-contained external crystal oscillator for fixed channel operation both inside and outside normal VFO band edges	$85
MTI — Mobile antenna matching transformer. Changes base impedance of antenna to 50 ohms	$45
DCC — DC battery cable with plug. Not required if DMK is purchased	$15
220CS — 110/220V AC console power supply	$210

OTHER ACCESSORIES AVAILABLE

INTRODUCING TO AUSTRALIAN AMATEURS . . .

THE UNIQUE WIDE RANGE WIRE TUNER

The Unique Wide Range Wire Tuner will provide a *perfect* match to nearly any single wire fed antenna system in the frequency range 1.7 MHz to 30 MHz. It provides the *broadest tuning range* of any antenna coupling device on the amateur market. At 6⅝ in. wide, 5⅝ in. high and 12½ in. deep, it is compact in size and capable of handling in excess of 1500 watts of *output power* through its *continuously* variable LC combination. There are no gaps between tapped setting as found on most transmatch devices enabling *any frequency within the specified range to be matched. It is therefore* suitable for other than amateur services in the MF and HF spectrum.

It is ideal for portable and maritime mobile operation where space and/or lack of time precludes the use of various resonant antennas. Herb Johnson, President of Atlas Radio, uses one on his own yacht and recommends their use with Atlas equipment. Construction is of first quality materials throughout.

Write or phone for further information and full technical specifications.

PRICE: $295 — SALES TAX AND DUTY PAID.
GUARANTEED FOR ONE YEAR.

ALSO AVAILABLE:
Shure 404C PTT hand held mike ... $35
Shure desk mike.

NOTE: The Atlas 350XL will be in stock again as soon as it is back in production. It is temporarily out of production while Atlas concentrate on a new small model, thus increasing their range to three models.

EDDIE ROOMS B.Comm.(Melb.) VK3NRR/Z??
Office: 12 BAILEY ST., BAIRNSDALE, VIC. 3875. (051) 52 2822
Melbourne Enquiries: (03) 547 5860

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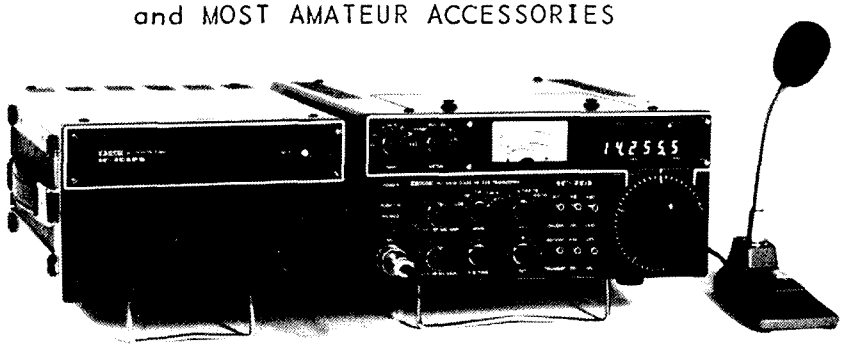
Supplying the Enthusiast . . .

SELECTIVE RANGE OF AMATEUR EQUIPMENT

POPULAR BRANDS OF H.F. & V.H.F. TRANSCEIVERS, ANTENNAE, ROTATORS

and MOST AMATEUR ACCESSORIES



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SIDEBAND ELECTRONICS IMPORTS

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WAREHOUSE: 78 CHAPMAN PDE., FAULCONBRIDGE
TELEPHONE (047) 51-1394 A.H. (047) 54-1392

Some price reductions on KENWOOD products. Ample stocks of Hy-gain antennas at below prices replacement costs. A new W2-AU type watertight U.S.A. 1-KW balun. A new model KYOKUTO 15-W, 2-M, FM transceiver FM-2016A, 800 channel with 4-channel memory and scanner expected soon, estimated cost $360.

HY-GAIN ANTENNAS:

12-AVQ 10-15-20M vertical	$50
18-AVT/WB 10-80M vertical	$125
TH6-DXX 10-15-20M 6-el yagi	$300
TH3-MK3 10-15-20M 3-el yagi	$260
TH3-JR 10-15-20M 3-el yagi	$175
204-BA 20M 4-el tiger array	$230
2M 5-el yagi w/balun 6'3" boom	$25
2M 8-el yagi w/balun 12'5" boom	$30
2M 14-el yagi w/balun 15'6" boom	$40
BN-86 balun for beam buyers	$20

ANTENNAS SUITABLE FOR 10M:

11M 5-el yagi 17' boom	$70
11M CLR-2 5/8W w/3-radials	$40
HY-Q (USA) 50-ohm balun	$15

ROTATORS AND CABLES:

All rotators for 28V AC operation-KEN KR-400 medium duty	$125
CDR BT-1A light duty w/push button programmable	$90
CDR ham III heavy duty	$175
CDR tail twister extra H/duty	$225
Bottom bracket CDR rotators	$10
KS-065 stay/thrust bearing 1¼" to 2½" masts	$25
RG-58U co-ax cable, per yd.	30c
RG-8U foam co-ax cable, per yd.	80c
8-cond. rotator cable, per yd.	60c
⅞" H.D. VHF/UHF co-ax, per yd.	$3
CABLE-cutting and packing	$1.50

ACCESSORIES

Voltage regulator 18V AC input 12V DC 3A output	$23
240/18V AC transformer	$10
5M RG-58U w/PL-259 one end	$2.50
Bumper mountas ⅜" 24-thread	$5
Gutter mounts ⅜" 24-thread	$3

CO-AX CONNECTORS

PL-259-SO-239-cable joiners, ea.	75c
Right angles & T connectors, ea.	$1.50
GLP right angles RG-58U to SO-239 w/lock nut & weatherproof cap	$2.50

KENWOOD PRODUCTS

TS-520S 10-160M transceiver	$675
TS-820S digital transceiver	$1100
TS-700SP 2M all mode trans.	$850
TS-120V 10-80M mobile trans.	$550
TR-7600 10W 2M FM trans.	$400
TR-7625 25W 2M FM trans.	P.O.A.
TL-922 10-160M linear amp.	$1100
DK-520 adaptor (TS-520)	$15
LF-30A low pass filter	$25
TV-502 2M transverter	$300
AT-200 antenna matchbox	$175
DS-1A DC/DC converter	$75
VFO-820 for TS-820S	$185
VFO-520S for TS-520S	$160
SP-520 for TS-520S	$30
YG-3395C CW filter (TS-520S)	$50
MC-50 desk microphone	$50
MC-10 hand held microphone	$20
HC-2 ham clock	$35
BS-5 and BS-8 pan adaptors ea.	$65

YAESU-MUSEN PRODUCTS

FT-7 10-80M mobile trans.	$450
FT-301S 10-160M mobile trans.	$600
FRG-7 .5-30Mhz receiver	$319

NOVICE SPECIALS — TRANSCEIVERS

10M Sideband SE-502 USB/AM 15W PEP-240V AC 12V DC-inbuilt SWR/RF meter 28.3-28.6 mhz-clarifier tuning transmit and receive	$150
10M Universe 224-M USB/AM 15W PEP 12V DC 24-ch. 28.480 to 28.595 mhz, 5-khz steps-clarifier tuning transmit and receive	$125
CONVERSION CRYSTALS for amateur licence holders —set of 8-crystals to convert 23-ch. 27-mhz CB units to 28-mhz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above — CRYSTALS and instructions	$40

Double female connectors	80c
In-line mic sockets 3 & 4-pin ea.	75c
Mic sockets 3 and 4-pin, ea.	75c
MLS right angle-RG58U to PL-259	90c

All prices are NET, EX SPRINGWOOD NSW, cash with order. Prices are subject to change without prior notice. All risk insurance is free: freight by air, road, rail or post at cost. All orders cleared on a 24-hour basis after receipt of order with payment.

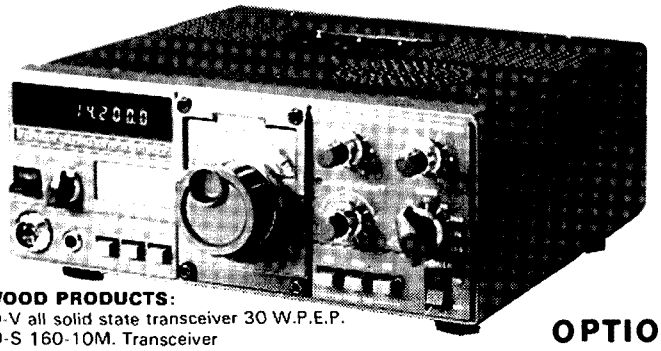
Arie Bles (VK-2AVA) Proprietor **Roy Lopez (VK-2BRL) Manager**

Sideband Electronics Sales

TRIO KENWOOD COMMUNICATION CENTRE

Trio-Kenwood Amateur Equipment
Trio-Kenwood Test Instruments
B & K Precision Test Instruments.

KENWOOD



KENWOOD PRODUCTS:
TS-120-V all solid state transceiver 30 W.P.E.P.
TS-520-S 160-10M. Transceiver
TS-820-S 160-10 M. Transceiver
R-820-S 160-M. Transceiver
R-820 Communications receiver
TS-700-SP. All mode 2M. transceiver.
TS-600-A All mode transceiver
TS-7000-A 2.M FM. 25W. Transceiver
TR-7500 2.M. FM. 10.W transceiver
TR-7600 2.M. FM digital transceiver 800 CH.
TR-8300 70. CM. FM. Transceiver
VB-2200-A. Power booster for TR-2200
VFO-30-G Remote VFO for TR-7200 TX-12. MHZ-RX. 45. MHZ.

OPTIONAL ACCESSARIES
VFO-120
PS-20
MB-100
YK-88C
SP-120

KENWOOD PRODUCTS
TR-7200-G 2.M. FM 10.W Transceiver
TR-7010 2.M. SSB 10.W. PEP Transceiver
TV-502 2.M. Transverter
TV-506 6.M. Transverter
TL.922 2 KW. PEP. Lineal amplifier
SP-8 Regulated Power supply 8.Amps
VFO. 520-S External VFO for 520-S
VFO. 820 - External VFO for 820-S
VFO. 700-S External VFO for TS-700-SP
SM-220 Station monitor
BS-8 and BS-5 PAN adaptor
SP-820 Deluxe Speaker consul
SP-520 Speaker consul
SP-70 Speaker consul for TS-700 & 600
VOX-3 Vox unit for TS-700 & TS-600
DS-1-A DC converter for 520-S & 820-S
DG-5 External digital display TS-520-S
AT-200 Antenna coupler
MC-30-S Microphone 500 OHM
MC-35-S Microphone 50. K. OHM
MC-10 Microphone 50. K. OHM.
MC-50 Deluxe desk Microphone dual imp
HC-2 Deluxe Ham clock
YG-68 CW. filter for TS-820
YC-3395 CW filter for TS-520
LA-30-A Lowpass filter
HS-5 Headphone
HS-4 Headphone
RD-15 Dummy load 450 MHZ. 15. Watts
RD-300 Dummy load 150 MHZ. 300 Watts.

HY-GAIN ANTENNAS

12-AVQ 10-15-20M vertical 13 ½" tall	$50
18-AVT/WB 10-80M vertical 23" tall	$125
TH6-DXX 10-15-20M senior 6 el. yagi 24' boom	$300
TH3-MK3 10-15-20M senior 3 el. yagi 14' boom	$240
TH3-JR 10-15-20M junior 3 el. yagi 12' boom	$175
204-BA 20M 4 el. Tiger Array 26' boom	$230
HY-QUAD 10-15-20M full size cubical quad	$260
2M 5 el. Yagi w/balun 6'3" boom	$25
2M 8 el. Yagi w/balun 12'5" boom	$30
2M 14 el. Yagi w/balun 15'6" boom	$40
BN-86 Balun 50 ohm 1:1	$20
BU-5 Balun 50 ohm 1:1	$14

ANTENNAS SUITABLE FOR 10M

11M 5 el. Yagi 17' boom	$70
11M ¼ wave G.P. w/3 radials.	$20
CLR 5/8 wave vert. w/4 radials 22'9½" 11M.	$50
CLR-2 5/8 wave vert. w/3 radials 19'10" 11M.	$40

ROTATORS AND CABLE

KEN KR-400 rotator medium duty 28V-AC	$125
CDE HAM L11 rotator heavy duty	$175
RG-8U Polyfoam Coax	80c per yard
RG-58U Coax	30c per yard
8 core rotator cable	65c per yard

SKY-BAND MOBILE HELICAL ANTENNAS

SKY 80 six feet long 3.5 MHz	$28
SKY 40 six feet long 7.060	$26
SKY 20 six feet long 14.150	$26
SKY 15 six feet long 21.100	$25
SKY 10 six feet long 28.500	$24

CRYSTAL FILTER, 9 MHz, similar to FT-200 ones. With carrier crystals. $39

COAX CABLE CONNECTORS
PL-259
SO-239 Chassi Mount
Male to male joiner
Female to female joiner
Angle connector

Accessories

SWR 50A 3.5 - 150Mhz SWR meter	$26
12VDC regulated supply	$26
5M RG 58-U w/PL-259 one end	$3
Bumper mount c/with 3/8" 24-thread ant. mount	$7
Gutter mount c/with 3/8" 24-thread ant. mount	$4.50

SIDEBAND ELECTRONICS SALES, 477-479 PACIFIC HIGHWAY, CROWS NEST. PHONE 438 4191.

KENWOOD AMATEUR RADIO EQUIPMENT

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VK/ZL/OCEANIA DX CONTEST 1978: FOREIGN RESULTS

CW RESULTS

Oceania:

KH6IJ	482

S. America:

PY1DHG	414
YV1OB	7136

N. America:

HP1AC	1260
KL7HBK	55
VE4MF	252
VE3HAB	8
AC1O	3425
W1DMD	390
N2LT	2912
WA2ZWH	52
W3TV	6562
N3RL	640
W3ARK	check
WB4RUA	112
W5SOD	300
N6JM	492
W6DWJ	40
N6OB	check
N7DF	3220
W7TY	2200
W7KPL	1512
K9BG	1349
K9AB	945
W9QWM	520
K0FX	6272
W0IUB	1377
WB0GOB	1031

Europe:

DJ7MI	6603
DL1JF	3080
DF0SAR	1881
DK8BI	481
DL1OM	224
DL0KF*	2664
EA2IA	792
EA7AAW	154
EA3PI	126
EA4BV	8
F6DCQ	1628
F6API	192
F2VO	120
G3DYY	2280
G3ESF	1660
G3KSH	570
G5MY	384
G8JM	48
GM3KLA	400
HB9IK	2369
HB9DX	784
15YDI	728
HA4XX	826
HA2KRZ	480
HA7UJ	168
HA7SU	8
HA5KFL*	1230
LA5SH	2398
LA3UG	26
LZ1WI	176
OE1DSA/3	2376
OE1TKW	250
OH9TM	3672
OH3AA	2325
OH6MK	1036
OH6RC	704
OH1KA	500
OH7NW	374
OH3NJ	240
OH7TA	189
OH5SS	114
OH1PU	56
OH2BOE	44
OH2BOI	8
OH7WZ	5
OK3VSZ	2622
OK2QX	2375
OK1AMI	850
OK3OM	582
OK2BMH	550
OK2YAX	510
OK1SMP	396
OK1ATZ	364
OK3CEE	350
OK1TW	304
OK1MAW	288
OK3CKA	270
OK1MGW	243
OK2BEM	225
OK3YCA	176
OK2BPK	168
OK1FCA	76
OK2ABU	60
OK3CAU	50
OK1FBH	48
OK3YCV	18
OK1KYS	18
OK2PBN	18
OK3TCK	8
OK2SGW	8
OK1KZ	4
OK3BA	2
OK1DMP	check
OK1KSO*	4347
OK3KGI*	1180
OK1KQJ*	144
OK1KCH*	70
OK2KQO*	12
OK3KTY*	check
ON4XG	1026
ON6WK	624
OZ7BW	1650
OZ1DTF	520
OZ1LO	504
OZ1BII	494
PA0WRS	243
PA0UV	70
SM6CMU	2645
SM7BKH	288
SM3EP	225
SM7AAQ	18
SM6BBX	2
SM0CMH	check
SP6AZ	378
SP6HEK	260
SP4PBI	60
SP2BKF	18
SP2AVE	check
SM0BVQ	182
SM5BGA	48
SM7HEC	8
SM7CZC	8

Asia:

HS1ABD	3120
JA1EMX	20220
JA1AFF	8695
JA1YFL	6984
JA1BHJ	4704
JA1GLT	4108
JA1YFG	1440
JF1FTU	297
JA1LB	90
JK1LUY	8
JA2IU	7440
JH2LES	6882
JA2BI	6820
JA20J	6768
JA2WB	6464
JA2YKA	3472
JA2CUO	1632
JA2ND	552
JA2QZU	504
JH2JEV	408
JR2BDF	252
JE2GMO	232
JE2MDE	90
JF3LBD	7006
JR3WXA	3990
JA3BRB	3294
JA3AA	2058
JA3BKC	1782
JA3ARM	1001
JH3CXL	490
JA3PJB	259
JF3XYL	208
JA4AXB	5562
JA4DZ	341
PH4DRB	61
JH4LGA	18
JH3BJN/4	2
JA5IQD	1426
JA5IU	234
JA6GU	8172
JA6CNL	576
JA7JAA	7141
JA7JWF	5858
JA7ARW	1512
JA7UFZ	600
JA7GAX	208
JA7AOU	120
JA9DGI	3696
JA9DCP	2109
JA9AQE	1040
JA0RQV	2875
JA0XD	2300
JA0GZ	2

USSR:

UA1DZ	8820
UA1AGK	1408
UA1ZCP	539
UK1AAA*	6944
UK1ZAO*	2166
UC2OCH	80
UK2WAF*	1836
UP2NV	5832
UP2BAO	741
UP2BFI	540
UP2MB	405
UP2BFE	243
UP2BBF	12
UP2BEL	2
UP2BCS	check
UP2BFB	check
UK2PCR*	6061
UK2PRC*	2592
UQ2OC	1533
UK2GKW*	7106
UK2GAC	5346
UR2QD	3325
UR2OI	32
UA4AEB	2
UK4WAR*	5100
UK4WAB*	4682
UO5AP	1368
UO5GR	742
UV3HD	800
UA3TDK	459
UZ3ER	440

NOTE:

* Indicates Club Station.

SM results are not all in order of merit.

PHONE RESULTS

Oceania:

KH6IJ	140

S. America:

PY3CB	11984
PY3NS	810
LU9DM	1632

N. America:

KZ5FR	3900
OX3BX	1364
CH3GCO	7202
VE3EVK	1350
VE7DTO	671
VE7VT	400
VE1BNN	52
XE1VV	2110
XE1LLS	1578
KA1BQ	8568
K1MEM	4872
WB1EUB	24
UA3ST	260
UA3QEL	154
UA3TAM	18
UW3UO	check
UA3AEZ	check
UA3MCJ	check
UA3XBB	check
UA3ESN	check
UB5JIM	1827
UB5KAK	390
UB5OE	192
UB5ZEL	12
UB5UBV	check
UB5ZA	check
UK5WBG*	6344
UK5WAG*	936
UK5QBE*	342
UK5WAZ*	check
UA6LFO	580
UA6YBH	240
UA6APP	check
UA6LXZ	check
UK6AAJ*	6216
UK6LEZ*	3358
UK6APA*	1944
UK6FAA*	286
UK6FGF*	270
UL7PA	792
UL7PQ	533
UL7GBY	84
UL7CAD	check
UH2HBR	108
UM8MAO	216
UM8MBA	40
UW9PT	2600
UA9OBL	2070
UA9NN	1212
UA9ADQ	836
UA9HBD	767
UA90S	check
UA9TS	check
UA9OFB	check
UW0IX	5208
UA0ZCJ	2709
UA0ACM	1500
UA0QWB	1067
UA0KBY	530
UA0AP	495
UA0SH	344
UA0LS	180
UA0KBZ	115
UA0LEO	check
UK0FAA*	8420
UK0ZAB	7385
UK0QAH	95
UK0BAA	check

N2LT	4810
W2FCR	880
WA2ZWH	270
W2CC	102
W2HF	check
W3TV	5760
N3RL	2164
WA4QMQ	720
K5DEC	52
N6AR	20360
W6TYX	8274
W6DWJ	2
K0UK	20292
WA0TKJ	5859
W0IUB	1287

Europe:

EA3NA	720
EA2IA	231
DJ7MI	11798
DL8PC	100700
DF0SAR	6699
DL1SV	1440
DF2HL	559
DL9HN	507
HA4YQ	416
HA4XX	140
HA0MM	45
HA5KFL*	6768
HA3KNA	240
F6DCQ	624
F6BVB	198
G3RRS	10230
G8JM	24
GM4GPN	304
HB9DX	140
I4CSP	110
OH3PB	2340
OH2BMP	960
OH7NW	184
OH2PM	144
OH3AA	70
OH1PU	20
OK1AVU	3925
OK1DA	784
OK2BJR	210
OK1DKS	156
OK2ABU	90
OK2YAX	60
OK1AFB	40
OK1CIJ	24
OK1KQJ	18
OK1KZ	2
OK1JST	check
OK1KSO*	4048
OK3VSZ*	3915
OK1KYS*	308
OK1KIR*	24
LA2AD	930
LA1NG	559
LA9GV	133
LA9ZV	72
LA9ML	check
LZ1HP	168
LZ1WI	5
OE1DSA/3	4488
SP3DOI	24024
SP6PZB	2751
SP5BT	1140
SP6GVU	108
SM6HHN	624
SM5CSS	30
YU2RQX	6375
5B4EP	360
OZ5KF	21774
OZ5EV	8085
OZ2BM	240
OZ1ZE	60
OZ8XW	check
PI1ARS	728

Asia:

HM0U	4758
JR1WHW	20720
JH1BUW	4628
JI1PCN	2058
JK1OLP	666
JF1FTU	432
JA1AAT	378
JA1YFG	329
JE1JBG	180
JG1TIX	133
JK1JEQ	30
JH1OEL	8
JA2HLX	19608
JA2YKA	4466
JE2IEQ	2970
JA2MQJ	2652
JH2FTH	2484
JA2YXV	2424
JE2PKD	1416
JA2FSM	1071
JA2LFG	1068
JR2BDG	279
JE2MDE	216
JH2LES	198
JF2FHQ	192
JA2OJ	114
JA2GFS	85
JA3ZBI	15610
JR3WXA	1134
JR3CVO	990
JA3NMV	928
JR3CVJ	770
JA3MFE	440
JF3CCF	90
JH4IFF	10050
JA4ZQA	2139
JH4ARN	1848
JA4DZ	1716
JH4WTE	648
JH4JLT	322
JH4LGA	72
JA5IU	605
JH5EYD	252
JA5ANP	18
JA6WSB	19499
JA6CNL	6014
JA6CQS	2440
JA6GGD	1712
JR6CMS	1515
JR6CEB	1056
JA6GFJ	456
JA6PL	432
JA7GLB	23946
JA7FAS	11865
JH7JGG	2674
JH7XGN	2632
JE3DYW/7	1946
JA7BAL	1540
JA7CUK	558
JA8SW	3654
JA8RUZ	1760
JA8CEA	1693
JA8EJO	100
JA8DHI	79
JA9AQE	9906
JA9UX	376
JA0JCJ	15059
JA0CIY	4906
JA0FMB	4320
JH0FUC	3740
JA0GZ	114
JH0FGM	80
JA0TVA	32

USSR:

UA1DZ	11560
UA1MU	1674
UA1AWO	check
UK1ZAA*	1080
UC2CW	1740
UC2CEK	182
UK2AAP*	140
UK2WAF*	114
UP2NV	9672
UP2BAS	2916
UP2BAR	432
UK2PCR*	4617
UK2GKW*	13140
UR2QA	737
UR2RL	540
UV3CE	7224
UV3GZ	770
UA3QBP	480
UA3DKF	90
UA3DLH	4
UA3AEZ	check
UA3DDF	check
UA3AGG	check
UA3TAG	check
UK3ABO*	4176
UW4NH	18
UA4ACP	check
UK4WAB*	2120
UK4UAC*	check
UB5MGG	3933
UB5WE	1584
UB5ILD	1242
UB5JCC	750
UB5VAZ	546
UT5NU	288
UB5OD	222

UB5VBY	176	UL7PQ	40	HA5	063	432		UA3	121	1518	520				
RB5IOV	100	UL7PAT	check	NL	5720	7		UA4	09543		13148				
UB5HDX	32	UJ8JCL	2	OKI	21672	138		UA4	091148		220				
UB5ABK	check	UM8MBW	126	OK1	18684	48		UB5	060	333	4077				
UK5WAG*	470	UM8NNN	2	ONL	383	2500		UB5	073	1801	1848				
UO5GR	1024	UA900	4929	SP	0006/SK	1569		UB5	071	346	342				
UO5DN	486	UV9PP	3580					UO5	03927		2318				
UO5OWS	84	UA9FU	3510	**Asia:**				UA6	108	1387	1100				
UO5AP	check	RA9CGC	960	JA1	22569	14432		UD6	001	220	260				
UO5OAK	132	UA90DK	888	JA1	22728	7200		UL7	018	99	3336				
UA6LED	1674	UA9YAT	432	JA1	18277	4710		UL7	179	200	410				
UA6LBQ	560	RA9CIU	378	JA1	22551	2244		UA9	084	200	20222				
UA6LXZ	check	UA9OS	check	JA1	24070	352		UA9	147	197	3130				
UK6AAJ*	4704	UK9UAO*	6727	JA1	25111	2		UA9	158	026	442				
UK6LEZ*	4160	UA0NH	2771	JA2	8568	5820		UA6	108	33/UA0	6080				
UK6LKP*	1088	UV0EX	1332	JA3	9344	5440		UA0	107	272	2540				
UD6DER	3068	UA0CCW	1170	JA6	8331	23222									
UG6JJ	8	UA0BAC	693	JA6	9304	11456									
UL7PBY	1615	UA0PJ	429	JA6	9330	3550									
UL7JAA	819	UA0LEO	check	JA7	6824	18886									
UL7GBP	312	UA0JU	check	JA8	3769	3950									
UL7YR	264	UK0AAC*	7755	JA8	3865	3614									
UL7IBC	70	UK0CBL*	1908												
				USSR											
				UA1	169	756	3134								
				UA1	143	297	200								
				UA2	125	217	480								
				UA2	125	480	32								
				UC2	0067		1352								
				UP2	038	837	992								
				UP2	038	806	772								
				UA3	147	120	8956								
				UA3	123	213	3969								
				UA3	121	1691	1156								

* Indicates Club Station.

SWL RESULTS

Europe:

BRS	32525		8750
BRS	25429		2300
BRS	39782		1936
DL	237	12237	216
HE9ILN			9610
HE9EVI			1540

NOTE:

Many comments — some strongly made — about non-receipt of 1977 results and certificates. The 1977 contest was organised by WIA in Australia and not by NZART. Any queries about the 1977 contest must be made to WIA. Regretfully, some logs were incorrectly addressed. Publicity each year gives correct address for logs. NZART organises the contest on "even years" — 1978, 1980, 1982, etc., while WIA does so on alternate years — 1977, 1979, 1981, etc. This year NZART is posting results and certificates in March 1979 (for the 1978 contest). We hope you receive these in good time and will support the contest again.

Good DX and 73,

Jock White ZL2GX,

152 Lytton Road, Gisborne, New Zealand. ■

SMIRK (SIX METRE INTERNATIONAL RADIO KLUB)

SMIRK is the Six Metre International Radio Klub which promotes six metre operation. There are now over 3000 SMIRK members world-wide and the number in Australia is growthing, thanks to the excellent six metre propagation being experienced.

To join SMIRK you must make contact with three SMIRK members. You then send details of these contacts to the Secretary of SMIRK.

The Information required consists of the dates, the times, the call signs, and the SMIRK number of the stations worked. This information, together with a once only fee of $US4, should be sent to the secretary of SMIRK.

The secretary of SMIRK is Ray Clark K5ZMS, 7158 Stonfence Drive, San Antonio, Texas 78227.

Many JA stations are members as are YJ8KM and FK8AB and FK8AX. So if you go through your list of JAs you may well be eligible.

The following listing will help you sort out the eligible contacts.

JA1UT	2422	JG1WCR	2505	JJ1FDV	2852	JE2GZW	2508	JH3CXU	2324	JR6HNL	2501	JH0DYN	2805		
JA1KSO	2959	JG1WWN	2649	JJ1HPR	2747	JE2LRW	2580	JR3DDQ	2362	JR6IIP	2565	VK3OT	2409		
JA1LZK	60	JH1AFO	2620	JJ1HPU	2547	JE2NQC	2918	JR3HED	2608	JA7BZU	2778	VK2ZHZ	2477		
JA1NVG	1104	JH1DLD	2313	JJ1HWX	2899	JE2PIS	2519	JR3PEO	2502	JA7ITT	2585	VK2VC	2901		
JA1QYU	1833	JH1EMH	2773	JJ1IQR	2467	JE2UAZ	2895	JR3TYL	2879	JA7JGU	2921	VK2BJC	2967		
JA1RJU	448	JH1FZZ	2529	JJ1IWS	2575	JH2COZ	2567	JR3WYM	2517	JA7LBI	2543	VK2BNN	2885		
JA1SIK	2958	JH1PRV	2589	JJ1JFJ	2996	JH2EEB	2287	JA4DC	2926	JA7MIT	2462	VK2BYX	2744		
JA1WPX	2203	JH1UIV	1103	JJ1JRH	2286	JH2FIY	2570	JA4ENN	1779	JA7OUD	2963	VK2YHG	2900		
JD1ADP	2909	JH1USR	1834	JJ1KNC	2886	JH2WIC	2510	JA4JDG	1615	JA7QVI	2475	VK2ZAY	2966		
JE1DLS	2466	JH1WCD	2480	JJ1MAI	2574	JR2MWQ	2582	JA4KJO	2569	JA7RKL	2874	VK2ZBD	2991		
JE1GVR	2380	JH1WHS	2220	JJ1OPX	2468	JR2PUH	2938	JA4MBY	2568	JA7UFZ	2669	VK2ZGF	2864		
JE1HYR	922	JI1CBS	2464	JJ1QLQ	2803	JR2SQZ	2509	JA4RSI	2497	JH7APQ	2942	VK2ZZV	2842		
JE1KUR	2957	JI1CHH	2321	JJ1QZJ	2837	JR2TBI	2523	JH4JPO	2912	JH7BRW	2551	VK2ZZY	2974		
JE1LRC	2504	JI1DLZ	2775	JJ1WGO	2961	JR2VLS	2964	JH4KAY	2522	JH7MSB	2748	VK4GS	2202		
JE1PIK	1909	JI1DQP	1820	JJ1WLB	2995	JA3EGE	2474	JA5CAV	2976	JH7PDO	2779	VK4MS	2201		
JE1RKX	2546	JI1DXZ	2765	JK1BER	2682	JA3JXJ	2799	JA5HTP	2641	JH7RTQ	2911	VK4RO	2132		
JE1RXJ	700	JI1FUC	2437	JK1CDC	2836	JA3PND	2751	JA5ILM	2700	JH7TWQ	2941	VK4ZEZ	2499		
JE1TGL	2796	JI1GGU	2677	JK1CMM	2876	JA3PPS	2491	JA5JFB	2552	JH7UBO	2542	VK4ZNC	2566		
JE1TGN	2471	JI1HGB	2962	JK1EXO	2884	JE3CYV	2503	JA5MEC	2329	JH7UKK	2713	VK4ZRF	2485		
JE1TTI	2699	JI1HHX	1835	JK1EYW	2870	JE3EFZ	2531	JA5PEE	2520	JI7UIP	2924	VK4ZRQ	2455		
JE1UWH	2539	JI1JIC	2545	JK1FDA	2850	JE3FCU	2532	JA5XNA	2745	JR7CLB	2904	VK4ZSH	2533		
JE1VFQ	2470	JI1KZS	2891	JK1HLD	2943	JE3FJN	2905	JA5XOZ	2599	JA8JDX	2706	VK5KK	2481		
JE1VLX	2586	JI1NZX	2940	JK1HYR	2887	JE3KAM	2923	JH5ADQ	2581	JA8JEP	2892	VK5LP	2800		
JE1VLX	2586	JI1OUO	2354	JK1KKT	2750	JE3NKW	2982	JH5AYB	2603	JA8MRX	2375	VK5ZJG	2984		
JE1WNV	1102	JI1RAK	2673	JK1LUY	2749	JE3NPK	2550	JA6JU	2869	JA8NDB	2584	VK5ZZZ	2910		
JF1CXR	2514	JI1TVJ	2512	JK1MIO	2907	JE3TYJ	2456	JA6DUO	2494	JA8PDJ	2527	VK6BV	2600		
JF1EPK	2860	JI1UHU	2670	JK10IV	2920	JE3WBH	2922	JA6FEU	2495	JH8DEH	2712	VK6ZDY	1722		
JF1GQM	2465	JI1VLO	2469	JK1PZW	2854	JE3WNS	2719	JA6IDJ	2851	JH8FYB	2830	VK6ZHE	2894		
JF1JLW	2493	JI1VLV	1788	JK1VMR	2986	JE3XWH	2720	JA6IMJ	2521	JH8GIJ	2875	VK7JG	2980		
JF1OEC	2304	JI1VYO	2285	JL1CQJ	2987	JF3AKI	2992	JA6LLA	2492	JH8GWW	2484	VK8GB	2314		
JF1PHJ	2721	JI1WLL	2919	JR1MOK	1046	JF3ARQ	2576	JA6MCD	2928	JH8HWL	2583	VK9ZR	2890		
JF1TYO	2564	JI1XPE	2463	JR1PSX	966	JF3BOO	2965	JA6RJK	2587	JH8JQJ	2845	DU1EDS	59		
JF1UKJ	2729	JI1XSJ	2683	JR1SQU	1409	JF3GOP	2681	JA6TEW	2549	JA9CGR	2841	DU1PAR	58		
JF1UMK	2397	JJ1BDX	2486	JA2TI	2554	JF3HAJ	2718	JH6BPG	2496	JA9CXR	2363	FK8AB	2944		
JF1USD	2478	JJ1BEB	2908	JA2BNV	2513	JF3HLP	2848	JH6EYL	2598	JA9DUR	2839	FK8AX	2945		
JG1BLN	2853	JJ1BRN	2541	JA2BZY	2158	JF3KQA	2937	JH6FHT	2538	JA9EYY	2548	HL9TG	2880		
JG1EKL	2563	JJ1CEI	2312	JA2DDN	2046	JF3LBD	2883	JH6GVX	2511	JA9KGV	2840	HL9WI	97		
JG1IIE	2524	JJ1DLZ	2540	JA2HMO	2451	JF3OUE	2835	JH6KYC	2889	JA9ROG	2755	P29HV	2515		
JG1OPH	2528	JJ1EIX	2994	JA2ODM	2776	JF3PVT	2838	JH6QFJ	2661	JA0CRQ	61	P29ZDU	2534		
JG1RSI	2553	JJ1ENA	2865	JA2OZY	2526	JF3PXG	2861	JH6TZI	2913	JA0JRX	2903	YJ8KM	2446		
JG1TGT	2537	JJ1ETD	2544	JE2ACS	2479	JF3TWM	2968	JH6UZR	2597	JA0PPE	2866	YJ8ZV	2843		
JG1TRW	2746	JJ1EXV	2754	JE2ARR	2436	JG3AAQ	2814	JH6WGY	2983	JA0WRC	2872				
JG1VKW	2660	JJ1EXY	2754	JE2BBY	2804	JG3DOH	2925	JR6AUV	2896	JH0DHT	2871			■	

VHF-UHF
An expanding world

Eric Jamieson, VK5LP

AMATEUR BAND BEACONS

Freq.	Call Sign	Location
50.023	HH2PR	Haiti
50.025	6Y5RC	Jamaica
50.035	ZB2VHF	Gibraltar
50.050	WA1ENX	Maine
50.050	ZS6LN	South Africa
50.050	K6FV	California
50.080	TI2NA	Costa Rica
50.057	WA6MHZ	San Diego
50.088	VE1SIX	New Brunswick
50.085	WA6JRA	Los Angeles
50.092	W7KMA	Oregon
50.098	KG6JIH	Guam
50.101	FO8DR	Tahiti
50.104	KH6EQI	Paarl Harbour
50.110	KG6JDX	Guam
50.110	JD1YAA	Marcus Island
50.110	KH6HK	Marshall Island
50.500	5B4CY	Cyprus
51.999	YJ8PV	New Caledonia
52.200	VK8VF	Darwin
52.300	VK6RTV	Perth
52.350	VK6RTU	Kalgoorlie
52.400	VK7RNT	Launceston
52.440	VK4RTL	Townsville
52.450	VK2WI	Sydney.
52.500	3D2AA	Fiji
52.500	JA2IGY	Nagoya
52.500	ZL2VHM	Palmerston North
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
53.000	VK5VF	Mt. Lofty
53.100	VK0MA	Mawson
144.101	VK2WI	Sydney
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144.700	VK3RTG	Vermont
144.800	VK5VF	Mt. Lofty
144.900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
145.100	ZL1VHF	Auckland
145.150	ZL1VHW	Waikato
145.200	ZL2VHF	Wellington
145.250	ZL2VHP	Palmerston North
145.300	ZL3VHF	Christchurch
145.400	ZL4VHF	Ounedin
432.400	VK4RBB	Brisbane
432.450	VK3RPX	Ballarat
432.475	VK7RTW	Ulverstone

Daphne VK2NXD has written advising receipt of a message on the 10 metre band from N6HZ that there is a beacon in San Francisco on 52.025 MHz. No call sign mentioned.

Ken VK6ZFQ writes from Koolan Island on the north-west coast of WA to say the Es season was quiet this year, worked VK8 once and to Perth three times, no eastern States at all! JAs started again on 2-2-79, but his best effort was to work into Hawaii. On 25-2 heard KH6EQI beacon S9 at 0500Z, then at 0503Z heard KH6JSI calling CO on 50.200, S9. Ken called on 52.050 and worked AH6AP who was 5 x 6, and received 5 x 3. The beacon stayed until 0700Z at S9 and finally departed at 0750Z. Later JAs were worked and finished the day with a new station KG6JIP at 1230Z.

It appears Ken is getting his share of the DX and I await further news from that area. I have no information whether Ken's contact with AH6AP was the first from VK6 to Hawaii or not. Does anyone know?

CHANNEL 0

Evan VK3ANI has sent a press clipping from the Melbourne "Herald" of 9-2-79 in which the General Manager of Channel 0 said the proposed change to Channel 10 by that station in about nine months would cause little viewer inconvenience.

Evan reports GLV10 at Traralgon will move to Channel 8 and the translator GMV6 to 10 will change output to Channel 8. The more important point, however, seems to be that whilst Channel 0 seems likely to disappear from city areas, assuming eventually, there seems to be increased useage of Channel 0 in other areas, viz., Cairns and now Wynyard. Whilst this arrangement is going to inconvenience some amateurs, it seems the great numbers in the capital city areas may get some eventual respite from the ORM pattern. It does seem a pity therefore, that in the meantime, the amateurs look like being denied access to 50 MHz during the high period of the present sunspot cycle. Even the use of the 50 MHz area on a secondary basis for the time being would be better than nothing!

MELBOURNE REPORT

My old friend Geoff VK3AMK has written with an outline of the DX situation in Melbourne, starting with 5-1-79 when FK8AB and FK8AX were worked. JAs on 6-1, YJ8ZZV on 7-1, then JAs on 14-1, 15-1, 4-2, 12-2, 13-2, then to 14-2 0247 to 0428Z many JAs in 1, 2, 4 and 6 areas. 1058 to 1402Z probably the best opening so far, signals not over strong but very widespread, with JA1, 2, 3, 4, 5, 6 and 9 all being available simultaneously. Some VK3s worked up to 40 stations

Geoff comments that conditions are very interesting on 6 metres, however, old guidelines which have applied for years seem no longer usable. Band tends to open more frequently, times at which openings occur quite out of character with previous observations during past 16 years. On many days JAs have appeared on up to three different openings during a 24 hour period. First opening is often the best, diminishing as the day progresses. Many new calls being heard for the first time.

Geoff is not happy with the present usage of 52.050, due to some rather thoughtless characters who persist with local OSOs without ever taking a break to see what goes on around them! Would like to see 52.000 to 52.100 for outside VK DX working. CW 52.000 to 52.025. Local OSO calling frequency could be shifted to 52.150, with VK DX using up to 52.200, local working above that.

Thanks for your thoughts, Geoff. In general I cannot find a great deal with which to disagree with you on the band plan suggested. Maybe the situation generally is worse in other areas, but here in VK5 there seems on most occasions to be no hassles over 52.050. Stations do work on that frequency during periods of no DX, but with the use of VOX and rapid PTT operation there are ample opportunities as a rule for stations to break in. The fact that stations are in OSO on or around the calling frequency can alert an overseas or other DX station who might also be monitoring that spot, so there are things to be said for and against. I guess the main problem which confronts us all at times is that stations in one area may not be able to hear a DX station being received elsewhere, but perhaps due to Es, an interstate VK may be doing the ORMing. This being so they should move if requested. This is all leading up to the fact that I would very much dislike any move made at present to change the 6 metre calling frequency from 52.050, when so much effort has been made to get it well known overseas. From feedback I am getting and contacts made, it has become well known in many places as our calling frequency. For the time being, let's preserve it as that, mainly by sensible usage.

STATE RECORD ON 10 GHz

The WA VHF Group Newsletter advises that Colin VK6CM and Roger VK6NR at 2140 on 14-2-79 created a State first by working a bi-directional contact from Rockingham Beach to the North Pole at Fremantle — an over water path of 25 km on 10.280 GHz. Transmit power was 10 mW into a horn with 17 dB gain. The received signal from a similar horn was mixed by Schottky diodes, with a local oscillator on 10.25 GHz to give a final IF of 30 MHz. FM was used with a deviation of 75 kHz. Signal horizontally polarized and were received at 5 x 1.

SA USES BUNBURY REPEATER

On 11-2-79 between 2000 and 2030 local, Peter VK5ZCT working from Winters Hill near Port Lincoln, SA, 217 km west of Adelaide, accessed and used Channel 6 Bunbury (WA) repeater to work VK6ZHV, VK6ZZ, VK6UU, VK6VG, VK6ZDR, VK6CB, VK6ZIT, VK6WD, VK6HK end VK6XL. Peter was using a 6 element yagi next to his car. It is a very good effort even if through a repeater, as Bunbury is about the same longitude as Perth and that city has never been easy to work on 2 metres using any mode. It could have been ineresting to see what happened had Peter been able to use SSB.

432 MHz REPEATER

From "The Propagator" I report that Paul VK2ZQT now has a repeater in operation on a manned situation between 6 and 10 p.m. daily in the Illawarra area of NSW. Input is 433.225 and output 438.225. For those who can tune that high it could serve as a beacon at times when the band opens.

USA TO GEELONG

The "GARC" Newsletter reports that on 11-3 the first known opening to USA W6 area took place when signals on the six metre band peaked to S9 and Ws were worked by VK3AOR, VK3ZZX, VK3AKK, some Melbourne stations and Steve VK3OT at Hamilton. They finished the day by working JAs on the band as well.

SIX METRES

We eventually had to get around to it, didn't we? This report covers the period from mid-February to late March, when much mystery and suspense was there to behold. David VK5KK has helped me to fill in the gaps so that I believe it now should be of interest to readers.

The point has been reached where Japanese six metre openings, whether they be day or night, are very common and DX further afield is more prevalent. It is interesting to see the number of JA8 openings since 16-2. The best day by far was 18-3, when the number of JA8 to VK5 contacts alone exceeded 100. Also other good days were 25-2, 4-3, 7-3, 10-3, 13-3, 17-3, 21-3, 28-3 and 29-3 to JA7 to JA8. All times 0000 to 0500Z. Some night time TEP has been extended to the 35°S mark and best days in March were 10th and 12th. No doubt by the time of publication the band will have become a king-size nightmare!

KG6 TO THE FORE

Great interest was centred around KG6DX from 1330 to 1420Z. As a prelude a short brief on the events leading to the opening. Es conditions prevailed from 1000 to VK2 and VK4 with the centre of interest being VK9NI on Norfolk Island. He was worked by VK2s and VK4s and Gerry VK5ZZZ whose patience and mere 10 watts made another country for him at 1030Z. VK9NI holds the key to many new country OSOs since VK9ZNG in 1975 hasn't QSLed for any OSOs including his FIRST EVER contact on VHF (to VK5KK). Later, from 1200Z the Japanese were working VK1, 2, 4, 5, 6 and 8 with excellent signals (Es extended Type 2). At 1330Z KG6DX broke into a quick OSO between two VK5s (call signs removed to improve clarity of report) and he went on to work nine VK5s with signals ranging from 5 x 8 to 5 x 9 + 40 dB! Stations worked were VK5KK, VK5ZZZ, VK5ZMO, VK5LP, VK5ZBU, VK5ZPS, VK5AVO, VK5ZMJ and VK5SV, plus 8 VK2s with signals from 5 x 3 to 5 x 8 and four VK3s with similar signals. After Joe could no longer hear any further DX from interstate VK5KK OSOd him again for 20 minutes until signals took a dive. It appears Joe had only just walked into his shack and discovered the opening mid-stream! None of the other active KG6/KH2 stations heard. Only two of the 21 stations had worked KG6 before, and on both occasions it was also Joe at the other end!

NIGHT TIME CONDITIONS

It would seem H44DX on Guadacanal has finally surfaced on 6 metres with a blaze of glory. He has worked KG6, HL9, YJ8, KH6 and many JAs. Also VK9NI has been giving JA another country. Peter YJ8PD (ex VK2YHG) has been lapping up the extra attention on 6 from Pt. Vila with DX every good night. Peter heard on one night KH6EQI for several hours and would you believe AH6AP (Hawaii) was also hearing YJ8PV (beacon) at the same time, but no QSO resulted! Sort of a Russian stand-off! Peter has worked over 150 JAs up to 24-3 and will probably work a few more before he leaves.

DARWIN AND TWO METRES

From Darwin, two metres is really moving with possibilities of DX further afield. If you think the change from tropospheric to ionospheric propagation was dramatic in the case of the 144 MHz record, then just hold your breath. There has now been a second occurrence of TEP-like propagation on 432 MHz, this time between Rhodesia and Greece. SV1AB and SV1RH copied ZE2JV on 432 MHz from 1816 to 1830Z on 20-3. Distance is about 6226 km! ZE2JV is very active in EME circles and most probably was running quite a high ERP but still yet another crossing of the geo-magnetic equator. Who knows what next, maybe VK8 to JA6?

50 MHz (LISTENING!)

HS1SD is active on 50 MHz from Thailand with an IC502 and has worked HL9TG and JAs at night. Also HS1WR will soon be active with a TS600. So, yet another country! Graham VK8GB has heard KC6IN from Caroline Islands and K9PNT/DU2 Philippines on 50 MHz, while on 11-3 Graham heard KZ5NW on 50.110 at 0110Z calling CQ at 25 w.p.m. CW! Looks like a few DXQCs (quarter centuries) coming up! VQ9KK is definitely active from Diego Garcia in the Indian Ocean on 6 metres. Diego Garcia is between Malagasy Republic and India. While beaming down that way it may pay to listen for ZS6LN on 50.050 MHz. Jack now runs a 24 hour beacon on that frequency with about 80 watts and 8 elements. He beams towards VK between 0600 and 1000Z. For that path, the VK8-ZS6 MUF will have a reasonable peak during May to 48 MHz so no imagination is needed to see what could happen. Even to here (VK5) the MUF is peaking to 40 MHz at 0730Z each day to ZS. Also HL9WI heard VK8s on 144.11 MHz on 8-3! It's all very involved, isn't it?

DAYTIME CONDITIONS FOR VK-ZL

The number of ZL to W openings has outstripped VK by miles but they still are interesting. As far as VK is concerned most of the action started around 2-3. That opening has already been reported and up to 24-3 there have been no reported two-way contacts to VK4 on 52 MHz. On 4-3 K7KV to VK4RO, WA4TNV/KL7 heard by VK2BYX around 2300Z same day. On 6-3 band open to KH6 from 0745 to at least 0836Z in VK5. The band was open to VK4 via Es and KH6 was simply Type 1 TEP Es extended. KH6EQI averaged 5 x 6 for the period and KH6IAA was 5 x 6 to VK4 and VK5 around 0755Z on 52.050. No contact made to VK3 although since VK3AUQ has been worked by KH6NS so the band does open to VK3 from time to time. On 7-3 heard HL9TG on 50.002 at 0315Z at 419, testing with his beam on K7KV. The signals lasted for 5 minutes, long enough to get some calls on tape. Several cards have arrived from SWLs in HM1 and HM2 on three occasions so it is only a matter of time before HL is worked again in lower VK.

VK3 TO W6

On 10-3 Okinawa to VK5. On 11-3 from 2230 to 2345Z the band opened to VK3 from W6. VK3AOR worked six, W6XJ, WB6NMT, N6CT, N6HZ, AA6S and K6FV. This is the opening reported earlier in the Geelong notes. VK5DK in Mt. Gambier attempted to QSO but without success. Only signal heard in Adelaide was WB6NMT on 50.1 MHz at 2225Z. The extra 300 miles took its toll. It is good to see all contacts were on 52 MHz, and yes, you guessed right, about 90 per cent on 52.050! Looks like the 21 year drought has broken to VK3 now. The day before the best W-ZL opening occurred. From 1800Z (6 a.m. NZ time) to at least 2200Z, all ZL areas worked from W6 (W6XJ worked 11 stations and four W5s also worked into ZL.) Included was K5ZMS (Smirk No. 1), Texas, and K5CEB, New Mexico. Looks like California is not the only place to work. ZL1AOR was using crystal locked DSB and ZL3QK was using an 80 metre dipole! Apparently the 600 ohm network ran hot as it was next day in VK3 when Victoria had a public holiday!

DAYTIME CONTINUES

Things did not stop there either. On 13-3 WA4TNV/KL7 on Shemya Island worked nine VK2s, four VK5s (VK5ARZ, VK5KK, VK5RO and VK5V — note, Signals were to 5 x 9 in VK2 and 5. Time 0112 VK5LP was working!), plus VK1RC and VK4AZE. to 0350Z. On 52.050 MHz. Yes! Clay runs a Swan 250 into a 1½ wave lambda, 70 feet high! Address: Clay Lane WA4TNV/KL7, Box 444, APO Seattle, 98736, USA. All cards for 13-3 sent to VK5 and will have been distributed by April. Return QSLs to above address or via MURO. No VK3 contacts — probably no one about. Some stations had time to work Clay a second time, there being no one else to work. WA5TNV/KL7 was heard on 50 MHz again on 18-3 at 2335Z 5 x 6, in VK5 and VK2. From 13-3 to 18-3 scattered reports but no contacts. On 17-3 W6XJ worked VK2BA, VK2ZRH, VK2AIH and partially worked VK2HZ on 52 MHz. From 2225 to 2235Z signals good enough for SSB. Also on 24-3 VK2BA, etc., hearing W6XJ on 50.050 5 x 9+ for two hours. To demonstrate the sharp cut-off of signals, ZL TV on 50.74 at S9+ and no Channel 0 and no VK on 52 MHz but good signals on 50 MHz. Once again, what could happen if VK had 50 MHz! Also KG6DX worked VK2ASZ and VK4ZJB on 52 MHz on 24-3. Northern VK6 working into HL9, etc. W6XJ copied by VK1RC on 17-3.

OVERSEAS NEWS AND EVENTS

JAs working W, KL7, LU, PY, CE, etc., as usual. HL9TG worked LU3EX and LU8AHW for a possible new world record on 6 metres (south-east path). HL9TG and HL9WI have also worked WA4TNV/KL7. HL9WI no longer maintains a 24 hour beacon and the following is the only set schedule. Week-days 2100 to 2230Z and week-ends 2100Z to 1000Z on 50.125 MHz. He beams on W during these times with a TS600 and 5 element beam. He is waiting for an amplifier from K6MYC to give 80 watts. HL9TG uses a Heath SB110 with 100 watts and sometimes a TS820 plus converter on receive.

OUT-OF-BAND SIGNALS . . .

but excluding frustrated VKs. From Korea HLKA on 44.25 and HLQX on 40.305 MHz are both studio to transmitter links for Korean broadcast stations in the rice-paddys around Seoul. Also reported from Korea are HLF on 50.193, HLG on 50.837 and HLX on 52.110. All are marine information stations sending QSX on CW. However, they could be harmonics so any information on these would be appreciated. Also various police frequencies from 39 to 45 MHz. We won't tell you all about them, but about the best yet have been from New Orleans, USA, and mobile in Alabama in the 39 to 40 MHz range. Anbody heard any W4s lately? What do you hear in VK2 and VK4 on these frequencies? Only the police and one or two other services use voice in the 30 to 50 MHz range. Many signals are tone-bleepers or pagers with CW ident. Turning north one could be excused for thinking that no two stations speak the same language. Quite a lot of Spanish and French also appearing from the NE and E area. In the near future it is hoped some details will be published on frequency usage and reception equipment.

Anyone wanting circuit details and other information on the PRC10 should contact Mark VK5AVQ (ex VK5ZVQ) as he has the manual.

Now let's get back to earth, or the troposphere at least.

144 MHz AND ABOVE

Two metres and above has been relatively quiet, it seems to be lacking the summer DX crowd. On 4-3 the band was open to VK6 with VK6BE 5 x 4 and VK6XY 5 x 9. Also at 1440Z VK6XY 5 x 5 on 432.1 MHz. The beacon had been evident for three days prior but dismal activity at both end restricted contacts. On 12-3 VK5CK near Mt. Lofty worked VK5YII on 144.3, the ATV net, once again proving those hills we beam over make a good VHF site. VK5KK worked VK3AXV and VK3ARM. Rumour has it a VK3 in western zone of Victoria has a 432 MHz transverter and is expected to fill the gap in activity in that area. Most VK3s currently worked from VK5 have been in Melbourne and further away. It would be good to see the proliferation of 432 stations in VK3 as good as it is in the west, where you have to toss a coin to see what band you will rag-chew on! In the meantime VK5KK remains as QRM on 1296 MHz, but the said contact did in fact eclipse the then world record on that band. Such is life, David.

GOOD OPENING TO KOREA

28-3 turned out to be a rather good day for many people. VK5LP heard JA1TGS on 52.050 at S3 at 2255Z, and that's mighty early for a JA to be heard in VK5. KG6DX next was monitored on 50.110 to S9 at 0030Z, and shifting up to 52.050 at 0037Z, where he was worked in VK5 on CW. At 0055Z HL9TG was observed on the 6 metre net on 28885 kHz and given warning of possible Improving conditions. The Vladivostok TV came up to S9+ soon after, to be joined a bit later by the Magadan TV station, both around 49.750 MHz. You can always tell when both stations are there by the beat note they produce. It looked good for KL7. At 0143Z JA8DXB was worked on CW on 52.028. At 0159Z JA7LDA 5 x 5 on SSB. It looked as though the conditions had swung away from a possible KL7 opening. At 0259Z Gary HL9TG was worked in VK5 by VK5KK, VK5ZJG, VK5LP, VK5ZMO and VK5SV. Mark VK5AVQ heard Gary whilst mobile in Adelaide using his ¼ wave whip, but was unable to make a contact (news came back to us from interstate that a two-way contact had eventuated with the mobile, but this is not correct). Mark rushed to his home QTH and worked HL9TG from there. Signals were 5 x 9 most of the time. We also know VK2 BYX and VK4DO worked him, and VK3OT had a CW contact. David VK5KK also worked HL9WI Bill around 0320, but signals were not as strong as Gary. The irony of the matter is that I (VK5LP) asked Bill to shift up to 10 kHz for a contact, he moved up to 7 kHz and landed right into the lap of VK5KK. As soon as David had finished with Bill the band folded. Such is the luck of the game!

As these notes are being finished, news comes to hand that today, 29-3, VK6ZKO worked HL9TG, but no other VK6s despite the VK6RTV Perth beacon being S9+. Also VK4PU worked WB6NMT and WA6TFS. And VK5ZMO received a 625 line test pattern from a possible Indonesian video signal on 48.25 MHz. ZLs worked into W also, around 2200Z. And so the saga goes on.

I must close now, as I have to catch today's mail. Thought for the month: "Strange how much you've got to know before you know how little you know."

73. The Voice In the Hills. ■

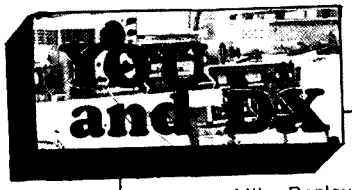
STOP PRESS

Chris VK5MC worked Peter ZE5JJ on 432 MHz via EME at 0930Z on 31-3-79. In reports exchanged sigs. 2-3 dB above noise with a peak of 6 dB. Chris using a 20 ft. dish and Peter a 30 ft. dish.

On 3rd April VK5KK and VK3OT are believed to have worked XE1GE.

Also on 3rd April VK3s and VK2s worked KH6NS, HL9WI and JAs.

W8GZ Loren Windom will call VK on 52.050 from 2300Z to 0300Z Saturday, USA, and VK Sunday morning, calling on the hour and half hour. Call for two minutes then listen for two minutes for 10-15 minutes. Loren, in Columbus, Ohio, runs a kilowatt and a large rhombic on Australia.



Mike Bazley VK6HD
6 James Road, Kalamunda W.A. 6076

The following is taken from the West Gulf DX Bulletin. I think it is of interest.

THE RUSSIAN WOODPECKER

If you have not heard this one, you have not been on the air in the last year or two. Like a lot of other things, you try to live with it and wish it would go away but it seldom does. Maybe if you know a bit more it might help to tolerate the continuing burden. The following information compiled by W3 . . .

The "woodpecker" is a long range radar and the range can be estimated by noticing that the repetition corresponds to 25 w.p.m. CW dots. At this speed, the time from dot to dot is 96 milliseconds and this means that the radar range is roughly 47,000,000 feet or 8,950 miles. This "on-the-air" estimate was done without instruments so it is probably a bit in error. If the actual design range was 15,000 km or 9,320 miles, the error in the estimate would only be 4 per cent.

Presuming a 10 megawatt source and 18 dBi antenna gain, the ERP is 88 dBw. However, if you figure 20 metres at 1,000 miles, this immense signal is reduced by path loss to a mere 0.0006 watt.

This might make some think that a 1 watt jammer would have an advantage over the woodpecker of over 1,000 : 1 but this is not correct. Not all of a jamming signal will be effective unless it is able to pass through the IF and video filters of the radar. A constant carrier is not effective at all because it is rejected as a DC level by the AC coupled video circuitry of the radar.

However, CW dots will get through, this assuming a rise time of 1 millisecond for amateur CW and an additional 20 dB advantage is given back to the radar because of the mismatch in rise time, video bandwidth and corner frequency. Notice that the CW dot jammer, even if only 1 watt, still has a 10 to 1 advantage. It might even be that a 100 watts or 1 kW would be even better.

There is some reason to believe that the above is true. For one thing the woodpecker is only heard on the phone bands where voice envelopes can be rejected by the radar video circuit. Also, when someone is sending CW dots at 25 w.p.m. the woodpecker usually QSYs within five minutes.

Some who have studied the situation have noted that persistent CW sending on the woodpecker frequency has had them go QRT, one instance it lasting for about three weeks, returning with a new gimmick. The woodpecker showed with a frequency hopping mode. If problems developed, the woodpecker would hop to some other frequency on the amateur band.

However, the woodpecker must have an IF bandwidth of 20 kHz in order to process the 100 microsecond pulses that they transmit and thus there are not many such hops possible within one ham band. Observation tends to reinforce this thinking, only about eight operators sending dots at 25 w.p.m. spaced 20 to 30 kHz across a band would eliminate the advantage gained by the frequency-hopping technique.

(See also the report in April AR.—Ed.)

This writer suggests that perhaps you might feel like calling H5HHH on the off chance you may work an H5! On the other hand it will improve your CW and get rid of some QRM.

A letter from PA0DLM, which arrived too late for the April issue, stated that a special station would be active on all HF bands from 2100Z April 29 to 2100Z April 30. The station would be commemorating the 400th year of the "State of the Netherlands". A special QSL would be available to all those sending a QSL (via the bureau is acceptable). So if you worked this one then you now know what it was all about!

Another piece of history in that KP4AM/D (Desecheo) finally showed on the band during March (QSL via W6WX) and I trust that those who chase DX made it and were in the same position as this writer who was doing antenna changeover and maintenance at the time!

The 3X1IX reported previously has been heard again, with the still monster pile up, beam heading is OK so this could be the genuine article. No QSL information to hand at present.

Rumour has it that OZ1CRH has obtained a licence to operate from YA. No call sign as yet but it is believed that operation could commence in April or May.

One of my other hobbies is stamp collecting. What has this to do with radio? Well in a recent issue of "Stamp News" there was reference to the country of Redonda, an island adjacent to Antigua, which was in process of issuing its first stamps. It would appear that Redonda is a separate nation with its own King!!! A new DXCC country in the offing???

Apologies to all for not giving advance information of the Spratly and Franz Joseph Land DX-peditions. To be of value information has to be received here 6 weeks before DXpedition date. Often one only hears of an impeding DXpedition 2 or 3 weeks prior to the operation. If anyone is interested and would like to let me have, say, five stamped addressed envelopes, together with a wanted list, I will try to forward brief details of any DXpeditions that come to hand. Those details that arrive too late for publication of course. (I hope this offer does not get out of hand!)

FROM THE WEST GULF DX BULLETIN

HV3SJ usual operator, Brother Ed, has been transferred to HK land. This leaves the Vatican without a regular amateur operator. ZD9GH shows nearly every Monday on 14250 kHz from 2100Z and on Saturdays from 2000Z. VP8SO South Orkneys on most days 14275 kHz from 2000Z. No more amateur radio is being allowed from the Comoros and D68AD has had his licence cancelled.

FROM OUR READERS!

It would appear that there is a demand for an expanded QSL section judging by comments received. This has been greatly expanded this month. If you don't agree then let me know. JA0CUV/1 was heard taking a list (JAs only) for 3V8BZ. LU3ZY (South Sandwich) heard on CW 14023 kHz at 0145Z. S8AAA heard on 14 CW at 1740Z (for those of you that burn the midnight oil). 9J2WR is back in the UK, signing GD3AHV, and still has his 9J2 logs. If anyone still needs a QSL, Corlea Bungalow, Ronague Road, Ballasalla, IOM, will find him. The information contained in the letters received highlights the differing DX conditions between East and West. Boy those South Americans are like "hen's teeth" over here in the West!

QTHs YOU MAY HAVE MISSED

A4XHI — Box 8530, Saladah, South Oman.
AP2UR — via W8QFR.
FB8XS, FB8XV — via F5VU/C.
FM7WO — Box 287, Fort de France.
FW0TT — via 4Z4TT (SAE and IRCs required).
FY7YE — via W5JLU.
HD1A — via WA4QMQ.
H18MOG — via W3SNK.
HZ1MJ — via WA6LFF.
J28AG — SP 85038 — CT Djiboutl.
J28AG — SP 85038 — C. T. Djiboutl.
J28AY — via F6ETO.
WD8JTC/KH2 — via KG6, Guam Buro.
KH6JHJ/KH4 — via KM6BI.
KP4AM/D — via W6WX.
P29BL — Box 7412, Boroko, PNG.
P29EJ — Box 1486, Lae, PNG.
T2T — via W5RBO.
TA1ZB — via VK4LG.
TF5TP — via DL7MQ.
VK2DCA/VK9 — via BH9AAA.
VK0JC — via OZ8AE.
VP2DXD — via WB8LDH.
VQ9KK — via WA3HUP.
VQ9MR — via N5GU.
VR3AH — via WB4PRU.
YS10 — via W2KF.
ZF2CI — via WA6AHF.
ZK1BD — via ZL1SZ.
ZL5MC — via ZL2HE.
3B9ZZ — via W2GHK.
3D6AF — via —A0CUV/1.
3D6BT — via ZS2SA.
SM2ALH/4U — via SM Buro (counts as SU).
VE3BWK/4U — via WA3HUP (counts as YK).
6W8DY — via VE4SK.
6Y5DA — via VE4JK.

FROM THE FIJI ASSOCIATION OF RADIO AMATEURS (FARA)

In a letter to the Editor dated 24-3-79, Upali 3D2UP advises us as follows:—

The FARA at its meeting held on 30th January, 1979, resolved to inform the WIA that:—

(a) The Association was re-activated at a meeting held on 27th November, 1978, and the office-bearers for the years 1979 are as follows: President, R. L. (Dick) Northcott 3D2CM; Joint Secretaries, Upali Ranasinghe 3D2UP, Bernard Malandain 3D2BM; Treasurer cum QSL Manager, Raj Singh 3D2ER; Committee Members, George Williams, Bob Hodkinson 3D2BH; and

(b) "Faranet" operates every Monday as follows: 07.30Z to 08.00Z, 14195 kHz; 08.00Z to 08.30Z, 3695 kHz.

Net will be operated and conducted by one of the licensed members of the Association and any of your members are welcome to join in the net.

We have 22 members of which 16 are licensed. —3D2UP.

Many thanks to those who have taken the trouble to write in, especially VK4KX, VK4SS, VK6LK and L30042. Thanks are also due to the West Gulf DX Bulletin.

LETTER

The following is a letter received from John McKendrick LU8EBI:

"I am taking this opportunity, whilst on holiday, to write 'back-logged' QSLs and catch up general correspondence!

I would be very happy to provide all information for those seeking confirmation of LU8 Argentina. Every Monday and Friday VK3RK and I sked on 14300 kHz ± QRM at 1000 hours Z; other regular skeds are on Saturdays and Sundays, 21325 kHz ± QRM in QSO with VP8QP, QJ, LU5XE, W2HTI, VS6EK et al — we start at 1200 hours Z. All VKs and Pacific Region very welcome.

I would also be very happy to receive requests by *mail* to establish a time (Z please) and frequency for any enthusiast to confirm Argentina on 80-10. I am with facility for CW and SSB, using Heathkit 401, 301, SB220, also Kenwood 520S and Yaesu 2100B 3 element tribander for 20, 10, 10; ground plane; and long wire to back up from 80 right through. My direct mail address is:— Embajada de Australia, Ava Santa Fe 846, Capital Federal, Buenos Aires, Argentina. My Australian address for the forwarding of correspondence (approximately 2-3 weeks) is: J. McKendrick, C/o 25 Turnbull Avenue, Toorak, Vic. 3142.

Hopefully within the next few months I will receive confirmation of PORT OA4 (Lima, Peru) and CE3 (Sant., Chile). More news of that later!

All QSOs are confirmed by QSL cards — my US manager is K6EVQ — any takers for VK?? — it's quite a job!

73s, Yours faithfully,
John McKendrick LU8EBI, ASSWIA, ARRL."

QSL MANAGER

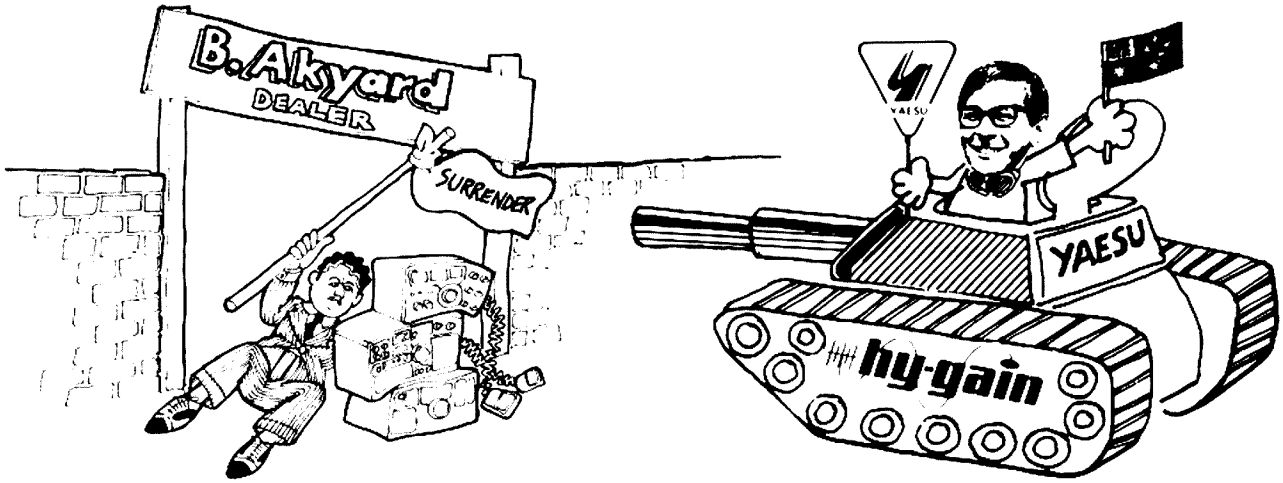
Tony De Prato WA4POH of 205 Cherokee Trail, Somerset, Kentucky 42501, USA, advises that he is the QSL Manager for the following stations:— UP8PU, UP8QG, UP8QJ, UP8NJ, ZS1DM and KG4DS. ■

TRIAL AOCP EXAM

TRIAL AOCP EXAM — IN JULY, MULTIPLE CHOICE TYPE, CLUBS OR DIVISIONS. CONTACT ROY HARTKOPF VK3AOH, FOR DETAILS.

THE WAR CONTINUES

THE BATTLE STILL RAGES WITH YAESU — NOW HY-GAIN ANTENNAS HAVE FALLEN TOO!



You must have heard about the Yaesu price war – Dick Smith will better any genuine price offered by anyone on Yaesu products . . . We've received such a tremendous response from the Amateurs of Australia that we've decided to reduce the price of Hy-gain HF antennas. So now you can buy your complete amateur station from Dick at a real bargain price.

YOU REAP THE BENEFIT!

And you'll be buying from a fully Australian owned company – your one stop electronics shop who actively supports amateur radio!

HERE ARE OUR YAESU PRICES: (and we'll send them anywhere in Australia for just $6.00 extra – We even lose money on this 'below cost' freight offer!)

FT-101E 80-10m HF transceiver	Cat D-2860	**$789.00**	FT-101Z New HF transceiver	Cat D-2862	**$775.00**
FT-301 Solid State HF transceiver	Cat D-2870	**$795.00**	FT-901D Top class HF transceiver	Cat D-2854	**$1349.00**
FT-7 Mobile HF transceiver	Cat D-2866	**$375.00**	FT-227RA 2m FM scanning transc.	Cat D-2891	**$379.00**
FT-227 2m FM transc with memory	Cat D-2890	**$379.00**	CPU-2500 computerised 2m transc.	Cat D-2889	**$549.00**
FC-301 Antenna tuning unit	Cat D-2896	**$219.00**	FC-901 antenna tuning unit	Cat. D-2855	**$249.00**
FL-2100B 1.2kW linear amplifier	Cat D-2546	**$529.00**	FL-110 200W linear amplifier	Cat D-2884	**$189.00**
FRG-7 Solid State HF Rcvr	Cat D-2850	**$319.00**	FRG-7000 Digital HF rcvr	Cat D-2848	**$599.00**
FP-301 13.8V/20A supply	Cat D-2872	**$169.00**	YC-500S 500MHz Freq. Counter	Cat D-2892	**$475.00**

We believe that the prices above are better than any supplier in Australia. If you find someone cheaper for the same goods, tell us! For us to better any price, simply show us the advertisment from any Australian company. After checking that they have stocks available at that price we will sell it for a lower price. Offer remains open while present stocks last (approx. $250,000 worth).

Easy terms available to approved personal applicants on any item priced at $111.00 or more.

NEW HY-GAIN HF ANTENNA PRICES:

SUPER SPECIAL:
TH6 DXX SLASHED BY $104.00 TO ONLY
$295.00 WHILE STOCKS LAST
Cat D-4308

TH3Mk3 BEAM:
Save $50.00 . . .
$249.00
Cat D-4306

TH3JR BEAM:
$20.50 off!
$199.00
Cat D-4304

18AVT VERTICAL
SAVE $14.50
$135.00
Cat D-4302

HY-GAIN VHF ANTENNAS ALSO IN STOCK. ASK OUR PRICE!

EMONA electronics

MAIL ORDERS: Box K21, Haymarket NSW, 2000, Australia

WRITE, PHONE OR CALL IN!

NATIONAL RJX-1011

A Unique New SSB/CW Transceiver For Amateur Communications

There is no substitute for quality, performance or the satisfaction of owning the very best.

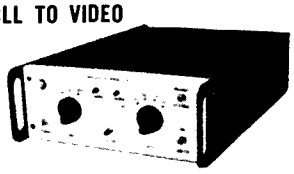
Hence, the incomparable National RJX-1011 amateur transceiver. The RJX-1011 covers all amateur bands 1.8-30 MHz (160-10 metres). It utilizes advanced Phase-Lock-Loop circuitry with dual gate MOS FETs at all critical RF amplifier and mixer stages. There's a rotating dial for easy band-scanning and an electronic frequency counter with digital readout and a memory display that remembers frequencies at the flip of a switch. And that's just the beginning.

Matching speaker unit RJX-S1011 and complete external VFO RJX-V1011 also available.

For further information and specifications write, phone or call in!

$1990

CONVERT MORSE, RTTY AND ASCLL TO VIDEO



MODEL 200 TRI-MODE CONVERTOR

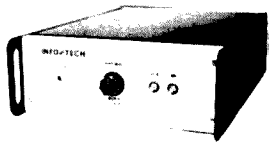
Based on the powerful F-8 Microprocessor system, this new product from Info-Tech. advanced technology is an addition to the popular Model 100.

$668

$407

New Model 150 RTTY KEYBOARD

Features: 4 speeds (60, 66, 75, 100 wpm), built-in AFSK with 3 shifts (170, 425, 850 Hz), automatic CR & LF at end of 64 or 72 character line, built-in low shift CW ID provision.



INFO-TECH MODEL 30 MORSE TO VIDEO CONVERTER

$429

Converts received Morse code from your receiver to a video printout on your TV, no other devices required.

Features:

● No critical adjustments ● Attaches to any CW receiver with BFO and 3 to 600 ohm audio ● Simple LED tuning indicator ● Unique PLL front end input filter for superior selectivity ● Automatic speed and weight adjustment: tracks 8 to 150 wpm ● Simple connection to your TV set's video amp for excellent clarity ● Prints 8 lines, for a total of 256 characters ● Text shifts upwards as message continues with automatic carriage return and line feed (Scrolling) ● Will accept parallel ASCII with strobe for micro computer applications ● Built-in AC power supply.

ALSO AVAILABLE

INFO-TECH MODEL 10-0 CW KEYBOARD

$399

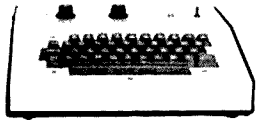
MULTI PALM II 2M/FM POCKET TRANSCEIVER

SPECIFICATIONS

Transceive frequency range 2 MHz in 144-148 MHz, transceive channels 6, channels antenna impedance 50 ohms unbalanced, BNC connector power requirement 12V DC (negative grounded), Power consumption transmit 300 mA, receive 100 mA stand-by 25 mA, size 68 mm (2-43/64 in.) wide, 154 mm (6-1/16 in.) high, 41.5 mm (1-41/64 in. deep, weight 470g (1.03 lbs.). Repeater offset +600 kHz modulation variable reactance phase modulation, max. deviation +5 kHz microphone condenser, microphone receiver, double conversion superheterodyne (1st IF, 16.9 MHz; 2nd IF, 455 kHz). Sensitivity —4 dBu NQ 20dB). Audio output maximum 0.3 watts. Attachment rubber ducky antenna. Nicad battery pack. DC cable with cigarette lighter plug. Carrying strap.

$229

INFO-TECH M-300 TRI-MODE KEYBOARD

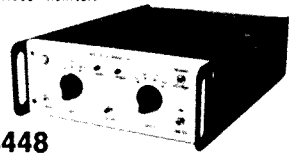


A microprocessor controlled keyboard that generates Morse, RTTY and ASCLL. Write or call for further specifications.

$564

New Model 75 RTTY TO VIDEO CONVERTER

Features: 4 speeds (60, 66, 75, 100 wpm), built-in T.U. with 3 shifts (170, 425, 850 Hz), 32 character x 16 line video output with scrolling, connects directly to receiver audio and video monitor.



$448

RTTY for ALL Systems

Model 402

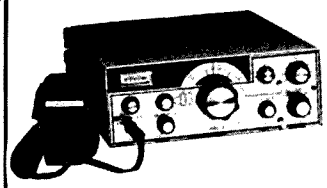
ELECTROCOM "SERIES 400" FREQUENCY SHIFT CONVERTERS

Professionally engineered for outstanding performance, stability, and reliability, the Electrocom Models 400 and 402 add new dimensions of compatibility between radio and teletypewriter systems. Manufactured to highest quality standards — an Electrocom tradition for nearly two decades — these units are ideal for military, government, commercial, civil defence and amateur applications. The Model 400 front panel digital knob accurately selects shifts up to 1000 Hz, while two such knobs on the Model 402 independently set the mark and space frequencies. Both models may also be preset with any tone pair between 1000 and 3200 Hz.

Optimum performance with FSK or AFSK systems is assured by matched filters, precision linear detectors, baud rate selector, bias compensation, and semi-diversity circuitry. Operation is enhanced by a CRT monitor autostart with solid-state motor switching, antispace, markhold. EIA/MIL output voltages, and a constant current loop supply. In addition, various options are available including rack mounting and polar current output.

Write or call us for complete product details and specifications.

alda 103

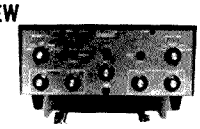


3¼" H x 9" W x 12½" D

totally solid state SSB Transceiver 80 through 20 metres

250 WATTS FOR ONLY $495

AMATEUR TELEVISION IS EASY WITH THE NEW ROBOT SCAN CONVERTOR MODEL 400



● All solid state random access memory ● Slow-to-fast and fast-to-slow conversion capability ● SSTV picture display on any standard CCTV monitor ● Frame freeze from any standard CCTV camera, broadcast video or video, tape source ● Permanent picture storage ● Automatic or manual TV frame snatch ● Internal grey scale generator adjustment standard ● Capable of real time display of digitally processed fast scan video.

$898

FDK BIGEAR TRANSCEIVER TYPE 1

2m FM SSB CW PLL SYNTHESIZED MOBILE BASE TRANSCEIVER

● 144-148 MHz, PLL digital synthesizer system, FM: 800 channels (5 kHz step); SSB: 400 channels (10 kHz step), plus VXO system (±7 kHz) ● AC 117/240V, DC 13.8V, two-step power supply ● Digital display system (using a large-sized LED), providing reading up to six figures ● Transmitting output: 10W/1W, shifting mechanism ● Front loudspeaker suited for base station ● Easy-reading, separate S/RF centre meter ● ON AIR/RECEIVE/RIT position displayed by LED ● Include RIT, AGC, VOX and noise blanker circuit ● Provides repeater operation of ± 600 kHz and ±1 MHz.

$694

ATLAS 215X-HF Transceiver $795

NATIONAL

RJX-1011 Transceiver	$1,990
RJX-S1011 Speaker Unit	POA
RJX-V1011 VFO Uint	POA
RF4800/DR48 Receiver	$466

YAESU

FT101E Transceiver	$779
FT301 Transceiver	$785
FT301D Transceiver	$950
FP-301 AC Power Supply	$175
FRG-7 Receiver	$315
FV-301 External VFO	$139
FRG-7000	$595

LUNAR

HF3-100L2 Linear Amplifier	$225
BI-LINEAR VHF Models	$259
28-432 MHz Low Noise Pre-amplifier	$42
OSCARBOX J, UHF Down Converter	$96
PAI-50B VHF In-line Pre-amp, Loy Noise (6m)	$54
PA-144B VHF In-line Pre-amp, Loy Noise (2m)	$54
PA-28 VHF In-line Pre-amp, Low Noise (10m)	$54

FDK PRODUCTS

Type-1 2m/ SSB CW PLL Mobile/Base	$694
Multi-palm 11 2m/FM 6 ch. Pocket Transceiver	$229
Leather case (for Multi-palm 2)	$11.50
Battery charger (Multi-palm 2)	$9
Crystals (for Multi-palm 2)	$3

WAWASEE PRODUCTS

JB1002FC/M Counter/Wattmeter	$225
JB1003C/M Clock/W'meter/SWR	$135
JB1001SFCM Scope/W'meter/SWR/ Counter	$379
JB2000SW Wattmeter/SWR Bridge	$75
JB1000S-M Scope/W'meter/SWR Bridge	$310

B & W PRODUCTS

Model 333 Dummy Load Wattmeter	$122
Model 334 Dummy Load Wattmeter	$221
Model 374 Dummy Load Wattmeter	$265

KENWOOD PRODUCTS POA

ANTENNAS

SY-1 4-el. on 20, 15 & 5-el. on 10m	$325
SY-2 3-el. on 20, 15 & 10m	$269
4-BTV w/80m Resonator (10-80m vertical)	$135

ELCETROCOM

"Series 400" Shift Converter	$990

INFO-TECH

Model 75 RTTY to Video Converter	$448
Model 150 RTTY Keyboard	$407
M-200E Morse, RTTY & ASCII to Video Converter	$668
M-300 Morse, RTTY & ASCII Keyboard	$564

ROBOT

Scan Converter	$898
12 in. Video Monitor AVM-090	$289
ASA 500 Video Camera	$270

MIZUHO

SX-59 RF Pre-amplifier	$86
SX-1 Pre-selector	$63
DX-555D Counter Generator w/Prescaler	$220
KX-1 Coupler	$56
MX-1D Marker	$69

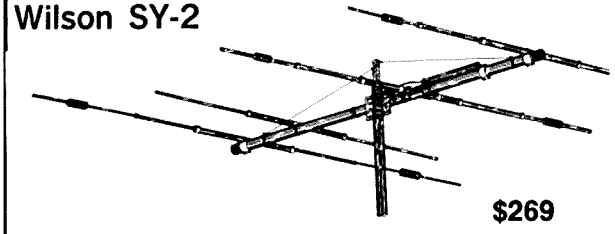
OSKERBLOCK

SWR-300 Power Meter	$111
SWR-200B Power Meter	$84
Couplers 6m and 2m	$30
Couplers 0.7m	$39

ROTATORS

Commander FU400 Rotator	$117
Rotator Power Supply	$22
Mast Clamps	$11 (set x 2)
6-core Rotator Cable	$1.00m
Coaxial Cable RG 8/U Low Loss	$1.30m

Wilson SY-2



$269

Delivers outstanding performance on 20, 15 and 10 metres. Features Wilson's large diameter High-Q Traps, feeds with 52 ohms coax, a beta match method presents tapered impedance which provides most efficient 3 band matching and DC ground to eliminate precipitation static. The result is SWR less than 1.5 to 1 at resonance on all bands and maximum front-to-back. An added feature is the separate 10 metre reflector for correct monoband spacing. Add to this the rugged boom to element mounting, heavy duty taper swaged elements.

EMONA electronics

MAIL ORDERS: Box K21, Haymarket NSW, 2000, Australia

WRITE, PHONE OR CALL IN!

DTR 20001 DENTRON

$1459

Compatible with most exciters, the DTR-2000L was designed within a series of Amateur amplifiers spawned by the MLA-2500. These amplifiers have been tested and proven in every imaginable situation folks could put them through; from rare DXpeditions to medical research labs. Not to mention ham shacks the world over.

The DTR-2000L will cover most MARS frequencies just outside the Amateur Bands. (With proper coil top changes and band switch modification, the unit will also cover the 10 metre amateur band.)

● Modes: USB, LSB, CW, RTTY, SSTV ● Power Requirements: 234/117V AC 50/60 Hz ● RF Drive Power: 125 Watts maximum and 65 Watts RMS minimum for 1 kW DC input ● Frequency range 1.8-30 MHz ● DC Plate Voltage: SSB (Idle + 2600V approximate), CW (Idle + 1800V approximate) ● Duty Cycle: 100% at full power ● Input Impedance: 50 ohms nominal + Input VSWR: 1.5 to 1 average ● Output Impedance: 50 ohms nominal ● Antenna boad VSWR: 3 to 1 maximum ● ALC: negative going, adjustable from rear panel ● Spurious Emissions: IMD, greater than 30 dB down; Harmonics, greater than than 40 dB down ● FCC Type Accepted ● Size: H. 7¼ in. x W. 14½ in. x D. 14½ in. ● Weight (including 8877): 54 pounds ● Packaged in 5/8 in. hardwood crate.

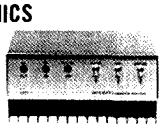
MT-3000A DENTRON

$447

Specifications:

● Power handling capability in excess of 3 kW PEP ● Front panel antenna switch with 5 antenna plus tuner bypass position ● Built-in 50 Ohm 250 Watt dummy load ● Dual Watt-meters ● Compact: 5½ in. x 14 in. x 14 in., 18 pounds ● Continuous tuning 160-10 metres ● 3 core heavy duty balun.

LUNAR ELECTRONICS MODEL HF3-100L 2 DUAL POWER BI-LINEARIZED HF AMPLIFIER



● Full 80-10m broadband coverage ● Full 100 watts output AM (150-200 watts PEP on SSB ● Dual power: Selectables S/10 watt input power ● Operating modes: AM, FM, CW, SSB, RTTY, SSTV ● Broadband — requires no tuning across band ● Harmonic levels typically —50 dB or better (see specifications) ● RF actuated switching relays ● Full VSWR and reverse voltage protection ● Extra stabilization circuitry ensures spurious-free operation at all input power levels ● Under 1 dB insertion loss in receive or bypass mode ● Remote control capability ● Receive pre-amp nominal 18 dB gain across band.

$225

LUNAR ELECTRONICS 28-432 LOW NOISE FIGURE RX PREAMPLIFIERS AVAILABLE

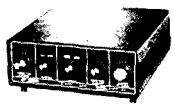
"DEDICATED TO MAKING AMATEUR RADIO MORE FUN"

MLA-2500B DENTRON

$1199

● 160 through 10 metres ● 2000 + watts PEP input on SSB ● 1000 watts DC input on CW, RTTY or SSTV Continuous Duty ● Variable forced air cooling system ● Self-contained continuous duty power supply ● Two EIMAC 8875 external-anode ceramic/metal triodes operating in grounded grid ● Harmonic Suppression better than 50 dB ● Built-in ALC ● Built-in RF Wattmeter ● 117V or 234V AC, 50-60 Hz ● Third order distortion down at least 30 dB ● Frequency Range: 1.8 MHz (1.8-2.5), 3.5 MHz (3.4-4.6), 7 MHz (6.0-9.0), 14 MHz (11.0-16.0), 21 MHz (16.0-22.0), 28 MHz (28.0-30.0) ● 40 watts drive for 1 kW DC input ● Size: 5¼ in. H. x 14 in. W. x 14 in. D. ● Weight: 47 lbs.

MT-2000A DENTRON

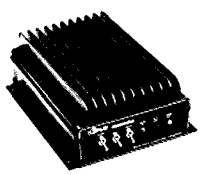


$270

Specifications:

● Continuous Tuning 1.8 to 30 MHz ● Styled to match the MLA-2500 and up-coming DenTron Transceiver, Receivers and Transmitters ● Front Panel grounding switch for your antenna system ● Antenna inputs: Coax unbalanced, SO-239 Random Wire, ceramic feedthrough, Balanced line, two ceramic feedthroughs, tuned feeders 75-660 ohms ● Handles a full 3 kW PEP ● Built-in *heavy duty* 4 to 1 *balun*, 3 *cores* ● *Ceramic* rotary switch 18 position, 12 amp capacity ● Capacitor Spacing 6000V ● low profile styling 5¼ in. x 14 in. x 14 in. ● Weight 16 lbs.

LUNAR ELECTRONICS BI-LINEAR VHF AMPLIFIERS



Model, Frequency: 6M3-50P, 50 MHz; 6M10-120P, 50 MHz; 2M10-80P, 144 MHz; 2M25-150P, 144 MHz; 2M30-160P, 144 MHz.

Linearized — accepts all modes.

● Low power input yields nom. 9-10 dB gain ● Covers entire amateur band w/o tuning ● Built-in receive pre-amplifier ● Automatic T-R switching ● ICAS ratings apply ● Exceeds FCC R & O 20777 requirements of —60 dB ● Variable T-R delay for SSB/CW use ● Pre-amp and power amp independently controllable ● Pre-amp nom 9 dB gain 2½ dB overall NF ● Functionally designed package including mounting lip ● One year warranty — 90 days on power transistors ● Models available for the 148-174 MHz bands, 5 MHz segments ● Other models, including 432 MHz band, coming soon.

ANTENNA ROTATOR

Medium-sized Ham Antenna Rotator — FU 400. Constructed for long trouble-free operation, 200 kg vertical weight capacity. Extra heavy duty disc brake that prevent windmilling.

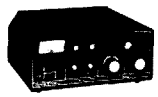
$117

Approved Power Supply $25

Additional Mast Clamps $11

DENTRON CLIPPERTON-L

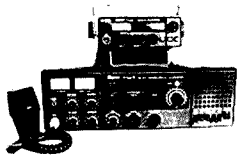
$879



Clipperton-L delivers 2000 watts PEP input on SSB and 1000 watts DC input on CW, RTTY or SSTV; all continuous duty. All good reasons to take a Clipperton-L along on your next adventure!

● New Feature: HI-LO power switching ● 160 through 15 metres 10 metres ● 2000 watts PEP input on SSB ● 1000 watts DC input on CW, RTTY or SSTV ● Forced air cooling ● Self-contained continuous duty power supply 2500V idle SSB - 1800V idle CW approx. ● 4-572 B Triodes operating in grounded grid ● 50 ohm input impedance unbalanced at better than 1.5 to 1V SWR ● 50 ohm output impedance ● Harmonic Suppression: meets or exceeds FCC requirements ● Built-in ALC (adjustable) ● Easy changed 117V or 234V AC 50-60 Hz ● Meter (illuminated) for plate voltage or plate current ● Size: 6 *in. H. x 14½ in. W. x 14½ in. D.* ● Weight 42 lbs.

FDK BIGEAR TRANSCEIVER Type2



2m FM PLL SYNTHESIZED MOBILE TRANSCEIVER

● 144-148 MHz. PLL digital synthesizer system (800 channels) ● A large-sized LED, digital display system provides readings up to six figures ● Easy-operating separate and selective mechanism displayed by the frequency unit for wider operation ● Transmitting output: 25W/1W, two-step selector switch ● Provides repeater operation of ± 600 kHz and desired frequency ● RF output with S meter indicator.

$375

MIZUHO RF PREAMPLIFIERS FOR 3-30 MHz BAND

MODEL SX-59 FOR USE WITH TRANSCEIVERS

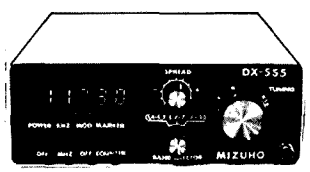
Specifications:

Frequency range 3.30 MHz in 3 bands; 3-7, 7-14, 14-30 MHz ● Gain 20 dB nom. (at 7 MHz), front panel variable control ● Attenuator, 20 dB attenuation selectable from front panel control ● Imped. 50 or 75 ohm systems, UHF connectors on rear panel.

MIZUHO DX-555D COUNTER-GENERATOR

NEW Counter-Generator.

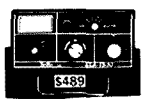
Two vital pieces of test equipment in one.



Counter: 5 digit display, 7 digit readout capability. 10 Hz to over 230 MHz. Input level 20m Vrms to 5 Vrms (Prescaler 200m Vrms to 2 Vrms). Base oscillator beats directly against WWV.

Generator: 440 kHz to 30 MHz in 3 ranges. Output displayed on counter and available at jack on rear panel 600 Hz modulation for AM receivers.

DENTRON GLA-1000 1 kW AMPLIFIER

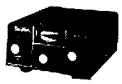


Specifications:

● Size: 5-3/8 *in. H.*, 11 *in. W.*, 11 *in. D.* ● Weight: 24 lbs. ● Electrical — Power Consumption: 117V AC 50/60 Hz 12.5 amps; factory fused at 15 amps; 234V AC 50/60 Hz 7 amps; recommended fuse, 10 amps ● Frequency Coverage: 80 metres (3.45 to 4.3 MHz; 40 metres, 6.950 to 7.5 MHz; 20 metres, 13.950 to 14.5 MHz; 15 metres, 20.950 to 21.350 MHz; 10 metres, 28 to 30 MHz ● RF Drive: Max. 135W for 1 kW input ● DC Input: 1 kW CW, 1200W PEP SSB ● Input Impedance: 50 ohms 1.5 : 1 VSWR APX ● Spurious Emissions: Ind better than 30 dB, harmonics down better than 40 dB ● Components: 4 — D50-A tubes; 6 — Diodes ● FCC type accepted.

$489

DENTRON JR. MONITOR



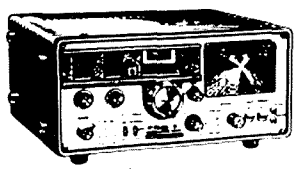
$104

Call it what you will — antenna tuner, transmatch, *matchbox, or matching network*, the JR. MONITOR has it all wrapped up in one neat 5¼ in. W. x 2¾ in. H. x 6 in. D. all-metal cabinet.

Specifications:

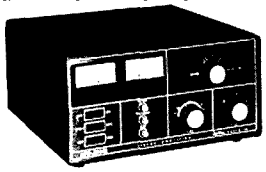
● Continuous tuning 1.8-30 MHz ● Forward reading relative output power meter ● 300 watt power capability ● Built-in encapsulated *balun* ● *Mobile mounting bracket* ● Ceramic Rotary Switch 12-position ● Capacitor spacing 1000 volts ● Antenna inputs: (a) Coax unbalanced SO 239; (b) Random wire; (c) Balanced feed line 75-660 ohm ● 5¼ in. W. x 2¾ in. H. x 6 in. D. ● All metal black wrinkle finish cabinet ● Weight: 2½ lbs.

FRG-7 GENERAL COVERAGE COMMUNICATIONS RX



$315

FRG-7000 GENERAL COVERAGE DIGITAL COMMUNICATIONS RX



$595

DR-48 AM-SSB-FM GENERAL COVERAGE RECEIVER

$476

WRITE FOR OUR LATEST HAM-RADIO EQUIPMENT CATALOGUE

CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

May:

12/13 (2100Z-2100Z) USSR CQ-M CONTEST ALL BAND RS(T) + QSO NR

19/26 MICHIGAN ACHIEVEMENT AWARD AND QSO PARTY

26/27 (0000Z-2400Z) CQ WPX CW CONTEST RULES, JAN. CW MAG.

June:

1/4 (2300Z-0600Z) CERTIFICATE HUNTERS' CLUB QSO PARTY
Details Allen VK2AIR, QTHR, SASE PSE.

16/17 ALL ASIAN PHONE CONTEST

23/24 ARRL FIELD DAY

July:

14-15 IARU RADIOSPORT CHAMPIONSHIPS

MICHIGAN AWARD & QSO PARTY

DX stations work at least one Michigan station. Submit log information, including name and address of station worked and relate a fact about Michigan given by the station worked. Send to Governor William Milliken, Lansing, Michigan 48902, no later than July 1. QSO part 19-21.

THE OOPS I REALLY GOOFED IT DEPARTMENT

The 1976 Remembrance Day results. Please change:
VK5 Open — VK5ALC to VK5NLC.
VK6HK from Phone to Open.
VK3 Phone — VK3AVQ to VK3AUQ.
Add to VK2 Phone VK2BMX 325.
My apologies to all concerned.

John Moyle National Field Day results will be published next month along with the latest points lor the contest champion trophy.

A thought to those running classes for an amateur examination. During the doldrums between exam and results keep the class together by giving instruction in operating a station and how to join in contests and how to keep a tidy and well presented log!

6 METRE SMIRK PARTY CONTEST

With the excellent showing put up by 6 metres so far the annual SMIRK Party Contest could bring some six metre operators out of the woodwork.

Whilst the contest award winners must be a SMIRK member, the contest provides non-members a chance to contact SMIRK members and may provide some with the incentive to become a SMIRK member.

The aim of the contest is to promote world-wide six metre operation.

The contest takes place on the 2nd June and runs from 0000 GMT to 2400 GMT.

Contacts by members with non-members count 1 point.

Contacts between SMIRK members count 2 points each.

The score obtained is the total number ol points multiplied by the number of countries, US states and Canadian provinces worked.

The contest exchange information is: Call sign, country or US state or Canadian province, SMIRK number.

Log sheets and rules as well as SMIRK information may be obtained by an SASE to Ray Clark K5ZMS, 7158 Stone Fence Drive, San Antonio, Texas 78227.

If you have worked three SMIRK members already you can obtain a SMIRK number by sending $US4 to Ray Clark at the above address enclosing log details and SMIRK numbers of the stations worked.

An opening to Japan, the Pacific, or the USA would really make this contest an exciting event. ■

Bob Arnold VK3ZBB

ORBIT PREDICTIONS — JUNE 1979

Date	OSCAR 8			RUSSIAN RS.1		
	Orb. No.	Eqx Z	Eqx °W	Orb. No.	Eqx Z	Eqx °W
1	6310	0136	68	2606	0135	224
2	6324	0141	69	2618	0139	227
3	6337	0003	45	2630	0144	230
4	6351	0009	46	2642	0149	233
5	6365	0014	48	2654	0153	235
6	6379	0019	49	2666	0158	238
7	6393	0024	50	2677	0002	210
8	6407	0029	52	2669	0007	213
9	6421	0034	53	2701	0012	216
10	6435	0040	54	2713	0017	219
11	6449	0045	55	2725	0021	221
12	6463	0050	57	2737	0026	224
13	6477	0055	58	2749	0031	227
14	6491	0100	59	2761	0035	230
15	6505	0106	61	2773	0040	232
16	6519	0111	62	2785	0045	235
17	6533	0116	63	2797	0050	238
18	6547	0121	65	2809	0054	240
19	6561	0126	66	2821	0059	243
20	6575	0131	67	2833	0104	246
21	6589	0137	69	2845	0108	249
22	6603	0142	70	2857	0113	251
23	6616	0004	45	2869	0118	254
24	6630	0009	47	2881	0122	257
25	6644	0014	48	2893	0127	260
26	6658	0019	49	2905	0132	263
27	6672	0024	51	2917	0137	265
28	6686	0030	52	2929	0141	268
29	6700	0035	53	2941	0146	270
30	6714	0040	55	2953	0151	273

RS.2 is 40 min. after RS.1

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

"WICEN" EXERCISE AIDS CANOE CLUB

On Saturday, 17th February, 1979, the WICEN Group of the Summerland Amateur Radio Club assisted the Nymboida Canoe Trust to conduct its world class wild water races at Nymboida. The WICEN (Wireless Institute Civil Emergency Net) operated a safety and surveillance radio net over the 3 km down river race course. Seven members operated a net control station at the powerhouse and two sub-stations with a portable link downstream. Two VHF frequencies were used and a HF link was established to interstate operators.

The net provided a safety and control function for the organisers to monitor the progress of over 40 competitors and to quickly locate those who had mishaps or went missing. For the operators, the exercise provided training in net operation and message procedure, the accuracy and speed of which is essential in emergency situations. WICEN operators and their equipment are available for emergency service at the request of authorities such as police or SES. Summerland WICEN operators participated in the recent National Disaster Organisation's Australia-wide communications exercise. More WICEN operators are needed and any interested licensed amateur operator may contact Mr. Leith Martin VK2EA (phone 21 3594) for details. The Summerland Amateur Radio Club is again conducting instructional classes for anyone interested in gaining an amateur licence. If interested, please contact Mr. Bill Cross VK2BCW (phone 21 6001) after hours for details. The Club is currently working on new clubrooms at Goonellabah, and hopes to have the Club station VK2AGH operational soon. The Club also operates a repeater, VK2RIC, from near Lismore, which gives VHF coverage from north of Brisbane, west to Tenterfield, south to Taree, and sometimes to Sydney or further, depending on weather conditions. (Information supplied by J. Alcorn VK2ZNC/NSA, Publicity Officer, Summerland Radio Club.) ■

Awards column

Bill Verrall VK5WV
7 Lilac Ave., Flinders Park, SA

WAVKCA (VHF) AWARD

During March, I issued award No. 12 to VK2ZHF and I wish to congratulate John on a fine effort in obtaining confirmations for the required 22 QSOs on 52 MHz, including VK0WW from Macquarie Island and VK9ZNG from Norfolk Island in 1975. Since this award was created, presumably in late 1972 the 12 awards have been issued to the following:—

No. 1	VK3AQR	1-1-73.
No. 2	VK3ZNJ	1-1-73.
No. 3	VK3ZGP	26-1-73.
No. 4	VK3AMK	22-2-73.
No. 5	VK3AOT	4-3-73.
No. 6	VK5ZWW	18-4-73.
No. 7	VK3BFG/T	10-7-74.
No. 8	VK3ZAZ	29-7-74.
No. 9	VK2HZ	17-4-76.
No. 10	VK3KK	7-3-77.
No. 11	VK2ZNS	17-12-78.
No. 12	VK2ZHF	3-3-79.

It is significant to note that only 12 awards have been issued in six years and, except for No. 6, all have gone to VK2 and VK3. No VHF operators in the other VK call areas have been successful in obtaining this award.

I have come to the conclusion that other VHF operators are just not interested in this award because the rules are far too restrictive and the required VK0 and VK9 QSOs are now virtually impossible to obtain. We have lost VK9 TPNG, our principal source of VK9 OSOs, now that country is independent, and if there was any more activity from Macquarie Island, this would favour only VK2, VK3 and VK7. It is highly unlikely that there will ever be another VHF operator as keen as VK0WW on Macquarie Island. It is now most difficult to even entice ham operators to come up on HF from Macquarie to satisfy world demand for this country.

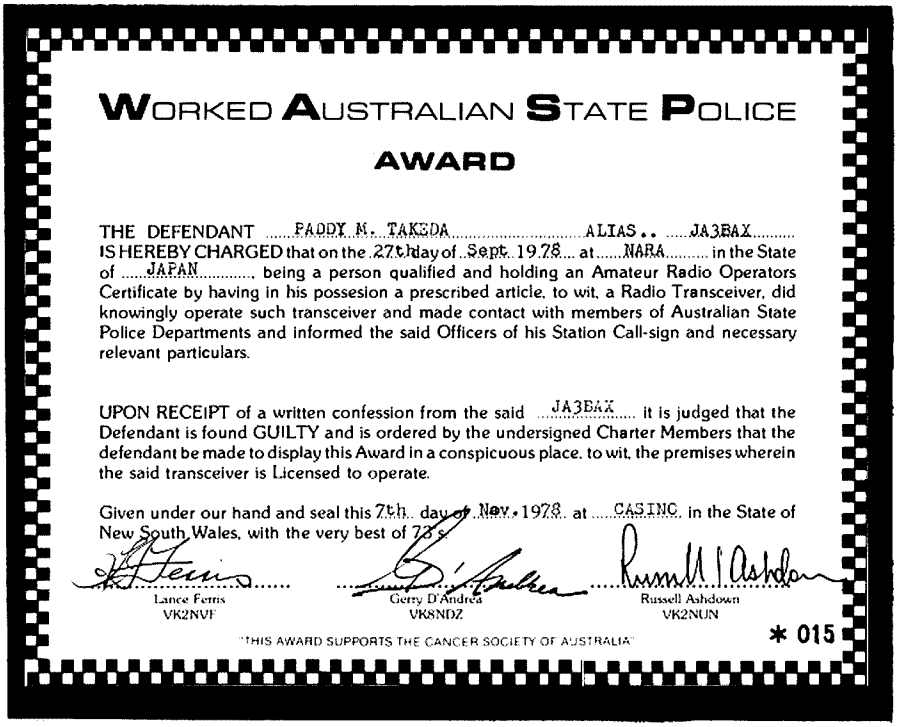
Furthermore, there will be no activity from Heard Island in the forseeable future, so that rules out the possibility of a VK0 VHF QSO even for the VK6s.

There are hundreds of VHF operators within our ranks who are just as keen as those who have been successful in obtaining the WAVKCA (VHF) Award but will never now be able to qualify for this award because of their locations and the lack of opportunity to work VK0 and VK9. In my case I could have qualified for this award back in the early sixties if it was not necessary to work VK0. However, I have several 6 metre QSLs from JA and ZL!

I am unable to determine the reasons why the WIA should have created an award with such difficult and restrictive rules. As there have been only 12 awards issued in six years, it is not worth retaining the WIA awards programme and in my opinion should be deleted. All ham operators throughout VK and its territories must have an even chance to qualify for all awards issued by the WIA.

There are alternatives. We could change the rules to allow operators from VK0, VK1 and VK4-9 a chance to qualify. One idea is to include a rule that a total of four (say) confirmed QSOs are required from any VK0, VK8 and VK9. Then it would be possible to qualify with four confirmed VK8 OSOs. Another idea would be to introduce a point scoring system so that VK0 and VK9 would count for more points than any other VK call area.

Personally, I am in favour of deleting the WAVKCA (VHF) Award from the WIA awards programme. The standard WAS/VHF award with its provision for endorsement for additional countries confirmed adequately covers all VHF operators in VK. Are there any comments before I close off the records?



WORKED AUSTRALIAN STATE POLICE

AWARD

THE DEFENDANT FADDY M. TAKEDA ALIAS.. JA3BAX
IS HEREBY CHARGED that on the 27th day of Sept. 1978 at NARA in the State of JAPAN, being a person qualified and holding an Amateur Radio Operators Certificate by having in his possesion a prescribed article, to wit, a Radio Transceiver, did knowingly operate such transceiver and made contact with members of Australian State Police Departments and informed the said Officers of his Station Call-sign and necessary relevant particulars.

UPON RECEIPT of a written confession from the said JA3BAX it is judged that the Defendant is found GUILTY and is ordered by the undersigned Charter Members that the defendant be made to display this Award in a conspicuous place, to wit, the premises wherein the said transceiver is Licensed to operate.

Given under our hand and seal this 7th day of Nov. 1978 at CASINO in the State of New South Wales, with the very best of 73's

Lance Ferris VK2NVF — Gerry D'Andrea VK8NDZ — Russell Ashdown VK2NUN

"THIS AWARD SUPPORTS THE CANCER SOCIETY OF AUSTRALIA"

* 015

WASP (worked Australian State Police) Award

WORKED AUSTRALIAN STATE POLICE AWARD

OBJECTS
The award is created to further goodwill and public relations between police amateur radio operators of the Australian States and amateur radio operators in all countries of the world.

All profits from the award are forwarded to the Cancer Society of Australia and are channelled into cancer research.

TO QUALIFY
The award is known as "Worked Australian State Police Award" and is issued to any amateur radio operator who satisfies the following conditions:—

1. Contact with two different police officers in any of the Australian States by any mode on any amateur frequency. One of these contacts must be with a charter member.

2. The contacts to be a minimum of 24 hours apart unless the police officers are residing in different States of Australia at the time of contact.

VERIFICATION
Verification is required for the stations worked in the way of submission of an accurate copy of the applicant's log particulars listing only the two qualifying stations worked.

SWLs
Short wave listeners are also invited to apply for the award.

APPLICATIONS
Applications should be addressed to WASP, PO Box 404, Casino, NSW 2470, Australia.

The award is attractively printed on high gloss white card with the background in light blue and letters and edging in dark blue with a buff surround. The awards were printed by Thomson's Printing, 401 Kiewa Street, Albury, NSW, and the result is a very high standard.

A fee of $4 should accompany applications for this award. This covers the costs of the award, postage and handling charges. Part of this fee is distributed to the Cancer Society of Australia.

Good Hunting.

THE SOVEREIGN HILL AWARD
A new award is offered to radio amateurs, on 10 metres. Called the "Sovereign Hill Award", it commemorates the foundation of the Sovereign Hill Historical Park in Ballarat, Victoria — VK3 — the scene of the great gold rush of the 1850s. Sovereign Hill is a fully operational gold mining town; 66 acres of careful restoration.

The award will be available from Saturday, 12th May, 1979, on which date the Sovereign Hill amateur radio station will commence transmission from the grounds of Sovereign Hill.

THE AWARD
This is a large — 305 mm x 210 mm — full colour, glossy, double-weight photograph of a scene in Sovereign Hill, embossed.

CONDITIONS
To obtain the award it is necessary to contact five of the award "Charter" stations on 10 metres. One of these contacts must be a local station, which will be designated by the letter "S" following the charter number. All other stations outside Ballarat will have the letter "A" after their charter number. As an example, the award could be won by contacting one "S" station and four other "A" stations anywhere in the world. All amateur stations, on obtaining the award, will be given an "A" number, which may be passed on to other amateurs desiring the award. The requirement of one local "S" station remains. The cost of the award is $2 — two dollars — US, or equivalent, which includes airmailing to the recipient.

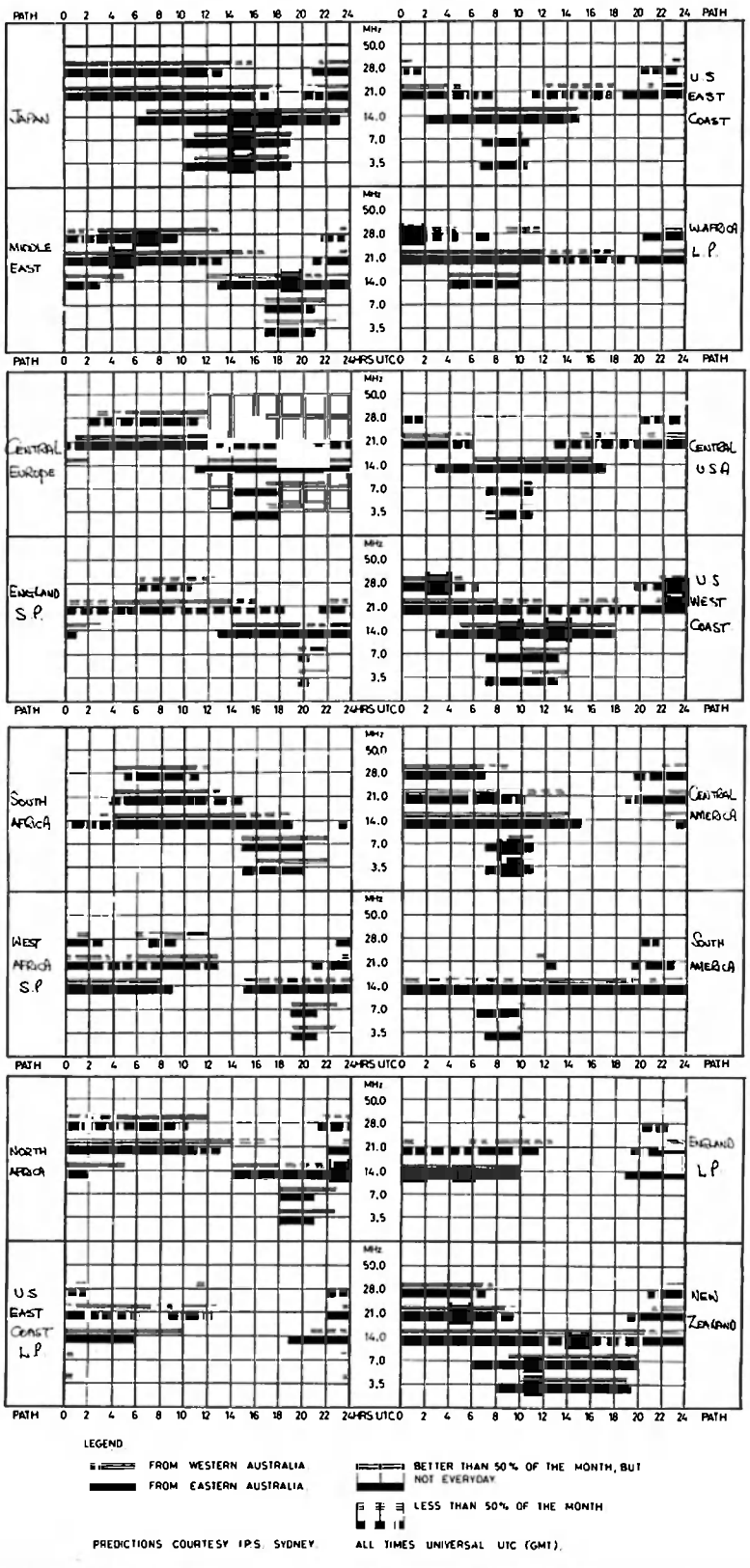
FREQUENCIES AND TIMES
The Sovereign Hill station will transmit on public holidays and selected week-ends, on a frequency of 28.530 MHz, plus or minus QRM. Any contact with this station will count as two "S" contacts towards the award. All subsequent contacts with the "base" station will also count as two contacts, providing they are not made on the same day. All other contacts, both "S" and "A", will count as one. There will also be a transmission on the same frequency each Sunday at 0000 GMT — Saturday USA — in conjunction with the Welcome Stranger Ten-Ten Net; this will count as one contact. Other contacts may be made anywhere in the 10 metre band.

This is a beautiful, high quality award, suitable for framing.

Awards applications and further information, write to Leo McPherson VK3NIQ, PO Box 247, Ballarat East 3350, Victoria, Australia. ■

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



INTERNATIONAL NEWS

Extracts from a paper prepared by IARU Headquarters for the Region 2 Conference in Panama last September might be found interesting.

"Most amateur radio activity takes place in the bands between 1.8 and 148 MHz, with a growing amount also in the 420-450 MHz band now that the OSCAR satellites operate there. The heaviest concentration of stations is in the 3.5, 7, 14, 21, 28 and 144 MHz bands. Therefore, most amateurs tend to regard our allocations needs in and between these bands as being of prime importance. They reason that it is these allocations which will bear the greatest burden of occupancy as the Amateur Service, world-wide, continues to grow past its present number of stations, approximately one million.

However, the amateur activity which takes place on other frequencies is also of great importance to all amateurs, and those allocations must be defended and, in some cases, expanded. Here is why this is important to all amateurs, not just to the experimenters and others who operate there today:

As the technical state of the art improves, the upper limit of frequencies which can be used for every day amateur communication moves ever higher. The 420-450 MHz band is a good example. Just one or two decades ago, the communications range on this band was limited by the rather poor equipment and antennas which were then available. With the advent of low-noise, solid-state receiving devices and more efficient antennas, amateurs found that they could operate here just about as well, and in some cases even better, than they could at 144 MHz. Today in Europe, amateur stations with reliable working ranges of more than 400 km at 432 MHz are commonplace, and the band is supporting much activity which otherwise would have to take place in the overcrowded 144 MHz band.

Amateur satellites hold the promise of intercontinental communication at VHF, UHF, and even higher frequencies, thus easing the burden on the overcrowded HF bands. A particular need is for allocations to the Amateur-Satellite Service between 438 MHz and 24 GHz, where no allocations now exist. Without access to one or more of the amateur bands at 1215, 2300, 3300, 5650, or 10,000 MHz, the potential of amateur satellites will be limited to whatever can be attained in the 435-438 MHz band and in small segments of the 28 and 144 MHz bands.

Amateur experimentation lends prestige to the service, and demonstrates that amateurs are not just hobbyists who engage in idle chatter. Many of the decisions affecting the Amateur Service, both internationally and domestically, are made by administrators who have a strong technical background. They are likely to be more sympathetic to the Amateur Service if they can be shown that radio amateurs share their professional interests, only as an avocation. Perhaps they will even want to become amateurs themselves! In the past, technological breakthroughs which were discovered or popularized by radio amateurs have won us many friends in the scientific, political and military communities. ■

DIVISIONAL NOTES

VK2

STOLEN EQUIPMENT REGISTER

The NSW Divisional Office is currently compiling a list of radio equipment stolen or lost. Other State Divisions, amateurs and radio users are invited to write to The Secretary, WIA NSW Division, PO Box 123, St. Leonards, NSW 2065, with the following details on stolen or lost gear:

1. Brand name/manufacturer.
2. Type number of equipment.
3. Serial number of equipment.
4. Type of equipment.
5. Date and time stolen or lost.
6. Police station reported to.
7. Owner's name and call sign.
8. Owner's address.
9. Distinguishing features on the equipment.

With a comprehensive listing, purchasers of "second hand" gear of doubtful origin can ring the NSW office during normal hours (10 a.m.-2 p.m. Tuesday and Thursday) to check with our files before completing the transaction.

Through this service we hope to be able to track the interstate or intrastate movements of stolen radio equipment, and hopefully find the people responsible for its theft and distribution.

As details are received, these will be passed on in small groups to AR for inclusion in the Hamad Stolen Equipment Section. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

FT227RA 2m synthesised 10W mobile with four memories, up/down scanning, digital readout, four month old, as new, $350; IC215 2m 3W unit fitted with repeaters 2-8 and reverse 2, simplex 40, 49, 50, 51, 52, 53 Victor, includes nicad battery pack w/charger, flex. helical whip, car mounting cradle, good cond., new price about $390, sell for $250, ONO. VK3YJO, QTHR.

ICOM IC202 2m SSB/CW Transceiver, Oscar crystal and pre-amp, $140; ICOM IC502 6m SSB/CW Transceiver, as new, $175; TRIO CO-1303A Oscilloscope, $170; all with manuals and cartons. Ron VK3BRM, ex VK3ZER, QTHR. Ph. (03) 465 6769.

Philips-TMC UHF Radiotelephone, type SC9 5/470, new, complete with detailed handbook, suitable for use as a transceiver or repeater station, same unit is currently being used for Wollongong VHF repeater, further information available, at cost including rocks, $85. Brian VK4ST. Ph. (071) 91 1172.

Kyokuto 2m FM Transceiver, 800 channels, fully synthesised, ¼ wave aerial, manual, microphone and mobile mounting bracket, $300. VK5NJ, QTHR. Ph. (08) 276 6908.

DC200 12V supply for FT200 Transceiver, $120 or offer to Box 35, Daw Park 5041, S. Aust. Ph. (08) 276 4547.

Kenwood TS-820 with digital readout, DC-DC converter, new tubes, AIWA mic., instr. manual, $995. David VK2NOB, QTHR. Ph. (02) 476 1048.

$1,000 will put you on 2m and 6m with "as new" gear; Kenwood TS 700A and 600A units, excellent order, $1,000 the pair of $550 each. VK3GM, QTHR. Ph. (053) 49 2028 A.H.

Stereo Amplifier, solid state, Realistic SA-10, as new with manual; cost $36, sell $15. Ph. (03) 059 84 1588.

ICOM IC22A, with 22 sets xtals, repealers 1 to 8, anti-repeaters 1 to 8, simplex 40, 49, 50, 51 and aux. ATV liaison channel, deviation meter, ext. speaker, 2N6084 class C amp. in diecast box, 3 homebrew beams, 16 el. collinear, 5 el. parasetic and 4 el. quad, $300 the lot or near offer. VK3ATK, QTHR. Ph. (03) 570 2184.

Super Panther, 18 ch. multi-mode, with ant. and HB, also orig. 22 ch. SW and PT mic., sale to licensed amateurs only, $120, ONO; also 18 ch. SW suit electrophone, $6. VK3ZCO. Ph. (03) 45 2506.

Barlow-Wadley XCR-30 Rx, v.g.c., $200; xtal locked ULF conv. 10-500 kHz, 7 MHz IF, $20; telecommunications stacked J pole, 6 dB omni, 9 dB dire, suit 435 MHz, 50 ohms, $45; Redline stepdown trans., 230-110V, 1500VA, $35; home brew linear amp. 2 x 6JG6A (plus spare), 15-10m, 12V DC, 100W, $100; plus ASS mags and books. Ph. (03) 546 3940 A.H.

Ten-Tec 544 Transceiver with external power supply, as new and genuine reason for selling, $1,050. Ralph VK5NRD, Regency Park College, Regency Park 5010, SA, or Ph. (08) 46 6260.

Heathkit HW101 SSB tcvr with power supply, Heathkit (HP23B) mic. and speaker, $380; SWR power meter, $20; RF clipper, $45; audio generator, $30; Drake SSR1 Rx as new, $275; frequency meter, 125-20000kC (mains power supply), $40; valves from $2 to $11.50 ea.; Heathkit tube checker, model TC2, $35; Heathkit UTVM, mains power supply, $25; Heathkit grid dip meter, $35; Mecca 23 ch. CB tcvr BCB-6, $20; various xtals, $3 to $10 ea. VK3ABD, QTHR. Ph. (03) 89 9946.

Tri-Band Beam Hygain TH3JR, as new, $170, ONO. VK3NMJ. Ph. (03) 550 4203.

Hygain 14AVQ, 40-10m, trapped vertical, good cond., $45. VK3UV, QTHR. Ph. (03) 90 6424, A.H.

Yaesu FR50 Rx, 80-10m, AM-CW-SSB with WWV and 100kC calibrator, and FL50 Tx 80-10m SSB/CW 60W O/P with mil., handbooks and also FV50 ext. VFO for Tx, all complete and good cond., would suit Novice use, $300; also IC502 6m SSB Tcvr, S&C with 4 el. quad, $160. L. White, 30 Oaklands Pde., East Brisbane 4169. Ph. (07) 391 6160.

Swan 350, 117XC power supply, good cond., working order, manual, new set of valves in Tx, recently overhauled, $350. VK2NYD. Ph. (047) 51 1864.

FRG7 Comm. Rx, 4 months old, mint cond., $250; will deliver Victoria. Ph. (051) 58 1231 evenings.

Amateur Station just over one year old only, latest Swan hybrid Tcrv 750-CW/SS-16B, Tx 550W PEP/360W CW, 3.5 to 30.0 MHz, with ultra selective 16 pole SSB IF filter, shape factor of 1.28, active 80/100 Hz CW filter, 25 or 100 kHz xtl calib., CW oudio sidetone, VOX or PTT, with power supply, speaker unit model 230XC, Shure 444 deck mic., handbooks and comprehensive Swan kit of support spares included; this Tcvr as new, proven exc. performer, replacement cost around $1,300, but will sell for $1,100, ONO, buyer paying freight onwards (4 packets). VK2BFJ, QTHR. Ph. (043) 32 5758.

New, unused, solid state test equip., Trio RF sig. gen. SG-402, serial 440027, 100 kHz to 30 MHz in 6 bands, $100; Trio audio sig. generator AG-202A, serial 450392, 20 Hz to 200 kHz in 4 ranges, $135; Hansen 27 MHz Tx/Rx tester, model FS-117, useful for CB tcvr fault finding, $40; all in original factory cartons, surplus to present requirements; please add extra for postage or freight. VK2BFJ, QTHR. Ph. (043) 32 5758.

Teletype Model R038, receive only hard copy printer/terminal, as new cond., currently used as line printer to LSI-11, $950. Please contact Ted Rigby. Ph. (042) 28 6811, 9 a.m.-5 p.m.

Two W2AU Quad Hubs, new, $20. VK3NMJ. Ph. (03) 550 4203.

Yaesu FT620B 6m Transceiver with VC-75 VOX/voice controller, as new with handbook, $515. VK2DBJ. Ph. (02) 634 2451.

Yaesu FT200 HF Transceiver, late model, with Yaesu matching AC supply and speaker, instruction book, and heavy duty mobile DC supply, excellent cond., $385. VK3BGI. Ph. (052) 75 3154 A.H.

Electronic Keyer, Dick Smith Type, with inbuilt paddle, $40; also Hidaka vertical antenna with 80m extension, $80; both as new. VK3BCT, M. Smith, 5 Glenlern Ave., Doncaster. Ph. (03) 850 2238 after 6 p.m., or Bus. (03) 546 8866.

Superhet. Rx, Siemens 170-5000 MHz in 7 bands, c/w manual, useful for determining antenna radiation patterns, etc., $200; Siemens capacitor unbalance test set, superb lab. instrument, must be seen, c/w manual, leads, etc., $70; Varian Rubidan freq. standard 5, 1, 0.5 MHz, $100; pulse echo test set, very comprehensive unit with 6 in. dual beam CRT, pulse amp. 9 steps 2ch. 100 kC and 30 MHz, time base 0.5 to 150 u seconds, $175; battery charger, constant potential rectifiers, a few types 50V at 3, 6 and 10A, price on application; Stabilac voltage stabiliser O/P 240V at 11A, $60; counters, PMG 50V type, in banks of 30, $5. VK3ZN. Ph. (03) 557 6031, (03) 41 2934 Bus.

Yaesu FT250 2m Transverter, $275; YO101 monitorscope, $300 (both 4 months old, never used); FV101B ext. VFO for 101E, $100; YC601 digital readout for 101E, $200. Ph. (02) 888 2475.

Trap Dipole, RAK Midy-Vn, 80 through 10m, assembled and tuned to resonance on all bands, excellent cond., $70. VK3NOA, Box 79, Heidelberg 3084. Ph. (03) 45 1731.

Regulated Lab. PSU, improved EA design, plus and minus 0-20V 1.5A/150 mA or tracking V and I melers, professionaly built, $60; multimeter TMK 100R, $30; two 6KD6 PA valves, new, $8.50 ea.; two 20 ft. x 2 in. dia. alloy masts with nylon guys, pickets, hardware, $15 ea.; buyer collect. Denzil VK2BXF. Ph. (02) 888 2981 A.H.

Yaesu FT221R, exc. cond., rarely used, 2m FM, SSB, AM, 144-148 MHz, 600 kHz offset VOX, noise blanker, 25W PEP out., 240 AC/12V DC operation, xtal facilities, $600, ONO. VK3GX, QTHR. Ph. (03) 211 5289.

Comm. Rx DX-160, as new, $150! 6 only Pye mobile Tcvrs., FM, $40 the lot, xtals to convert to 27.88, 27.910, etc., $2 ea.; can also be conv. to 2 or 6 FM; B and K CB Servicemaster test eqpt. inst. manual, etc., brand new, cost $300, sell $150; Osker SWR-200, 1 kW, brand new, $65; Philips PM5509 CTV signal gen., has VCR patterns, as new, current cost $1,400, sell from $600; 2 only .001 10 kV Tx caps, $4 ea.; Trio TR-2E 2m Tcrv, cct. diags., $95; 6-9m Command Rx, $10; 52.525 FM carphone, goes OK, $26; STC hybrid carphone, 2m FM 25W, ch. 3, 40, and purdl, etc., $65; mic. and cradle and cct. diag., Pye carphone 6m tuneable Rx, $15; 3-6m Command Rx, $10; 40 ass. xtals, HC 6V to miniature types, 4-48m, $1 ea.; send for list of actual freqs.; Command Rx rack, takes 3 rec., $5; 2 and 6 m converters and power supply on same chassis, $10. Will freight. Write VK2ZBD, Box 16, Hawks Nest 2324. Ph. (049) 97 0383.

Repeater 2 xtals, suit AWA, Vinten, IGL, ICOM IC22A, Yaesu FT2, Ken Multi-7, etc.; have one set for each of above rigs, only $11 a set posted. VK3ZNC/NIC, QTHR. Ph. (051) 47 2368 A.H.

Comm. Rx Drake SPR4 Noise Blanker, 150 kHz-30 MHz, 160m 80-10m, SSB, CW, AM, $666, ONO. L30142, QTHR.

Atlas 210X HF Tcvr., SSB and CW, 80-10m, complete h'book, power cables, plugs and mic., $600. VK2APP, QTHR. Ph. (063) 83 6206.

Kenwood TR7400A VHF Tcrv., 800 FM chs., 144-148 MHz, 25/30W, complete with mic., mobile mount, power cable, h'book, built-in scanner, $400. VK2APP, QTHR. Ph. (063) 83 6206.

Kenwood TS520, AC-DC model, perfect cond., any trial, $615, ONO; Willis pi-coupler coll. $10. VK3PR, QTHR. Ph. (056) 62 2711.

Yaesu FTDX 400 Tcvr with adjustable effective noise blanker, spkr, cooling fan, second VFO, set of 19 spare valves and manual, $470; TR44 rotor and control unit, with manual, $80; MFJ (US) audio speech processor and manual, $25; all equipment clean, unmarked and in original working order. VK2AOU, QTHR. Ph. (02) 53 9789 A.H., (02) 807 0484 Bus.

Hallicrafters SX-28 Rx c/w spare valves and handbook, modified for SSB, well maintained and neat appearance, $110. VK4ES, QTHR. Ph. (07) 371 3451.

Swan 240, complete with power supply, 80m, 40m, 20m, in good working order, $180. VK3AVA, 8 Brennan Street, McKinnon 3204. Ph. (03) 578 2058.

Yaesu FTDX400 Transceiver, exc. cond., has SP-400 speaker, PTT mic. and superb "Magnum 6" RF speech processor designed for FTDX400, imported from USA, $525. H. Young VK7AR, Box 90, Devonport 7310.

TH6-DX Hy-Gain Beam, 6 el., 20-15-10m, 8 years old but good cond., new reflector to boom bracket, $150. Carl Bicknell VK3BCF. Ph. (03) 699 5433 Bus., (03) 347 4295 A.H.

Hy-Gain Long John converted 10m, 5 el. mono yagi, $100; 5 el. 15m mono yagi, $120; Hy-Gain, Hy-Quad 2 el. Tri-Band quad, $160; AIGA ART 3000C heavy duty rotator, $110; 50 ft. Hills tower, $100. VK7NCW, QTHR. Ph. (002) 28 1891 A.H., (002) 78 0777 Bus.

HF Tri-Band Yagi Mosley TA33JR, old but working, buyer collect, allow one hour to remove, $100. VK3WW, QTHR.

FT101B Transceiver, complete with mic. and handbook, $565; IC202E c/w mounting cradle, 3 months old, $210; 25W linear to suit, $60. VK3RD, QTHR. Ph. (03) 579 5272.

"Learning Morse Code", new commercially printed book, excellent value, $6.50 posted, with two C60 Morse cassettes. K. Wilson, WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

The Famous Novice Kit, contains Morse and theory, texts, tapes and 1000 typical exam questions, only $15 posted. K. Wilson, WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

Learning Morse? Need a set speed tape? You nominate any speed between 4-20 w.p.m. We will send you a C60 tape for $2. Fred Santos, VK2 Education Service, 8 Cooper Street, Blacktown 2148.

Yaesu FT-101E Trx, 160-10m transceive, plus 10 MHz WWV and 27 MHz CB receive, very effective noise blanker, current model with front panel control for RF speech processor level, 100-120/200-240V AC, 13.8V DC, has had little use, excellent cond., overseas travel necessitates sale, $725, ONO. Alan Beagley VK4AFE. Ph. (07) 371 4399.

Drake T4X Tx SSB/CW AM 200W DC input with Drake AC4 power supply and mic., Drake R4A Rx with Drake noise blanker and accessory filters, Drake MS-4 spkr., Drake MN-4 ant. matching network, SWR bridge, Watt meter, mint cond., any test or inspection welcome, full price complete Drake station, $985. VK2JO, OTHR. Ph. (02) 389 0428 or (02) 389 7786 Bus., (02) 36 7756 A.H.

FT200 Transceiver converted for Novice, complete with manual, v.g.c., $350. Maurice Wright, 94 Lockwood Road, Kangaroo Flat 3555. Ph. (054) 47 7405.

FT-101E HF Transceiver, latest version, unused, complete with AC-DC supply, mic., accessories and manual, $720. Martin Donaldson VK4ZMF, QTHR. Ph. (07) 397 5667.

Yaesu LPF, 1kW rating, $20; desk type PTT mic., $12; Ringo ARX-2 2m FM antenna, $30; Swan WM-1500 RF power meter, 5/50/500/1500 watts, $50; Barlow XCR-30 comm. receiver, excellent order, $200. Contact VK3OM, QTHR. Ph. (03) 560 9215.

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WANTED

Kenwood TS600 6m Transceiver; also linears, valves or transistors for 6m; also 6m beams, especially for portable use. L. White, 30 Oaklands Pde., East Brisbane 4169, Qld. Ph. (07) 391 6160.

4CX250B Linear Amplifier (or similar) for 426 MHz operation. Please contact Jim VK5ZSA. Ph. (088) 21 1196 or (088) 21 1746 A.H.

From your junk box, knobs for WWII transceivers, Type 3, Mark 2, and Type A, Mark 3 (see photos AR November 1978, p. 30); also required front panel for Type A and power supply plugs Type 3. VK5BA, One Tree Hill 5114, SA. Ph. (08) 380 7192.

Kenwood KP202 2m FM Tcvr., c/w nicad batteries and charging base; will pay fair price. VK3WT, QTHR. Ph. (03) 288 5175.

Operating Manual for Facsimile Rx Muirhead D-900 P/B. VK7NHV, Box 181, Moonah 7009.

MR6A Carphone Junior Workshop Manual to borrow for photocopying or will buy. Kevin Moore, VK3ASM, QTHR. Ph. (03) 754 4194.

Yaesu FT-201 Transceiver (not FT-200); Yaesu FT-2FB, 2m FM xcvr, number of channels not important. Particulars to VK3OM, QTHR. Ph. (03) 560 9215.

6m Transverter, 28 MHz IF, must be g.w.o., reasonable price; ARRL and RSGB handbooks, etc., 1955-1965, any cond. VK7WD, 30 Beddome Street, Sandy Bay, Hobart, Tas. 7005. Ph. (002) 25 3873 A.H.

EXCHANGE

FT-7, with regulated AC supply, 30 contacts only, any inspection; wish exchange for suitable AC Yaesu or Kenwood base transceiver, VK2PT, QTHR. Ph. (049) 43 1308.

GIFT

Light Oregon Mast, forty feet, on ground, free to anyone who can transport away. VK3GA, QTHR. Ph. (03) 29 7256.

TRADE HAMADS

QSL cards, log books, contest sheets — send 20c stamp for samples and prices to Linda Luther VK4VV, P.O. Box 498, Nambour, Qld. 4560.

KLM Imported mono band beams for 40, 20 & 15 (ex-stock). Comprehensive range high gain beams for HF, VHF & UHF, suit amateur, novice & CB operators. 5, 8 & 11 el. models for 6 metre band. 7, 11 & 15 el models suit UHF-CB. Range of baluns and power dividers. Write for free catalogue. ATN Antennas, Box 80, Birchip, 3483. Ph. (054) 92 3211, ask for 264.

HF Dummy Loads. We have a quantity of Electrosil Deposited film resistors available, 250W rating at 150 ohms. Put 2 in parallel for 75 ohm 500W dummy load, or 3 in parallel for 50 ohm 750W dummy load. All are A1 guaranteed. Original cost was over $50 ea., yours for only $8.50 ea. plus $1 P and P on all orders. Royce Electronics, Box M220 SME, Redfern, NSW 2012.

QSP

IHF OPPOSED TO INTERFERENCE LEGISLATION

Representatives of the USA Institute of High Fidelity testified recently at federal hearings into the impact of radio frequency interference on consumer electronic products. IHF's Technical Director, Leonard Feldman, told the Senate's Communications Subcommittee that the Goldwater sponsored S.864 would force unnecessarily high prices on consumers. "Every purchaser of an audio component should not have to bear the cost of including multiple RFI filters and shielding in high fidelity components when a large percentage of purchasers will never experience any interference problem." Enforcing such government-sponsored legislation, Feldman continued, would unnecessarily increase the cost of manufacturing hi-fi equipment.

— From Vicom Ham News, January 1979.

GEMFIELDS RADIO GROUP, RUBYVALE 4702

This recently formed affiliated group situated in the Central Queensland sapphire fields, intends to run a contest during August 1979, to coincide with the Centenary of the fields — Details of dates, times, will be released, closer to the contest time. ■

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. E. H. MOORE	L31108
Mr. S. G. BAXTER	VK3ZAB
Mr. W. J. CROMIE	VK2MZ

OBITUARY

WAL CROMIE **VK2MZ**

It was with deep regret that the passing of Wal was recorded on 5th February, 1979.

In recent years he suffered a number of serious illnesses. Between bouts, with the aid of his wife, he journeyed to many parts of Australia, complete with caravan and appropriate radio equipment for the trip.

His amateur activity commenced pre-war, joining the RAAF in 1940.

Serving in the radio field for the duration, he was discharged in 1946 to rejoin in the same year and finally leaving the services in 1962.

Wal was essentially an experimenter; his extensive operation on the VHF bands in the 1950 and 1980 era ensured that VK2MZ was one of the best known calls in that part of the spectrum.

Always a happy, modest person, his tremendous enthusiasm and ability inspired many others to join the amateur ranks. Wal would help them in any way.

A member of the Blaxland Bush Fire Brigade, he clearly demonstrated the value of VHF communication, building base and tender equipment to show its advantages over HF working. Later all communication was taken over by the City Council.

Wal received little credit, as did others, for their original work in the field.

In the disastrous bushfires in the Blue Mountains in 1968 Wal was again active.

All amateurs extend to his wife Peg, son Robert, and daughter-in-law Lyn, their deepest sympathy.

— From W. M. Moore VK2HZ.

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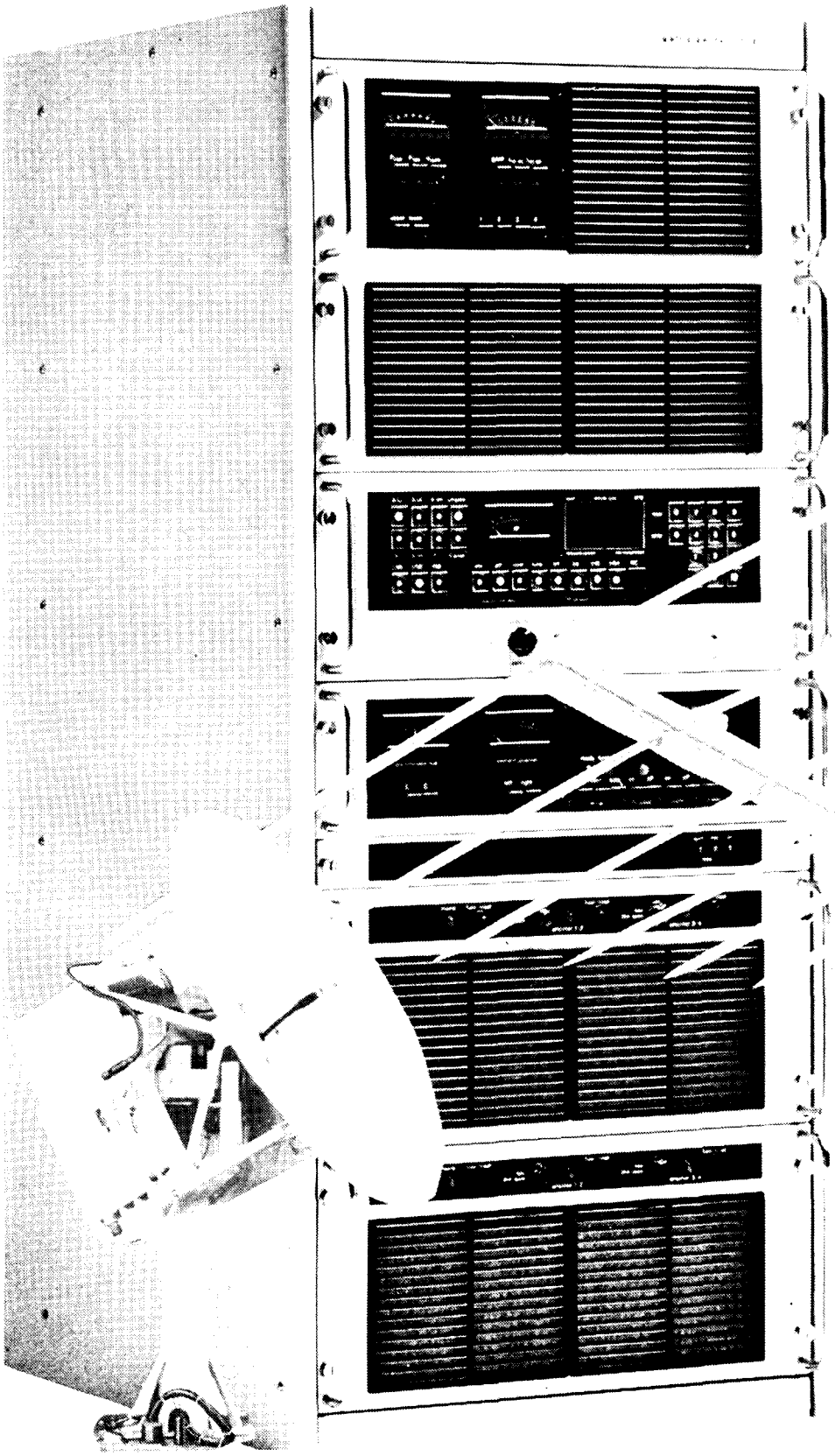

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amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 6 JUNE 1979

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- ★ DETERMINING ANTENNA SURFACE AREA
- ★ SCANNER FOR THE ICOM IC22S
- ★ ARE YOU INSURED?
- ★ JOHN MOYLE MEMORIAL NATIONAL FIELD DAY 1979 RESULTS

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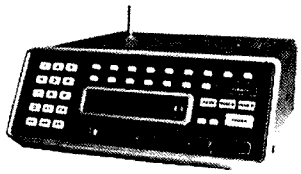

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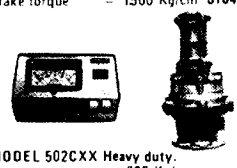

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amateur radio

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Cover Photo

The photograph shows Peter Schulz VK7PS, an active radio amateur and keen bushwalker combining both hobbies as he makes a contact via the Mt. Wellington repeater from the summit of Forty Lakes Peak in Tasmania's Great Western Tiers.

Photograph: WINSTON NICKOLS VK7EM

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Executive Office: P.O. Box 150, Toorak, Vic., 3142. 2/517 Toorak Rd., Toorak, Ph. (03) 24 8652.
Divisional information (all broadcasts are on Sundays unless otherwise stated):

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Secretary — Mr. F. Robertson-Mudie VK1NAV
Broadcasts— 3570 kHz and 2m Ch. 6 (or 7): 10.00Z.

NSW:
President — Mr. F. Parker VK2NFF
Secretary — Mr. T. I. Mills VK2ZTM
Broadcasts— 1825, 3595, 7146 kHz, 28.32, 52.1, 52.525, 144.1, 145.6, 146.4, Rptr. Ch. 3 — Gosford, Ch. 4 — Lismore, Ch. 5 Wollongong, Ch. 8 — Dural. Evening 0930Z. Relays on 160, 80 and 10m, VHF and Reptr. Ch. 3, Ch. 5, Ch. 8, and Hunter Branch, Mondays 0930Z on 3570 kHz, 10m, and Ch. 3 and 6. RTTY Sunday 0030Z 7045, 14090 kHz, Ch. 52, 0930Z 3545 kHz, Ch. 52.

VIC.:
President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. J. A. Adcock VK3ACA
Broadcasts— 1825, 3600, 7135 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (5) repeater: 10.30 local time.

QLD.:
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SA:
President — Mr. C. J. Hurst VK5HI
Secretary — Mr. C. M. Pearson VK5PE
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

WA:
President — Mr. L. A. Ball VK6AN
Secretary — Mr. P. Savage VK6NCP
Broadcasts— 3600, 7080, 14100, 14175 kHz, 28.53 and 52.19 MHz and 2m (Ch. 2): 01.30Z.

TAS.:
President — Mr. I. Nicholls VK7ZZ
Secretary — Mr. P. T. Blake, VK7ZPB
Broadcasts— 3570, 7130 (AM) kHz with relays on 2m Ch. 2 (5), Ch. 8 (N), Ch. 3 (NW), 28.56 (AM), 52.525 (FM), 144.1 (AM) and 435 (FM) MHz 09.30 EST.

NT:
President — Dick Klose VK8ZDK
Vice-Pres. — Barry Burns VK8DI
Secretary — Graeme Challinor VK8GG
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal Information:
VK1 — P.O. Box 46, Canberra, 2600.
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h). P.O. Box 123, St. Leonards, NSW 2065.
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Weekdays 10.00-15.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (Incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 46, Canberra, A.C.T. 2600.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse, 83 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Old., 4001.
VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP — CONVENTION PRESS RELEASE

The following includes the text of a Press Report issued for the 1979 Federal Convention held in Melbourne 28th to 30th April:—

"The Minister for Post and Telecommunications, the Hon. A. A. Staley, last Sunday, April 29th, clarified several points of concern which affect amateur radio operators throughout Australia.

"Speaking at Brighton (Victoria) at the Annual Federal Convention of the Wireless Institute of Australia, Mr. Staley assured the delegates from all States that it was the Government's intention to restrict the installation of Channel 5A TV transmitters to those services for which large financial commitments had already been made and confirmed the policy of using UHF channels for ethnic television services.

"A number of other complex technical problems associated with the proximity of television transmission frequencies to internationally allocated amateur radio frequencies were also discussed and clarified. These problems relate particularly to Channel 0 and Channel 5A.

"During his address, Mr. Staley paid tribute to the Wireless Institute of Australia for the way in which the Institute had prepared the case for the amateur service for consideration at the World Administrative Radio Conference (WARC '79) to be held in Geneva from September this year.

"Mr. Staley said that the amateurs of Australia had been outstanding in qualifying their needs and requirements and he was surprised at the way in which the amateur delegates to WARC '79 had worked in collaboration with his Department in preparing Australia's submission to this most important Conference which will determine the pattern of world radio communications into the 21st century.

"Referring to continual experimenting by amateurs over the world, which has led to the development of many new communication techniques, Mr. Staley said 'We must have diversity in communication — we can no longer rely on traditional means; and the amateur service plays an important role in this regard'.

"The Wireless Institute of Australia, the official body of amateur radio operators, is the oldest amateur radio association in the world. Formed in 1910, it pre-dates the United Kingdom body by three years and the United States by five years.

"In the 68-year history of the Wireless Institute of Australia, this is the first time that a Federal Minister has addressed the Annual Convention."

In addition, the following subjects were discussed with the Minister:—

- **Pensioner licence fee concessions.**
- **Regulatory matters including the new Handbook and the proposed new Radio Communication Act.**
- **Definition of television broadcast service areas and the possibility of a Radio Frequency Advisory Committee for Australia to increase awareness of Spectrum Management problems.**

The form of discussion allowed direct questioning of both the Minister and his First Assistant Secretary, Mr. Wilkinson, who also attended.

It is not possible in this statement to present the wealth of information made available. However, details will be forthcoming through normal channels such as weekly broadcasts, Amateur Radio magazine and Divisional meetings.

The Council expressed its appreciation to the Minister for both his and Mr. Wilkinson's attendance at the Convention. ■

WIANEWS

1979 CONVENTION

As this is being written the day following the close of the 1979 Federal Convention it will be possible to include some details of it.

The Minister for Post and Telecommunications, Mr. A. A. Staley, joined the Convention delegates as a guest for dinner on Sunday, 29th April, along with Mr. Jim Wilkinson, First Assistant Secretary, Radio Frequency Management Division of the Department.

During his speech, introduced in a witty and interesting preamble, the Minister made many references to the Channel 5A situation as may be seen in the Press Release published elsewhere in this issue. Much other information of interest to the amateur service came from his address and from the question and answer forum which followed.

When the Minister observed the reaction to the first mention of the Handbook it was clear to him that the Institute was dissatisfied with the draft presently under preparation for printing. He ordered it stopped, it this could be done at this late stage, to enable further representations to be made by the WIA. The virtues of self-regulation appeared to be shared by everyone present, particularly the guests.

Some other questions were answered, including the proposed new Radio Communications Act and the desire of the Institute to be granted some involvement before finalising this legislation, the possibility of a Radio Frequency Advisory Committee for Australia and the great awareness by the Minister and his Department of the contiuning valuable contributions towards WARC 79 by the WIA representatives. Questions were asked about the schedule to the latest Amateur Station Licence Form RB94 (June 1978), which specifies the authorised receiving frequency bands — e.g. 7.00 to 7.15, but does not authorise the amateur operator to listen for USA stations on their authorised frequencies between 7.15 and 7.30: A discussion highlighted the impossibility of controlling receivers (general coverage and other) and the act of listening outside the amateur bands, whereas concentration should be given to persons using information obtained from listening (which accords with the spirit of ITU RR 5195(724)).

The long delays experienced in many places between passing an exam and the issue of a licence came in for criticism. "Over the counter" licensing in Victoria was instanced as an example of the measures which could be taken.

Two final questions before concluding this short report. Reduced licence fees for pensioners — promised in a letter of 19th

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MARCH 1979	$
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These are entitled to the use of the WIA emblem and the words: "WARC Amateur Supporter" in their advertising displays.

October, 1976 — appears to have become nullified by re-investigation and an early reply is not now to be expected. A discussion about interference by, and to, Channel 5A TV, brought out recognition that the receiver is very largely the culprit, defined TV station broadcast service areas are proposed to overcome the problems of interference in "marginal" reception areas and that the "ethnic" television service will definitely go to UHF.

It was indeed most heartening to be made aware of the Minister's considerable knowledge about WARC 79 preparations and it was obvious to delegates that he had either been briefed in great detail or had been kept fully informed about them.

The Convention dealt with 34 Agenda Items, 10 general business items, 2 special resolutions, several routine items and 18 annual reports, in addition to detailed explanations relating to WARC 79. The work was facilitated by the appointment of 5 working groups. The Convention went into Committee for debate on other matters.

Perhaps of interest to members' pockets, the Finance Sub-Committee presented a budget for 1980 which was adopted subject to review, as usual, by 31st August. In it no increases in Federal dues were proposed provided the rate of increase in new members is maintained. A study of the latest 1979 figures revealed the possibility of a small deficit in funds available for WARC 79 after a decision had been made that Mr. Michael Owen VK3KI be an additional amateur delegate for the Australian team. This step was considered essential based on latest advices and strong recommendations from experts in ITU General Conference proceedings. It was the unanimous agreement that no stone be left unturned to ensure the fullest possible involvement of the amateur radio service in this vital Conference. Note was also taken of the absolute necessity of continuing amateur involvement during the years succeeding the Conference.

The appointment of Executive members for the ensuing year resulted in only two changes — Mr. Courtney Scott VK3BNG comes on as Federal Treasurer, and Mr. Harold Hepburn VK3AFQ replaces Mr. Graeme Scott, who resigned through pressures of business, although he hopes to continue his work in the Federal sphere as Federal Education Co-ordinator to provide continuity.

The delegates were very pleased to welcome Mr. Jack Hum G5UM as a guest for a short time during the Convention. Most old-timers will know Jack's involvement with the RSGB over many many years and his expert knowledge in the VHF/UHF/microwave regions of the spectrum affecting ITU Region 1 and the UK in particular. Never were so many Divisional Presidents and past Presidents represented as at this Convention, including visits by Mr. Eric Buggee VK3ZZN, the VK3 President: Six out of the seven Divisions were so represented. Others attending the Convention included Michael Owen VK3KI, Bruce Bathois VK3UV, Bob Arnold VK3ZBB (Satellites and Project Asert), Alt Chandler VK3LC (foreshadowing retirement as Intruder Watch Co-ordinator by the end of the year) and Ron Henderson VK1RH in his dual role of VK1 Federal Councillor and Federal WICEN Co-ordinator. VK3SP kindly found time to attend and provide most valuable advice in the international sphere. Amongst other votes of thanks, mention must also be made of (a) the impending retirement from active participation in Institute affairs of Ray Jones VK3RJ, after 50 years service in the QSL field, and (b) Keith Roget VK3YQ/YJ8, the former Federal Treasurer, for his work on the financial side of affairs.

Two new Annual Reports taken at this Convention were those from the Federal Videotape Co-ordinator, John Ingham VK5KG, and the Federal RTTY Co-ordinator's report done by Peter Mulligan, VK2ABH.

In this news report it is impractical to review all the Agenda Items but a few have been selected as being of probable general interest. Proposals to admit Australia-wide special groups (e.g. Old-Timers) for affiliation were referred back to the Executive for further review and report. An item dealing with proportional voting lapsed for want of a seconder. A position on 10 metre band beacons was adopted with a reminder to Novices to leave the beacon frequencies clear as far as possible (28.2-28.3 MHz segment). Channel numbering in the FM portion of the 2 metre band shall be in a 4 digit number based on frequency — repeaters identified by output channel number — VK4 were opposed to this and abstained on the similar system for 70 cm. A band plan for the FM portion of the 2m band (146-148 MHz) was adopted.

A working group spent much time debating the future of AR and the related subject of the Executive office. It was decided that a second full time employee should be employed primarily for AR duties. A motion that Federal Convention Minutes be made available to all affiliated clubs was withdrawn when the debate determined the fact that this was essentially a Divisional responsibility. A proposal for an international amateur licence/certificate along the lines of the international driver's licence was passed. Almost an annual motion seeking higher morse speed examinations for reciprocal licensing problems was again passed.

Motions to request more frequent morse and other exams were again passed, in addition to exams outside normal working hours. Work is to begin on seeking the issue without fees of the suffixes WIA to WIZ on a national basis for special purposes, and that WICEN exercises should be authorised by the appropriate Statutory Authorities instead of the Department as in the past. A motion to press for By-law imports of transceivers and equipment for use on frequency bands above 2m was passed but importers of such equipment are to be encouraged as a first step to take the initiative themselves.

It was resolved that the most effective use for the $3500 received for education purposes was the instigation of the production of a set of educational/promotional videotape masters. It was also decided that such monies should be put into an Education Resources Development Fund/Provision. The Executive were authorised to examine the desirability of printing an annual call book. Various modern production methods for the call book were studied in addition to a short debate about the contents.

Arising out of Annual Reports it was noted that the Federal Contest Manager proposes to seek, through the pages of AR, membership opinions on various contests and rules.

Under the heading of general business items several were withdrawn, some for one reason, some for another. Passed was one requiring Executive to establish criteria for Convention Agenda Items; there was also a reminder to submit them much earlier each year so that they can be printed in AR for members' comments beforehand.

A more detailed report will be prepared for the next issue of AR. ■

QSP

NOTHING NEW?

Aerials have always been a topic of great interest among the radio community. The "Electrical Experimenter" of June 1919 reported that Major Squier, US Signal Corps, had discovered that live trees could be used as aerials. Communications between trees was carried out over a distance of three miles. (The US Army again investigated this generally available and well camoflaged antenna during the Vietnam war.) The editor of "Electrical Experimenter" suggested that the Major had discovered the answer for the ambitious amateur troubled by objections from parents and landlords about unsightly aerials. The editor also suggested connecting up every tree in a small wood to give a "wonderfully effective antenna."

In the June issue of the same journal the Major wrote an article describing his experiments. The eucalyptus trees (transported to California from Australia many years earlier) were found to work better than other trees. A wire was connected to a nail driven into the trunk of a living tree well up in the foliage. An earth consisting of several pieces of insulated wire was buried in a radial manner around the tree. Signals from as far afield as Europe were easily received. No mention of the wavelength is made, however, it seems likely that wavelengths of 1,000 to 10,000 metres would have been used. At the very least the trees would have provided some top capacitance for the 50 to 100 feet long wires connecting the equipment to the nail in the trunk.

The use of an effective earth was not overlooked by the Major, something that today's successful users of vertical antennae also take into account.

(Copies of the E.E. supplied by Ivan, VK5QV.) ■

HELP
WITH INTRUDER WATCHING

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RTTY IS FUN

Ian Hunt VK5QX
8 Dexter Dve., Salisbury E., 5109

I built a VDU. Yes! I copied it from an American magazine. What a remarkable piece of electronic wizardry. It had two pages of memory, automatic carriage return/ line feed, cursor control, screen read capability, 32 characters per line, erase functions, all sorts of beaut features. Modifications were thought up to provide scroll-up facilities, character counting, four pages of memory and many other additional ideas. There was still one thing wrong. As it used ASCII code I couldn't put the thing directly on the air. Oh well, why not build a new terminal unit with all the things needed?

View showing at top homebrew RTTY terminal unit and monitor CRO. Below Model 19 teletype and tape Tx, loop current control and switching box, VDU and keyboard.

So, to make up some more printed circuits. Two DT600 demodulators solid-state switching board, selective amplifiers and switching for the CRO monitor, DD350 Magnet Driver (to use for hard copy, two AFSK generators, two UT4 UART/FIFO systems (one for Baudot, the other for ASCII code), Baudot to ASCII Converter (using a National MM5220 BL ROM Code Converter), ASCII to Baudot Converter (from the same magazine articles), UART Parallel/Serial Converter and vice versa, Automatic CW identifier, two dual XB6 Crystal Clocks plus power supply. WOW! What a lot of work.

Art work to do, circuits to try out, capacitors and resistors to bridge for accurate values, negatives to be made, more research on circuits, boards to be etched, card frame made up with card guides and sockets, cabinet, panel work, lettering, more metal bashing, bits and pieces all over the place.

Time seems to run short. The project is put aside due to other pressures, complication of circuitry, need to re-think some of the approaches, other activities, WIA work, etc.

Well, I may get around to finishing this most comprehensive project some time in the future. It still looks to be a good system. There will be hundreds of interconnections to be made between boards. More modifications will be in order as new ideas, components and methods present themselves. Lovely ways of storing information, producing pre-programmed messages, inserting corrections, all these possibilities exist.

I promised myself I would not take short cuts and put the VDU on the air without first finishing my all-singing-all-dancing new terminal unit.

So what happened? The ambitious project is still not completed. BUT! I am now on the air with noiseless RTTY. And it took little more than a week of work in my spare time. How? You may well ask.

I would like to tell you about my new VDU system. It is called the "XITEX SCT100 Single Board Video Terminal". (Ref. 1.) This unit, which is advertised in Amateur Radio has allowed me to get going on noiseless RTTY very cheaply, quickly and easily. For the benefit of you who may wish to do likewise, following is a description of the unit together with some comment on my own personal experiences in getting same going. The XITEX is a complete video terminal mounted on one printed circuit board approximately 5 to 10 inches in size. Mounted on the board are a total of 32 integrated circuits, including a character generator and a micro-processor chip. The board can be obtained with all components mounted in place and tested as a unit, however it is not very difficult to solder in the components yourself, and I find it more fun to do so, and of course cheaper as well. Together with the board comes a handbook which provides full instructions on assembly, testing and operation of the unit. Having assembled the board next comes the matter of the power supply. A wide range of options are available in this area and the circuitry provided allows the use of any of the following forms of supply:—

(a) 7-11V DC at 0.75A (max.) unregulated. (b) 8-12V AC RMS at 0.75A (max.). (c) 5V DC plus or minus 5 per cent at 0.75A (max.) regulated.

Having prepared the system thus far it is necessary to make a certain number of inter-connections. These are power supply, keyboard and video display. The power supply connections are made to a 2-pin connector, supplied, in the case of AC supply or via 2 pins of a 30-pin edge-connector in the case of DC supply. If one is already using what is known as an S100 bus system for computer type equipment the board may be simply plugged into the S100 bus. The keyboard connections are made via the 30-pin edge-connector or a separate 16-pin DIP socket. Now for a word about the keyboard. It is necessary that the keyboard be of a type which provides the standard ASCII code output. There are many different sources for such keyboards advertised in magazines including disposal sources. The suppliers of the SCT100 can of course also provide a suitable keyboard at reasonable cost with the unit. (Ref. 2.) The keyboard I use may, however, be of interest to you. When I first obtained same it was of a type providing a computer code called EBCDIC at

the output terminals and used on its board a custom programmed Read Only Memory which had 11 address lines. Some thought on modification produced the solution of reducing the 11 lines of the keyboard matrix to seven lines by using diodes. The seven address lines were then taken to an Ultraviolet Eraseable PROM into which I had programmed the necessary information to provide ASCII out for each of the unique codes selected at the input at the press of each key. Selection of Upper/Lower case was implemented using a simple TTL circuit in the form of a latch providing a logic "zero" output for lower case, a logic "one" for upper case when the shift key is held down, locking to a constant "one" when the lock key is pressed and re-setting to a logic "zero" when the reset key is pressed. The output of this circuit is fed to the eighth address line of the EPROM. The use of the EPROM in a socket proves to be most convenient as the data out of the keyboard can be completely changed for special purposes by the simple expedient of plugging in another EPROM containing the requisite programming. This feature and the changes described would not be used by most operators who would simply as stated connect an ASCII keyboard to the VDU board and go from there, so don't become concerned about a seeming complication. This portion of the description was simply included to indicate a method and solution which may be of help to others who may wish to experiment with other keyboards themselves. Incidentally, the power supply from the SCT100 board may be used to supply positive 5 volts to the keyboard you are using.

Connection to the video display may take a number of different forms depending upon the unit you are using and is fairly well covered in the SCT100 handbook. The most popular form of display seems to be a small black and white portable television set. It is usually a simple matter to locate the input of the video amplifier within the set making the connection through an external jack and switch added to the set to allow its use as either a normal TV set or video monitor. In my case it was necessary to invert the video from the SCT100 to suit the TV set. This was simply accomplished by using the inverting input of an operational amplifier together with some DC adjustment to obtain correct levels. This circuitry was built on a small piece of matrix board and mounted inside the back of the television set and supplied with power from a suitable point within the set. The video from the SCT100 Is taken from one pin of the 30-pin edge-connector and earth via a piece of light coaxial cable.

Having achieved this stage of progress it is only necessary to switch on, and if the wiring has been done correctly the whole system can be checked out. Now to describe for you just what it can do.

This system will provide at a flick of a switch the following facilities:—

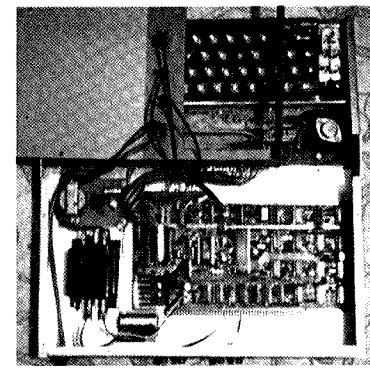
1. ASCII type output for micro-processor applications and other computer orientated systems with both upper and lower case alpha characters, full punctuation, standard symbols and numbers plus 31 special characters intended mainly for mathematical work.

2. A standard set of Baudot characters exactly the same as you would find on any ordinary teletype machine.

Either of these two conditions are selected by means of a single pole two position toggle switch wired to the appropriate pins on the edge connector. In the ASCII mode a baud speed of either 110 or 300 bauds may be selected, again by a toggle switch wired in a similar manner, and in the Baudot mode the standard teletype speeds of either 45.45 (International Amateur Standard) or 7.42 bauds may be selected. it is also possible by using a slightly non-standard powering up and resetting procedure to obtain Baudot code at 110 bauds. Other baud speeds can be obtained by the addition of an external clock in lieu of the Xtal clock provided on the keyboard. To take the simple view, however, it is merely a matter of taking the output and input connections from the PC board to your usual teletype terminal unit to be on the air with solid state and noiseless RTTY having selected Baudot code and appropriate speed on the SCT100. It is beyond the scope of this article to describe fully the functions of the SCT100 when used in the ASCII mode, however details of a few of the other features of the unit, when used in Baudot mode, may be of interest. The unit provides 64 characters per line across the screen with a total capacity of 16 lines per frame. The first line appears at the top of the screen, as would be expected, with each consecutive line being written below the previous line until such time as the screen is filled up.

At this point the unit adopts a "scroll-up" mode with all the lines moving up one line at a time as the end of the bottom line appears. This means that the top line then disappears off the screen but gives plenty of time to read any text being received.

The unit includes provision for operation from 50 Hz supply but requires a printed track to be broken and a short jumper wire to be added on the board for 50 Hz operation. This option is quite clearly detailed in the instructions and shown on the board and circuit. Normal operation is with white characters on a black background but provision is made for reverse vido, i.e., white on black, to be selected. Automatic carriage return and line feed is featured when using either transmit or receive, however a unique function appears under this circumstance. Should the unit come to the end of a line and a manual CR/LF not be received, it carries out the automatic CR/LF function but automatically places an arrow at the beginning of the next line to indicate that this line is a continuation



Complete VDU, with keyboard in enclosure. Cover partly removed.

of the previous line. This feature is of immense value when communicating with other operators using the mechanical type machines which generally have a line length in excess of 70 characters.

When baudot operation is selected, only characters normally appearing on a baudot teletype machine can be transmitted. Operation of any other character on the ASCII keyboard will result in nothing at all happening. To those not quite sure as to the meaning of this statement, I might explain that the standard ASCII keyboard carries many more characters and functions than an ordinary teletype keyboard. On an ASCII keyboard figures do however appear as lower case characters whilst on a teletype machine there are special keys to select either figures or letters as the case may be, much the same as a shift key on a typewriter is used for upper and lower case. When using the XITEX unit the micro-processor on the board takes all the work out of this area of operation. If you are typing letters and then you press a key for a figure this fact is recognised by the circuitry which automatically inserts a "figures" shift character and transmits it before sending out the figure signal for the key you have just pressed. Likewise, if you have been sending figures and then revert to a letters key it automatically inserts a "letters" shift before sending the letters character. Very clever stuff indeed, and no knowledge or expertise required of the operator. You simply sit there and press the keys for the letters and figures you wish to send and the rest is all done for you.

Input and output points on the unit also appear on the 30-pin edge connector. Provision is made for various types of input and output levels. Opto-couplers on the board allow you to make your connections directly across the inputs and outputs of a standard machine type teletype loop at high level voltages in either a simplex or duplex mode of operation. The provision of alternative computer type RS232 input/output level points allow simple connection to associated solid state equipment. However, in making your

interfaces with your teletype terminal unit do not make the mistakes which I made through some carelessness and sheer lack of thought. Emitter followers DO NOT pull right down to earth level (logic 0) and one must also remember to check that the sense of signals (i.e., either positive or negative for a mark signal in the teletype terminal unit) is correct, when making interconnections. Simple commonsense can save you a lot of time and effort. Had I followed the correct course I should have had everything working over the period of just a week-end.

So, to re-cap. If you wish to get on the air with silent modern RTTY with a solid state VDU system try the following, even if you are just starting from scratch. Obtain a XITEX SCT100 unit and a suitable ASCII keyboard. Connect it to a power supply as described and a small cheap portable black and white TV set. Connect the output of your RTTY terminal unit either via your selector magnet loop or TTL level output to the SCT100 input. Connect the output of the SCT100 to your AFSK or FSK keyer unit to drive your transmitter. Select Baudot at 45.45 bauds on the STC100 and go on the air. It's as easy as that.

I have gone to the trouble of writing up this unit as I have for some years spent time drooling over the advertisements in both local and overseas magazines, knowing at the same time that the solid state RTTY gear advertised was so expensive as to be outside the range of my pocket-book. Having discovered the ease, and I emphasise the relatively low cost of the unit I am now using, I thought it only right to let you know that such an item exists and is available in Australia.

Comments I have heard also led me to believe that many people did not understand just what this little unit would do. It is not my intention to provide free advertising for a commercial item, neither to condemn the manufacturers of what may well be other very good equipment also available.

Before I conclude, I would like on the same basis to make known to you a few other matters which may help you in the field of RTTY. Within Australia a group has been established based on the WIA VK2 Division. This Group is known as the Australian National Amateur Radio Teleprinter Society and can be contacted through using the address of the VK2 Divisional HQ at PO Box 123, St. Leonards, NSW 2065. The Society publishes a bi-monthly newsletter called "AREWISE", which is posted to members all over Australia. Cost of membersip is only two dollars per year and receipt of "Arewise" will help you in learning more about RTTY operation. The Society can also supply kits such as the well known ST6 RTTY Demodulator at an exceedingly low cost (approx. $40.00) compared to commercial units, and can also help with spare parts for teletype machines, provide assistance with RTTY projects and generally help you to get going on this mode.

Another excellent magazine which does not cost too much to subscribe to is the American based "RTTY Journal", of which there is 10 issues per year. This magazine is available for only nine dollars (Aust.) per year as a service (he makes nothing from it) through Norm Wilson VK4NP, who is listed in the Call Book. The RTTY Journal also puts out an excellent Beginners' Handbook which would be of great assistance to anyone just getting started on this mode. The Beginners' Handbook is not, however, available through Norm VK4NP and you would have to obtain same direct from the publisher. (Ref. 3.) I have found that many other excellent articles abound in general amateur radio magazines and literature, particularly the magazine "Ham Radio", so go looking through whatever back issues you can locate. Amateur Radio Teletype is not at all as difficult as it may first appear, so don't be frightened off by thinking it may be too complicated for you.

Also in existence for some time has been the Australian Amateur Radio Teleprinter Group based in Western Australia. This Group puts out a newsletter also and may be contacted through VK6IF, 32 Mayflower Crescent, Craigie 6025. Subscription to the AARTG is four dollars per year, including the AARTG quarterly newsletter. The Group has also in the past put out a kit for the ST5 Demodulator, which is a more simple version of the ST6. I have been advised that Cliff VK6NK is the person to contact regarding this kit. I trust that this article will have been of some interest and help to you in becoming a little more familiar with some aspects of a most interesting mode of operation and one in which a growing interest has lately been evident in this country. So if you have a yen to take part in amateur RTTY operation give it a try. I find that all of the chaps on this mode are always very willing to help any newcomer on their way, so don't be afraid to ask.

REFERENCES

1 and 2. Available from the Micro Shop, Box 207, Gawler, South Australia 5118. Cost of keyboard kit $70, but can be obtained assembled and tested at an extra charge. Cost of SCT100 VDU board kit $169. Both prices include tax.

3. RTTY Journal, publisher Dee Crumpton, PO Box RY, Cardiff by the Sea, California 92007. Cost of RTTY Beginners' Handbook $4.50 US.

DT600 RTTY Demodulator is an updated version of the old faithful ST6 and was originally described in Ham Radio Magazine February 1976, page 8. The DT500 is a simplified version of the DT600 designed with the VHF operator in mind, and described in Ham Radio, March 1976, page 24.

The DD350 is a dual magnet drive for teletype machines and includes timing circuits to operate auto-start on the machines and also to automatically shut down and start up the magnet loop as necessary.

The following items can be obtained from Data Technology Associates Inc., PO Box 431912, Miami, Florida 33143:—

DT600 RTTY Demodulator PC Board, $12.50 US; DT500 RTTY Demodulator PC Board, $10.50 US; DD350 SMD/Motor Control Board, $7.50 US; DI70 Loop-Logic-Polar Interface Board, $7.50 US; 4 Potentiometer Set for DT600/500, $2.00 US.

Each of these boards are of high quality and are libreglass. The Demodulator boards are through-hole plated. I have seen these boards as supplied to a local amateur and was most impressed with them. With each board came a most comprehensive handbook with detailed construction and testing information, and even included two parts lists, one in order of component number and the other in order of component value. Instruction on how to solder is even included.

These references together with the information contained in the above article should provide anyone starting off on RTTY with sufficient information as to where to obtain data, components, etc., and provide a guide as to the costs likely to be incurred with such a project. ■

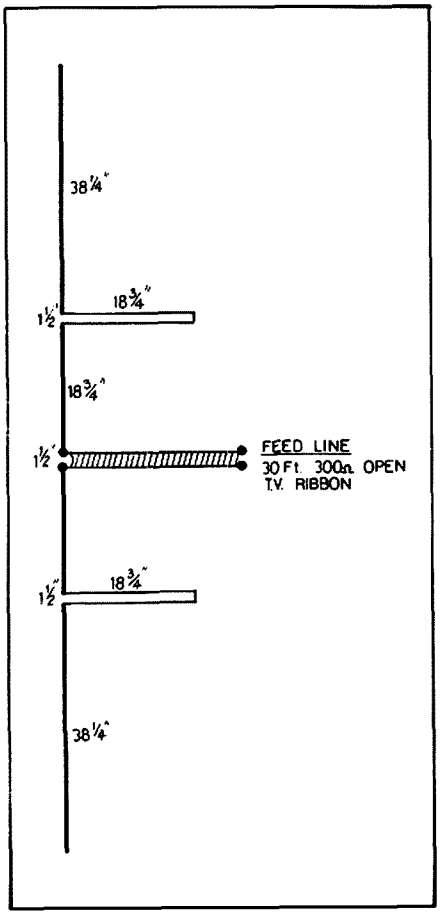
TRY THIS

WITH THE TECHNICAL EDITORS

A TWO METRE COLLINEAR

Earlier (1963) ARRL handbooks carried a description of a 2 metre collinear. Les VK2AXZ has submitted details of a similar antenna.

A 4:1 balun enables a coaxial feedline to be used. The ARRL suggests the use of stiff 1/8" aluminium wire for the elements, supported on ceramic standoff insulators screwed to a wooden pole. TV screw-eye insulators make a cheaper but less desirable mounting. ■



TWO METRE TRANSMITTER FILTER FOR OSCAR MODE 'J'

Joe Reisert W1JR
17 Mansfield Drive, Chelmsford MA 01824

Many OSCAR 8 Mode J users have been been experiencing receiving difficulties due to a large number of birdies appearing on the 534.1-435.2 MHz downlink when they are transmitting between 145.9 and 146 MHz on the uplink. This is most often due to overloading and intermodulation in the 70 cm converter due to the proximity of the third harmonic of the uplink transmitter (viz., 437.7-438 MHz).

There is very little that can be done to the receiving converter without using elaborate filters and high dynamic-range circuitry. However, *most* of the birdies can be eliminated by properly filtering the output of the two-metre transmitter to minimize any third harmonic output.

In my case, I could detect about a dozen such birdies varying from just above the noise to 20-30 dB over the noise. Operation on the 435.10-435.2 MHz downlink was almost impossible. Then i added a simple (see Fig. 1) 5 element half-wavelength type of low-pass filter on the two-metre transmitter (a homebrew transistor amplifier operating class B with 40 watts maximum output). There was an immediate improvement with only two weak and three moderate (10-15 dB over the noise) birdies. Needless to say, the results were dramatic.

The filter used is not an ordinary low-pass type. It exhibits the characteristics of a 1 to 2 dB ripple Chebyshev design over the 135-150 MHz band. The cut-off frequency is typically 250-275 MHz, and attenuation is greater than 10 dB on the second harmonic (292 MHz) and greater than 50 dB at 438 MHz. Therefore, this design is only recommended for two-metre use.

CONSTRUCTION

For optimum performance, the filter should be built into a shielded box as shown in Fig. 2. Double-sided printed circuit board is recommended as a suitable ground plane and also makes soldering to C1 and C3 easier. Note that solder should flow on both edges of C1 and C3 for lowest loss and VSWR. Also provide a good ground strap between J1 and J2 to the top side of the printed circuit board as shown. This will further reduce harmonic output.

OPERATION

Tune-up is simple since the filter has a broad bandpass. First set C2 to minimum capacitance and place the filter between the transmitter output and a power output or VSWR meter. With the transmitter tuned to 146.0 MHz, increase the capacitance of C2 until power output is maximum. *Caution:* do not exceed 50 watts output (more than enough for OSCAR 8 Mode J operation) since the components are not rated for higher power loads. Retuning for 144 MHz operation should not be necessary as the filter bandwith is quite broad.

If you are fortunate enough to have access to a spectrum analyser, you can tune C2 for minimum output at 438 MHz. This, however, may cause additional loss at 146 MHz. If so, the transmitter output circuit may be readjusted to compensate for the mismatch.

PERFORMANCE

The 435.1 to 435.2 MHz spectrum will be much cleaner when using the described filter on your two-metre transmitter. Always use the least possible transmitter power, since this will also lower the third harmonic level. Additional separation between the two-metre and 70 cm antenna should also help.

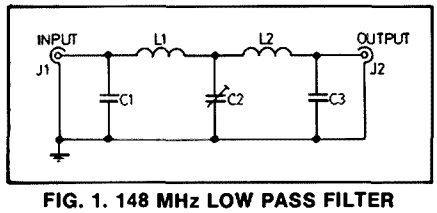


FIG. 1. 148 MHz LOW PASS FILTER
Insertion loss at 144-148 MHz: Negligible.
Maximum input power: 50 watts.

Attenuation at 432-438 MHz: 50 dB typical.
Construction and testing: See Fig. 2 and test.
C1, C3 — 22 pF low loss Mica 300 volt min. UNELCO type J101 (Note 1 and text.)
C2 — 10 — 60 pF Mica trimmer with short
C2 — 10-60 pF Mica trimmer with short leads — ARCO/ELMENCO type 404 (See text).
L1, L2 — 3T No. 14 AWG enamelled copper wire close-wound, ¼ in. inside diameter (approx. 40 nanohenries).
J1, J2 — Type BNC, UHF or N coax fittings.
Note 1: 22 pF UNELCO Mica capacitors are available from Webster Radio, 2602 E. Ashlan, Fresno, CA 93726 at $1.75 each plus tax and shipping. Do not substitute other types of capacitors.

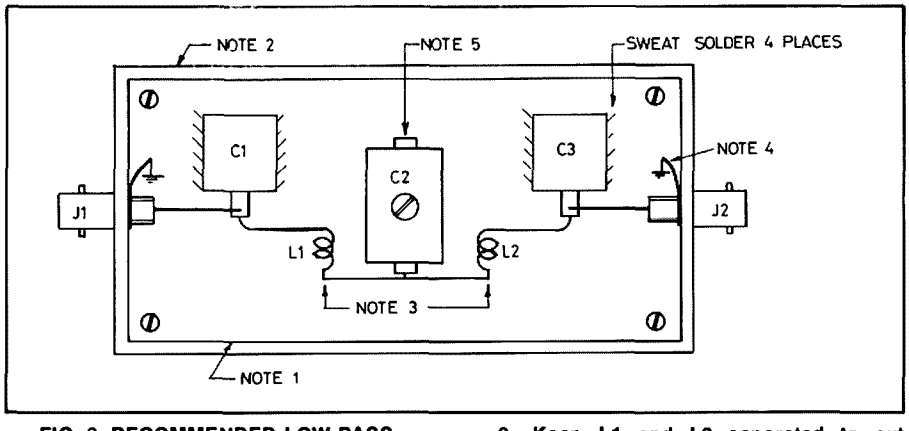


FIG. 2. RECOMMENDED LOW PASS FILTER CONSTRUCTION

Notes:
1. **Use double sided PC board bolted to box.**
2. **Shielded aluminium box is recommended, approximately 2½ in. x 1½ in. x 1¼ In.**
3. **Keep L1 and L2 separated to cut down on possible mutual coupling.**
4. **Provide positive ground return such as a strap from connector ground to top side of PC board.**
5. **Keep leads on C2 as short as possible (see text).**

Reproduced from the "AMSAT Newsletter" June 1978.

DETERMINING ANTENNA SURFACE AREA

Roger Cox WB0DGF
Hy-Gain Amateur Product Engineer

Some methods of determining antenna surface areas have made many false assumptions. Some of these asumptions are:

1. Air flows with perfectly smooth and streamline motion, or in other words, laminar flow.
2. Since assumption is made of laminar flow, it is also assumed that this flow is in a perfect horizontal plane.
3. Since assumption is made of laminar flow in a perfect horizontal plane, it is assumed that the element portion on the leeward side is shaded out by the area of the boom (see Fig. 1).

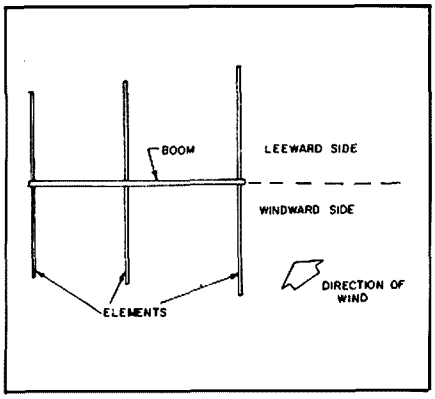
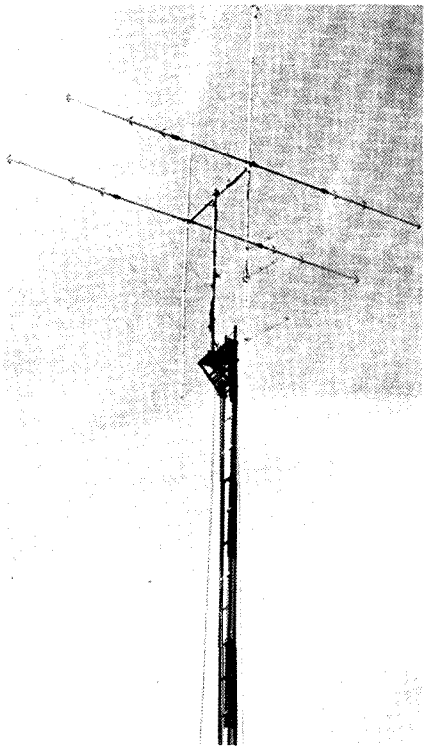


FIGURE 1



The popular "Hy Quad"

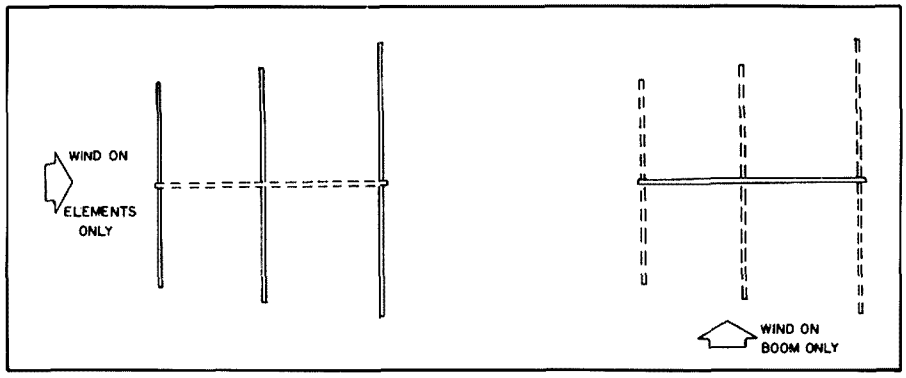


FIGURE 2

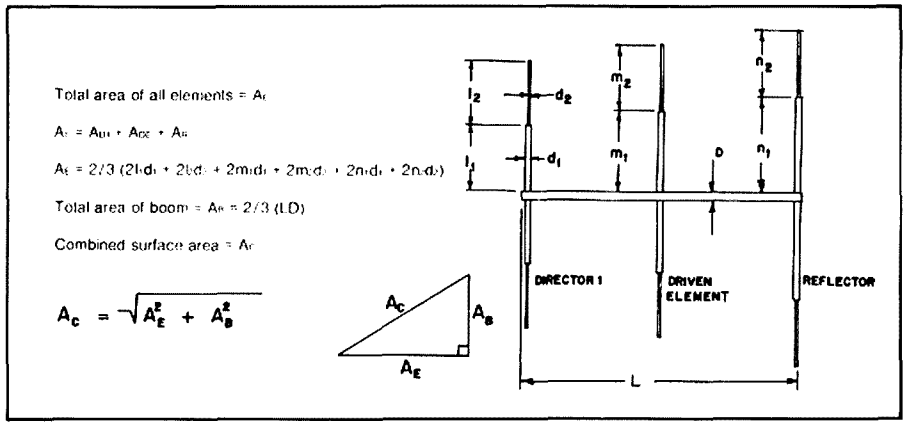


FIGURE 3

In all cases where these antennas would be used outside, you would never have perfectly smooth and streamline motion, but horizontal and vertical fluctuations which when sudden and brief are called gusts. This type of flow would be turbulent rather than laminar. Since there are horizontal and vertical fluctuations, the element portion on the leeward side would not be shaded out. Only if the elements were spaced very close together would you get some shading out.

The Hy-Gain method of calculating antenna surface areas does not use these assumptions. In our method the wind is projected perpendicularly onto each element (see Fig. 2). The total area of all elements are then multiplied by the 2/3 shape factor for cylindrical elements. The wind is also projected perpendicularly onto the boom. The total area of the exposed boom is then multiplied by the 2/3 shape factor. The resultant total area of the combined elements and boom is obtained by using the Pythagorean Theorem for a right triangle (see Fig. 3). By using this method it takes into account the magnitude of the area from the two directions to give you the best angle of wind to give the maximum area. ■

QSP

AMATEUR DIGITAL RADIO OPERATOR

In Canada rules have been made for a new experimenter class of licence called the Amateur Digital Radio Operator's Certificate. Digital and pulse techniques are permitted in Canada on specified VHF and UHF amateur bands and operators of the new class are only permitted above 144 MHz. Holders of existing AR Op. Certificates and Advanced AR Radio Op. Cert. will be allowed all the operating privileges of the Digital Cert. operators except for pulse emissions.—QST December 1978. ■

WALKIE-TALKIES ON 49 MHz

Should be some fun when some of our importers get a shipment of the latest cheap walkie-talkies intended for the US market. The new frequencies allocated in the US for low powered transceivers are around 49.9 MHz. These frequencies have been chosen due to the impracticality of operating 100 mW walkie-talkies on Ch. 14 CB (27.125 MHz).

The band already has a radio club in California.

These little flea powered cheapies could provide quite a headache when they are imported and sold locally. ■

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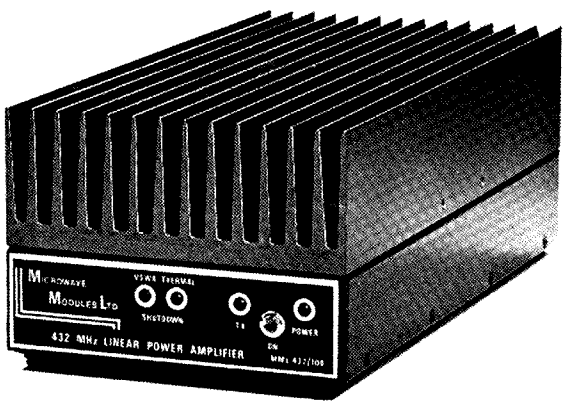

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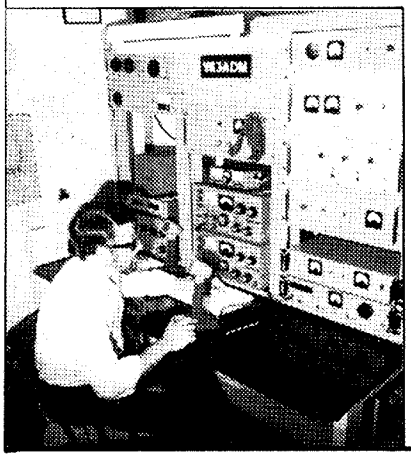

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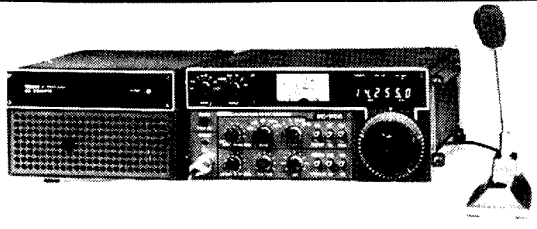

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A SCANNER FOR THE ICOM IC22S

Gary Smith VK6GS
2 Urban Street, Wagin WA

Icom 22S owners! When you go mobile through the country side, do you miss the news and activity of the area, or miss the openings due to being engaged in driving? If so, this is the ideal scanner for the vehicle.

This article describes how a scanner can be installed in your IC22S. The scanner is easy to build and easy to operate when operating mobile. It has many facilities which, I think, make the extra circuitry warranted.

Only seven ICs, quite a few diodes, a few transistors, two regulators, some capacitors and a little thought makes life easy.

FACILITIES

This scanner has a variable scan rate, the speed of which can be varied and adjusted for optimum performance. The author's operates at a rate of 15-20 channels per second. It can be operated faster if desired with a possible deterioration of performance.

If the scan-stop is activated by an incoming signal (by the mute cct) you have two choices. You can listen to the incoming signal and during the Inter-over pause break in by simply operating the PTT and replying or you may just listen to the conversation. The break-pause or scan delay time can be adjusted by the pot (RV1) in the circuit to satisfy your desire.

The scan also decides the transmit frequency for which it has to reply and by operating the duplex B (Dp B) switch you can reply on the anti-repeater frequency. The scanner scans 20 channels, i.e. 10 Dp channels and 10 anti-repeater frequencies (Spx). The author's scanner covers anti-repeaters 2, 3, 4, 5, 6, 7, 8, 40, 50, 51, plus 600 kHz above all these frequencies, coming out at repeaters 2, 3, 4, 5, 6, 7, 8, 146.6 (i.e. 40 + 600k), 147.1 (50 + 600k) and 147.15 (51 + 600k).

CIRCUIT DESCRIPTION

The circuit is very basic but is quite effective. It has a scan-stop and delay circuit consisting of TR1, TR2 and IC1a, IC1b and IC1c which work into the clock

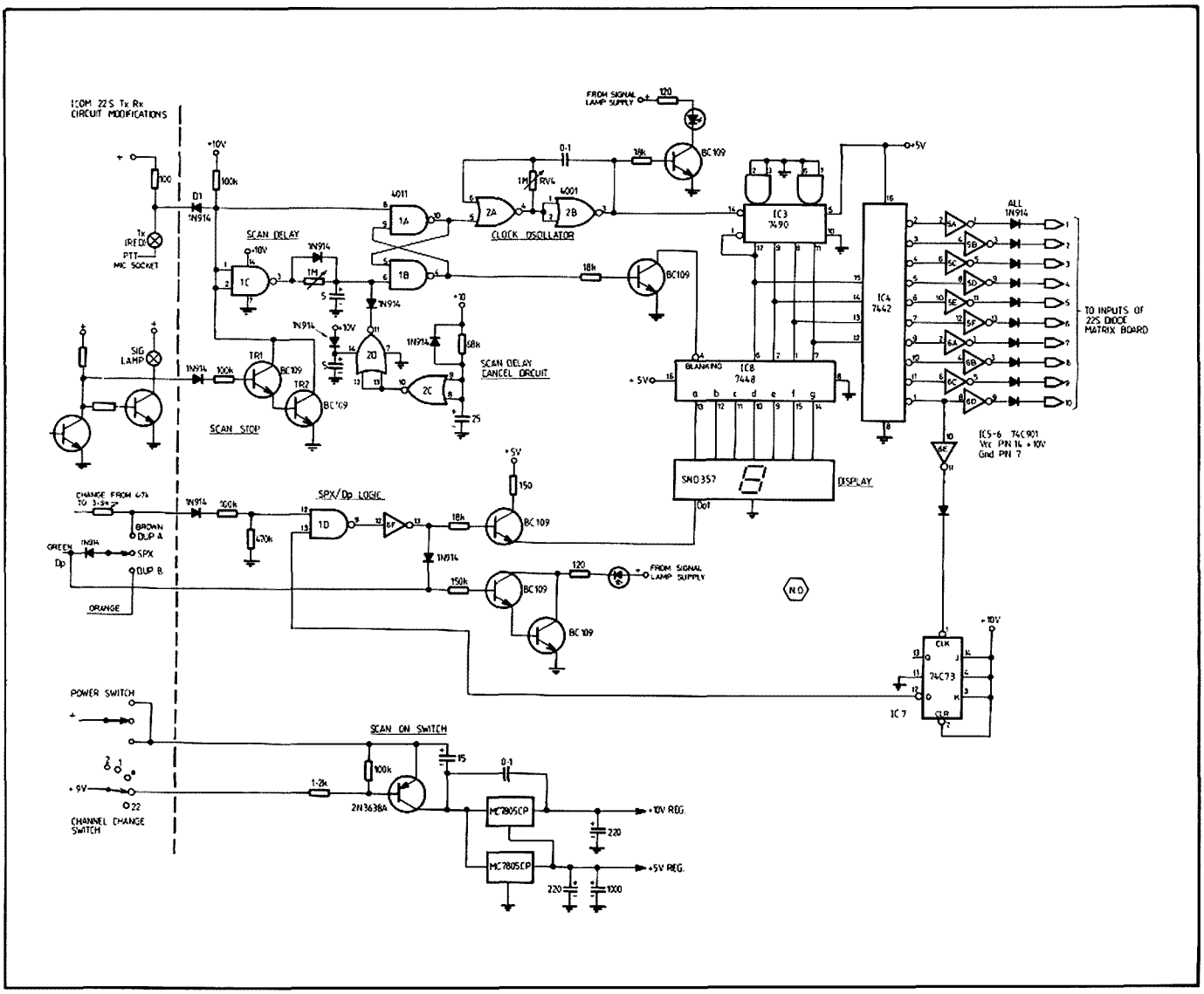


FIGURE 1: Circuit Diagram IC22S Scanner

oscillator (IC2a, IC2b). The clock speed is variable (by RV4) for optimum performance. The scan operates from the HEX inverters IC5, IC6) which switch the diode matrix and at the end of the tenth pulse the JK Flip Flop changes state and switches the receiver into the duplex mode to scan 600 kHz above the ten previous channels scanned.

The second 10 channels are indicated on the seven segment display by the dot. The section in the circuit outlined by the dotted line, containing the display unit was made outboard by the author due to lack of space for circuitry and for the want of a position for mounting the seven segment LED in the IC22S so the second 10 channels (Dp) were indicated by a red LED mounted behind the TX lamp of the 22S.

One could eliminate the display unit and the only indication that the unit is scanning would be the LED operated by the BC109 from the clock and the SPX/Dp LED.

The diode (D1) which has its anode connected to IC1 pins 1 and 2 and 8 allows isolation between the scan circuit and the IC22S circuit. The diode placed in the supply rail of IC1 (4011) was put in circuit before D1 so that when the scan was turned off the positive coming from the IC22S Tx circuit (through the 100 ohm resistor) into the gates of IC1 and out on to the scan rail did not get any further and so would not keep the scan going. Other diodes were added for the same reason.

Sometimes the DPX/SPX logic did not change over. The addition of a 470k ohm resistor from the pin 12 of IC1 to ground cured the problem.

The main problem encountered during construction was that the scan-stop circuitry could not be taken straight from the receive lamp as the time delay for the globe to increase its resistance was enough for the scan to stop too late or not stop at all. The addition of the BC109s (TR1, TR2) and taking the mute from the previous stage provided a solution.

The other most troublesome problem was apparent voltage sensitivity of the scan even though it had integrated circuit voltage regulators. As the voltage increased the mute could not be opened by either the squelch pot not being adjusted or by an incoming signal. The 2N3638A amplified an unwanted signal on the rail of the synthesizer which got into the scanner. The problem was cured simply by decoupling and filtering of the nine volt regulated rail of the synthesizer unit which turned on the scan unit.

Other filtering capacitors were added so that on the changeover from Rx to Tx the scan did not change channels due to spikes on the rail.

The scan indication LED was mounted in the same position as the signal lamp using the same positive as same and the DPX/SPX LED also. The leads were brought past the TX lamp and through the hole behind the channel change switch.

If the resistor R157 (4.7k) in the Dp A circuit is not lowered to about 2.2k in the IC22S receiver circuit when the scanner unit is on the logic threshold between Dp A and SPX and operation may be affected. If the DPX/SPX LED is eliminated it will work on 3.9k ohms although 2.2k ohms is recommended.

I built the unit on vero board and mounted it on the same side but to the back of the synthesizing board. It was not necessary for any shielding from any other circuitry as was first thought.

This unit was built by VK6JI (Chris), who found a problem which mine did not have. Sometimes when the channel change switch is rotated while the receiver is in the SPX mode, It will go out of sync. (meter lamp extinguishes) and the signal lamp illuminates. He cured these problems by two circuit alterations. They were by placing a 1000 microfarad capacitor across the 5 volt regulated rail of the scan. This also allowed the unit to be turned off momentarily, as may occur when starting the car or switching to accessory, without losing its programming. He also introduced the scan delay cancel circuit as he found that if the delay circuit was too long the scanner started from scratch when he turned off his car ignition and he missed a fair deal of the conversation. With this circuit it will start from scratch but there will be no delay before it starts scanning. ■

ARCTIC/ANTARCTIC AMATEUR

Dick Goslin VK3SV

Amateurs who have worked VK0JC and been asked "Please QSL via OZ8AE" may not be aware that both callsigns belong to the same operator — Jorgen ("Joe") Christensen, whose home QTH is Nykobing.

Joe is Radio Officer on M/S "Nella Dan" which, under charter to the Australian Government, transfers personnel, equipment and stores between Melbourne and our ANARE bases in Antarctica. Joe received his VK licence in November 1978 and with approval of the ship's Master and owners, and the Danish radio authorities, operates on our amateur bands, both maritime mobile and whilst the vessel is berthed or anchored at Australian ports and bases. He runs a TS520S from his cabin next to the radio room with dipoles for the various bands, and works both SSB and CW, mainly the latter.

A small ship of some 2000 tons and 70 metres in length, "Nella Dan" nonetheless has room for three helicopters and a small fixed-wing aircraft on its covered afterdeck. It also carries a year's supply of provisions and water for emergency use should the vessel be caught in the ice. Equipment, diesel fuel and foodstuffs for base personnel are carried in the forward hold. In bad conditions, the Master is able to take full control of the ship's movements and speed from a miniature "bridge" atop the foremast.

Joe's duties extend far beyond what is usually associated with a radio officer. He is responsible for payment of the crew's wages, catering records, and many other aspects of the ship's running costs and performance as well as daily reports to the owners in Copenhagen and all other communications. In short, he could well be described as "ship's secretary", with complete knowledge of the day's "doings" literally at his fingertips.

His pedestal-mounted chair is bolted securely to the steel deck, and well it needs to be. In heavy weather "Nella Dan" may roll up to 50° each side of centre, and even though firmly seated Joe needs a tight left-hand grip on one of the rack handles in order to use the key or keyer with his right hand. (Wonder how some of we land-lubbers would fare under these conditions!)

Equipment in the radio room includes a recently-installed solid-state transmitter covering all modes LF, MF and HF to 30 MHz. Full RTTY facilities are located in another corner of the room. An instrument adjacent to the bridge gives LED displays of latitude, longitude and GMT, whilst another, activated by signals from one of the Russian satellites, provides a printed read-out of the extent and location of pack-ice.

By the time this appears In print, "Nella Dan" will have returned to Copenhagen, and Jorgen Christensen will be enjoying some well-earned leave before joining another of the company's ships and heading north to Greenland.

OZ8AE/VK0JC is a man of many parts (geographically) and many accomplishments (professionally). On the infrequent occasions when he is able to spend a few weeks at Nykobing, he provides pleasure for others as well as himself with his electronic organ. ■

ARE YOU INSURED?

Mike Richter VK2BMM
NSW WICEN Deputy Co-Ordinator

One aspect of modern society's search for security is that we pay a small amount of money regularly to insure against the possibility of a major loss due to accident or wilful damage.

The Amateur Operator has several special insurance needs and hopefully the following information will help you obtain sufficient coverage at a reasonable price.

The type of insurance coverage you will need as an Amateur may be considered in the following categories:—

1. PERSONAL insurance to cover you against illness or injury Is really required by everyone but a special need exists if you intend to take part in WICEN exercises or operations as you may be exposed to additional risks. If called out by the State Emergency Services you are covered under their insurance, however under all other situations you are uninsured. It was for this reason that NSW WICEN has taken out Personal Insurance up to $30,000 per person with the Government Insurance Office to provide coverage during operations as well as exercises.

2. PUBLIC LIABILITY insurance to cover you against the possibility of being sued by a member of the public is required by anyone who has aerials that could fall on someone, whether inside or outside your property. Public Liability insurance up to $250,000 is usually included with Home Contents Insurance but you should check with the company to see if it covers you against collapsing transmitting aerials. WICEN operations also create the possibilty of being sued, therefore NSW WICEN has coverage for $500,000 Public Liability with the Government Insurance Office.

3. EQUIPMENT Insurance to cover you against damage to transceivers or aerials due to theft, fire, storm, etc.

If you only use your equipment at home it can be included in Home Contents Insurance, but some companies may require you to list expensive items or unusual items (transceivers!). The cost is around 0.6 per cent but depends on the area you live in.

If you have your equipment permanently mounted in the car, then it could be added to your vehicle's Comprehensive insurance, and it is then covered for all risks that your car is covered for. The cost of this insurance is determined by adding the cost of the equipment to the insured value of the vehicle and therefore depends greatly on the vehicle cost, no claim bonus, area of residence, etc. Do not succumb to the common pitfall of believing that your Comprehensive insurance covers equipment in the car under the Personal Effects category! This is usually only $100 and only applies to wallets, watches, etc., that may be lost or damaged in an accident and not transceivers.

If you use your equipment both at home and outside then you really need Personal Property Insurance (previously called All Risks), which covers your equipment against theft, fire, collision, etc., no matter where it is. This usually costs 2 per cent per annum of the insured value and the company will require specific details of each item to be insured. One company provides a "Multirisk" extension for equipment covered by a Home Contents policy that provides additional coverage when the equipment is outside the house and only costs 1 per cent (in addition to Home Contents cost). This is cheaper (0.4 per cent) than Personal Property insurance but provides almost as much coverage. Do not expect your Home Contents Insurance to cover your equipment outside the house. Even though policies do provide for items being "temporarily removed" from the house the coverage is very limited and excludes theft and items in a vehicle!

Providing equipment insurance through WICEN would prove too expensive therefore Amateurs are urged to provide their own insurance which will give coverage for normal use as well as WICEN operations.

Aerials masts should be included in the house insurance policy. Make sure that the company includes the mast in the policy, in writing, and that you are covered for the cost of replacing the mast and aerials in case of damage as well as the repair of any damage to cars and houses that the mast, aerials and guys may cause on the way down!

You may decide the insured value of your equipment within the limits of its full replacement cost (i.e. the present new cost of an equivalent item) or its depreciated value (original purchase price depreciated up to 30 per cent each year). Again you should consult the company who will suggest a value but you can have this changed if you feel it is too high or too low. ■

QSP

4U1ITU QSL CARDS

OSL cards for all contacts from 4U1ITU are written at the time of the OSO by the operator (note: visitors wishing to use 4U1ITU must first demonstrate their ability to use and tune the equipment because of operators in the past not familiar with the equipment). These QSL cards go through OSL Bureaux. Direct QSLs are not exchanged. Incidentally, if you intend visiting Geneva and wish to use 4U1ITU a letter must be sent at least four weeks in advance to 4U1ITU, PO Box 6, Place des Nations, 1211 Geneva 20, Switzerland.—RI News October 1978.

SORTING OUT THE YUs

"According to the present national Amateur Radio Regulations, members of the family of the owner of the station licence are allowed to operate if they have passed a kind of operator's examination. In this case, letters X or Y may be added to the original call sign. It is tradition in YU that the letter X should be added if son or daughter operate a station, and letter Y should be added if wife or husband operate (e.g. YU1UK/X, YU3AE/Y, etc)."—RI News October 1978.

MAINLY FOR "OLO-TIMERS"

Lord, thou knowest better than myself that I am growing older and I will some day be cold. Keep me from getting talkative, and particularly from the fatal habit of thinking I must say something on every occasion. Release me from the craving to try to straighten out everybody's affairs. Keep my mind free from the recital of endless detail, give me wings to get to the point! I ask for grace enough to listen to the tales of other plans. Help me to endure them with patience. But seal my lips on my own aches — they are increasing and my love of rehearsing them is becoming sweeter as the years go by. Teach me the lesson that occasionally it is possible that I may be mistaken. Keep me reasonably sweet; a sour person is one of the crowning works of the devil. Make me thoughtful, but not moody; helpful but not bossy. With my vast store of wisdom, it seems a pity not to use it all — but thou knowest, Lord, that I want a few friends at the end. By "Another OT". From QTC, October 1978. ■

TELEVISION IMAGES FROM THE PAST —
THE ORIGINAL SLOW SCAN?

Gil Miles VK2KI
31 Beaumont St., Campsie, 2194

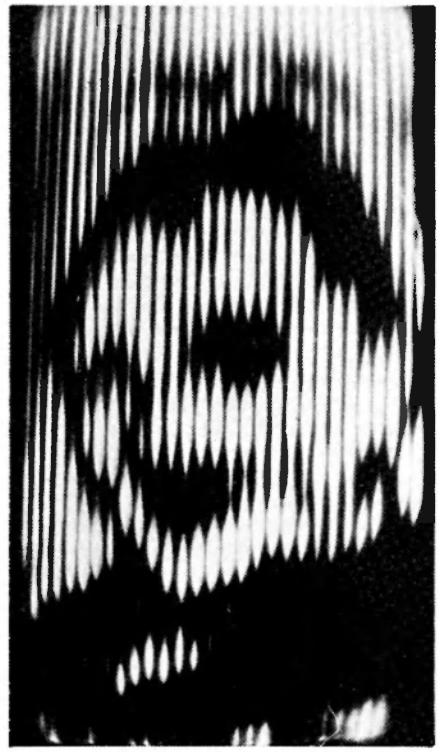
From the middle of the 19th century experimenters, physicists, engineers and others were striving for the goal of television.

The majority of these schemes were on paper only and in the years that followed the photo electric effect of selenium, the scanning disc, the amplifying valve and the neon lamp were discovered.

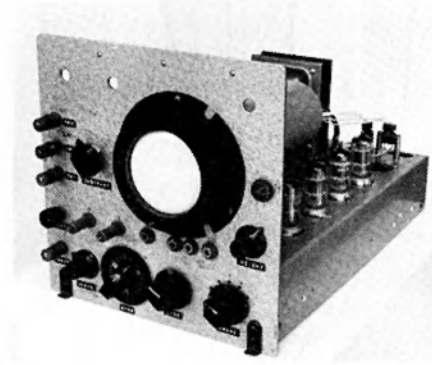
In 1923 John Logie Baird was the first to put them all together and come up with a workable mechanical television system. He was also demonstrating at that time 3D, colour, and infra-red transmissions which he called "NOCTOVISION" or night vision.

His mechanical system placed severe limitations on the picture size 1 in. x 2 in. and picture detail of 32 lines. Using a frame rate of 12.5 pictures per second the base frequency becomes 400 Hz and with picture information added bandwidth increases to about 7 kHz. These frequencies were used to amplitude modulate an RF carrier.

Baird was also able to record the picture information on to 78 r.p.m. shellac phonograph discs. He called this "PHONOVISION". The records were available to buyers of his receivers to be played into their "televirors" for tune up purposes. I know there were at least two of these discs still in existence, one held by the BBC and the other by IBA Television Galleries in London. Both of these sources during my recent visit to the UK, re-recorded the image signals on to ¼ in. magnetic tape at 7.5 inches per second.



1926 "Baird" TV image from Phonovision disc signals into 3 inch monitor.



3 inch TV Monitor for Baird TV. 32 lines, 400 Hz line rate, 12.5 Hz frame rate.

On my return to Sydney I re-worked an old 3 in. CRO to operate as a monitor on the Baird System frequencies. There are eight head and shoulder images of well known people and a wedge shape test pattern on these discs.

It is surprising, after more than 50 years and re-recording, that there is enough detail left to produce recognizable pictures. Although there were no special synchronizing signals transmitted at that time it was not difficult to devise sync from the line frequency to hold the picture quite steady for photography. ■

THE MELLISH REEF DX-PEDITION — 1978

What'll they say of Oct. 3?
When Hell broke over the Coral Sea.
And all the world sought recognition
In the Mellish DXpedition.

When Earth's shroud, the field 'magnetic'
Was scorched, convulsed by the pace
frenetic
Of calls of Hams out to make
A QSO — a ten sec break.

Beams were swung and sets were tuned
And if truth is known, many ruined
As the gear ran hot, ran hot,
Aiming at that tiny spot.

Ops at rigs with purpose bent —
Not for hours but days they went.
Like the buzz of swarming bees
— or discordant symphonies.

Forgotten were both food and sleep,
Chores and work — they could keep —
Happenings were beyond belief
In the struggle for the Reef.

Perhaps Ole Ionos smiled on you
— and at last you got through.
Your call plucked from the line
With a lovely 5 x 9.

With voice gone hoarse and aching wrist,
Each DXpeditioner did persist,
To add another to the list,
So that no one would be missed.

But all things must come and go
And so has VKs hottest "show".

Now from the Reef, no sounds, no words
Mellish is back with the birds.

So pass the 807s boys:
Here's to all that strife and noise.
Cheers to the blokes who made it GO,
Let the liquid "amber" flow.

When cobbers gather in the shack
Let the rag chew wander back —
Flip the log book to the leaf
Of the Saga of the Reef.

Point up to the QSL
— and say, "thereby hangs a tale to tell"
— and tell it with the utmost relish
About the day you knocked off MELLISH.

Alan Shawsmith VK4SS ■

HOW TO LEARN FRENCH — THE HARD WAY

John Scougall VK5YY
The Villa, Piccadilly Road, Crafers 5152

Every award hunter needs a good aerial. The author gives his story.

For the award hunters there are several French awards which are very attractive and well worth a place on the shack wall or under the glass of the operating table.

Apart from those which relate to the Pacific and Antarctic areas (DTA or Diplot des Terres Australes and ARANC or Association des Radio-amateurs en Nouvelle Caledonie Diplome for contact with six amateurs in New Caledonia) and which for the Australian amateur are relatively easy to come by, there are two which relate to metropolitan France and which are more difficult to land.

One of these is awarded to radio amateurs who are able to confirm contact with one station in each of the 17 Provinces of France and which include the Island of Corsica. It is called the DPF (Diplome des Provinces Francaises) and is perhaps more colourful than its bigger brother which is called the DDFM (Diplome des Departments Francais de la Metropole) and which involves contacting one station in each of the 95 Departments (Counties) of France — all on the same band and in the same mode. The basic certificate is awarded after the first 20 Departments have been worked and confirmed and after that, stamps of merit are awarded for contact with each 10 additional Departments which are verified until the stamp of excellence is awarded after confirmation of the entire 95. Something like our ACE Award.

After four years of intermittent effort and a score of 70 out of the 95, I decided that a 2 wavelengths V beam on 14 MHz and no linear amplifier or compressor was not quite equal to the task, particularly as the V beam could not quite be pointed in the right direction because of the lie of the land at my QTH. Something had to be done to effect some improvement and I decided that the best way to achieve this was to work on the aerials which is what this article is really about.

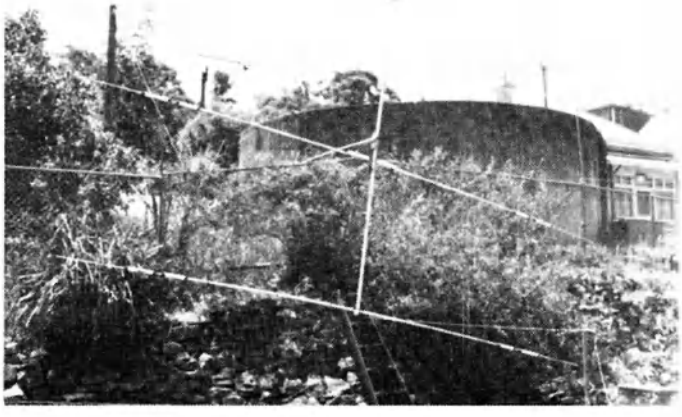
As one of my regular contacts and good friend Pete Bowman VK5FM had assured me that putting up a quad for 20 metres was "like wrestling with an octopus" it was decided that maybe a yagi would be nearly as good and as a VS33, the Japanese equivalent of the TH3, was available second hand, this was purchased. The idea was to mount it on top of the two section wind up tower which was used to support the wire antennas at my QTH.

As one of the problems that I have noticed with beams is that they are "way up there" but not out of harm's way as I found out in Alice Springs when a hail-storm detuned the traps on my ZL4BFU style monobander. Furthermore, as I never feel quite at home unless my two feet are planted firmly on the ground, we had to find a way of converting the tower into one of the tilt over variety so that we could bring the beam down when it was necessary to make adjustments.

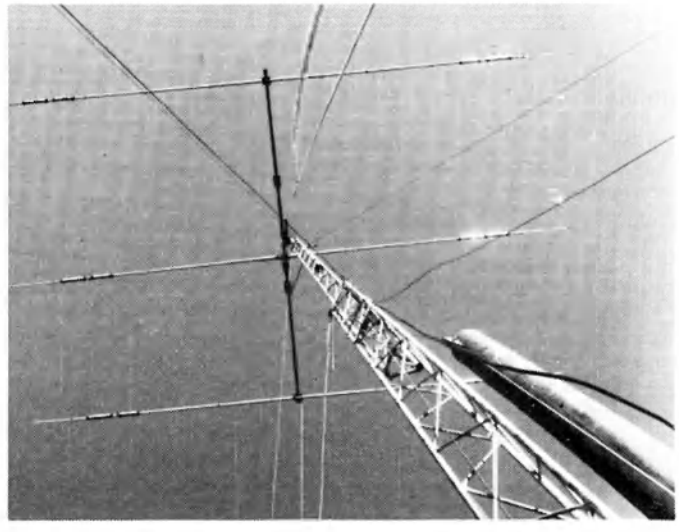
Since the tower was already pivoted at the base it is possible to tilt it over but with a beam on top it calls for two and a half men and a carton of beer as the weight is considerable. In addition one has to wait until the weather is exactly right, which is not very often in the Adelaide Hills. Having read in "Hints and Kinks" by ARRL that an amateur in "the States" had solved a similar problem with a telephone pole and a block and tackle I resolved to try something along these lines.

A telephone pole 30 feet long and 7 inches in diameter at the top was purchased from the local dump and it was delivered to the site where it lay for several weeks. Eventually a contractor who specialised in felling trees agreed to put it in the ground alongside the tower in line with the direction of pull and about two feet away from it. With the aid of Roger VK5RW a four inch pulley wheel was mounted inside a roughly fashioned but sturdy housing and mounted near the top of the pole. This job was done whilst the pole was still on the ground and the pulley was held in position by a long U bolt which ran right through the width of the pole. So that the pulley wheel would be free to rotate without scraping the sides of the housing, two washers were made up from tin plate as it was feared that the cable might slip down the gap alongside the wheel if it were wide enough.

To cement the pole in the ground near the tower took four strong men about an hour to do as telephone poles are heavy and cumbersome devices. After the hole has been dug down to about five feet, it is stepped on one side so that the toe of the pole can be angled into it. A crow-bar is positioned on the opposite side of the hole so that the pole will not tear the side on the way in. It should be canted slightly outward from the tower so that the top of the pole is two inches or so further from it than the base. This allows for movement towards the tower over a period of time caused by the weight of the tower as it is being raised and lowered. This can cause the pole to shift in the ground slightly.



View from the tennis court side



And she is up — ready to work the DX

The cable is attached to the tower about two-thirds of the way up the first section at about 20 feet off the ground. The tower is lowered to its telescoped height of 22 feet before it is tilted. The cable, which is heavy duty steel type, is passed through the pulley and down to a McPherson spur gear ratchet winch which is mounted on the pole facing the tower at a convenient height. The winch is capable of taking a 5000 lbs. (2272 kgs) strain and provides a choice of two ratios, the lower one being 10 to 1. It is possible that a lighter winch could serve equally well in this application. For light towers, a section of two inch water pipe could take the place of the telephone pole. The pulley must be so placed that the pull of the tower is in a straight line. The pole can be turned in the hole before it is filled in by passing a rope around it and pulling it in the desired direction. This is good exercise even for a strong man.

The day chosen for raising the mast was fine with a light breeze. Ropes were attached to the mast and rigged so that any tendency for side swing could be counteracted but in conditions of light wind this did not appear necessary and once the beam had been assembled and bolted into position the rest was easy and allowing for time to find a camera and take a photograph the mast with the beam on top was up and fixed safely into position in less than ten minutes. The only casualties in the operation were two tomato plants that were trodden down whilst the telephone pole was being manoeuvred into the hole.

Roger Wreford VK5RW turns the handle to raise the antenna. We didn't even have to get the XYL to take the washing off the line.

For a while it looked as though the problem of keeping the pulley moving freely without leaving terra firma to oil it from time to time might have meant getting the ladder out after all. However, a light piece of half-round dowelling was attached to the end of a long length of light timber and a wire swing which held a small container (pill box or similar) arranged so that it could be turned upside-down, was fixed to the end of the dowelling rod. In this way one can send the oil up to where it is needed and stay on the ground at the same time. Be careful not to stand directly below whilst performing this delicate task. ■

THE BASIC PRECEPTS OF SCIENCE

Submitted by E. Renouf VK2AWR

Gary Owen, of New Mexico, has supplied these interesting observations after many years of Amateur Experiments. His experience and observations are the same as ours.

ALLENDORFER'S AXIOM —
When all else fails, read the instructions.

BASSAGORDIAN'S BASIC PRINCIPLE AND ULTIMATE AXIOM —
By definition, when you are investigating the unknown, you do not know what you will find or even when you have found it.

CALLAHAN'S COMPENSATION COROLLARY —
The experiment may be considered a success If no more than 50 per cent of the observed measurements must be discarded to obtain a correspondence with theory.

FINKELRAT'S FUTILITY FACTOR —
No experiment is ever a complete failure, Inasmuch as a well-written account of it can serve admirably as a bad example.

FLANNERY'S EFFECT —
Those items most urgently needed are inversely available to the degree of urgency of the need, i.e. in any pile of papers, when search commences at the top, the sought-after paper is at the bottom or vice versa.

FLIEGELBAUM'S LAW OF THE PERVERSITY OF INANIMATE OBJECTS —
Any inanimate object, regardless of its composition or configuration, may be expected to perform at any (unpredictable) time in a totally unexpected manner for reasons that are either totally obscure or completely mysterious.

GUMPERSON'S LEMMA —
The probability of a given event occurring is inversely proportional to its desirability.

HORNER'S FIVE-THUMB POSTULATE —
Experience varies directly with the amount of equipment irrevocably ruined.

LOUGHRIDGE'S IMMUTABLE REALITY —
The intensity of the desirability of an event is directly proportional to its occurrence at a wholly inopportune time.

MURPHY'S LAW —
If anything can go wrong, it will (e.g. if you drop a piece of toast, It will inevitably fall jam-side down).

PATRICK'S THEOREM —
If the experiment works, you must be using the wrong equipment.

SCHIMMELPFENNING'S CONSTANT —
That quantity which, when multiplied times, divided into, added to, subtracted from or taken to the power of the answer you got, yields the answer in the back of the book.

SPINKENHEIMER'S SPARE PARTS PRINCIPLE —
The accessibility, during recovery of spare parts which fall from the workbench, varies directly with the size of the part and inversely with its Importance to the completion of the work under way

WIRESTRACK'S WELL-ORDERED PRINCIPLE —
Those supplies necessary for yesterday's experiment must be ordered by no later than noon tomorrow.

STAPP'S LAW —
The Universal aptitude for ineptitude makes any human accomplishment an incredible miracle.

E. Renouf VK2AWR ■

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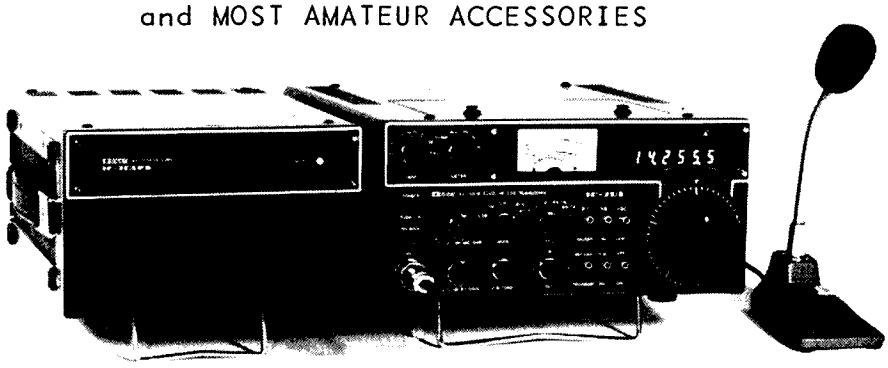

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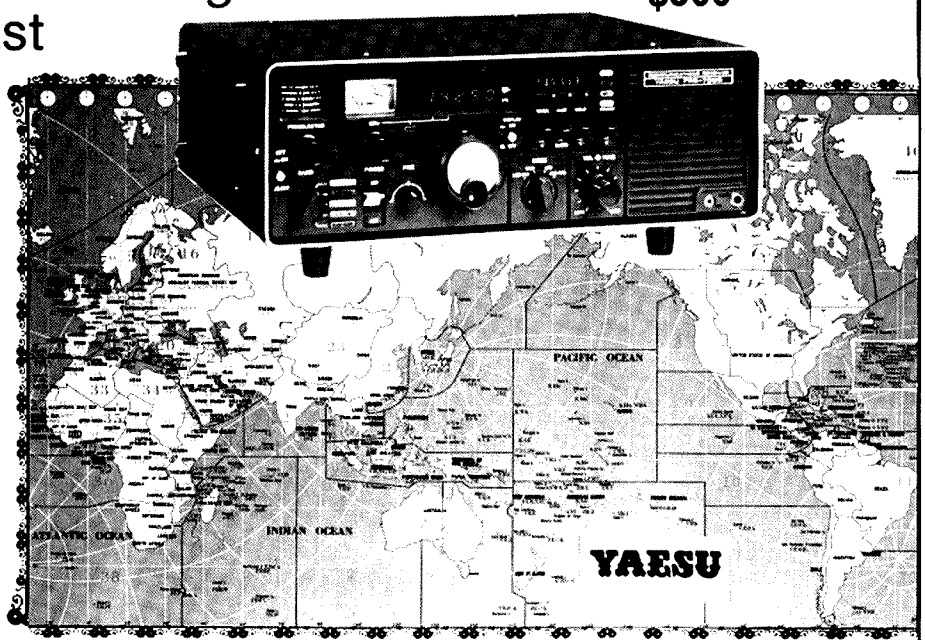

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- **Antenna requirements:** Random wire for 0.25 — 1.6 MHz 50 ohm unbalanced feed for 1.6 — 29.9 MHz
- **Speaker impedance:** 4 ohms
- **Audio output:** 2 watts
- **Power requirements:** 100/110/117/200/220/234 VAC, 50/60 Hz
- **Power consumption:** 25 VA
- **Size:** 360(W) x 125(H) x 295(D) mm
- **Weight:** Approx. 7 kg

JAS 7778-55

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A MOBILE WITH A COAST-TO-COAST GROUND SYSTEM

Dianne Main VK6NGQ
P.O. Box 463, Kalgoorlie, 6430

On September 1st, 1978, Bill Main VK6NDZ commenced operating as a railway mobile station by contatcing A4XGY at 0435 GMT on 28.595 MHz. Since then many VK and overseas amateurs have become familiar with the voice of "VK6NDZ railway mobile." The success of his operation has amazed no-one more than himself.

The often surprising signal reports obtained by this very QRP station are attributed to an extensive ground system, which extends, in fact, from the Indian Ocean to the Pacific Ocean; i.e. the railway line itself which is continuous between Sydney and Perth.

Bill's railway mobile station is very simple and consists of a TenTec Argonaut 509 transceiver with an input power of 5 watts. The antenna is a stainless steel ¼ wave whip on 10m with centre loading for 15m and 80m. The loading coil/coils not in use are shorted out. Most guards' vans have brackets either side which are used for mounting kerosene lamps in the event of an electrical failure in the van. However, Bill finds them far more suitable for mounting his antenna! Power to the transceiver, on passenger trains is provided by using the 240V AC generated on the train and on goods trains the 24V DC supply is reduced to 12V using a regulator. Many thanks are owed to VK6ZGQ, Lewis Pannell, who designed and constructed the antenna at extremely short notice in July 1978. Bill normally uses a headset for ease of operation.

He has worked all VK call areas including VK9 and VK0 from the train. Other countries worked include: W, VR1, ZL, P29, HC, G, HB, YB, 9M2, 9V1, JA, DK, CT, A4, ZS, 9J, UA, and 3B8.

Recently the Perth Radio League, of which Bill and myself are members, introduced 3 Awards: These are: the WAY 79 Award, in celebration of WA's 150th Anniversary; the Black Swan Novice Award and the Zone 29 Boundaries Award.

Whilst Bill can assist stations to qualify for two of these awards simply by virtue of being a VK6 novice station, the unique mode of operation enables him to qualify many stations for the Zone 29 Boundaries Award. To qualify for this award stations need to work 1 mobile station whilst that station is actually crossing a Zone 29 boundary. Bill regularly crosses the VK6/VK5 border during his work as a railway guard. He is also the Awards Manager for the Perth Radio League. Details of the awards can be obtained by writing to him at PO Box 463, Kalgoorlie, WA 6430.

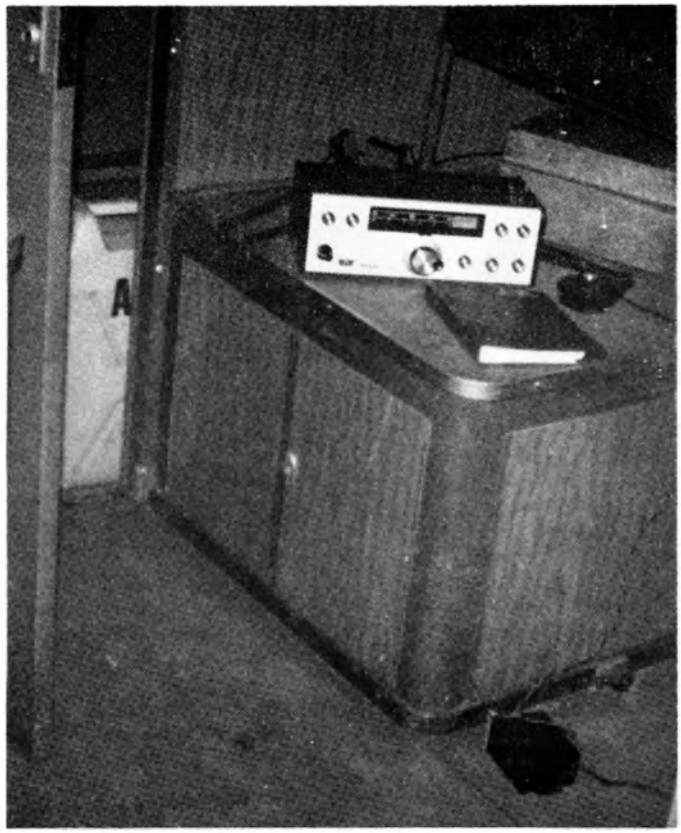
The Perth Radio League also has a Club station with the callsign VK6NFL, which at times may be used by Bill whilst rail mobile.

In the near future he hopes to increase the power of his station to 30W PEP by utilizing a small linear.

If you hear Bill operating rail mobile at any time, give him a call, he'll be more than pleased to confirm any contacts made from this unusual mobile station. ■

LEFT: Antenna mounted on bracket on side of Indian Pacific guard's van.

BELOW: TenTec Argonaut 509 in operating position on a goods train. Regulator for reducing 24V DC to 12V on floor of train.



COMMERCIAL KINKS

RON FISHER
VK3OM

Modifications to the FT-101 to cure strong signal overload, published in the November 1978 issue of Amateur Radio, has proved to be useful to many 101 owners, but at the same time perhaps caused a little confusion where the details do not exactly apply to your particular transceiver.

A recent letter from Les Diener VK5NJ helps to sort some of these problems out. Over to Les.

"Having implemented the modifications on my FT101B I find the results most pleasing and certainly transform what is normally a noisy receiver into a really first class unit which would compare favourably with any good "ham" band receiver. The signal to noise ratio is the most noticeable improvement even though the mod. is essentially intended to reduce front-end overload. It certainly does this also.

Previously I have been most satisfied with the AGC amp designed by Arn VK5XV, using a UA741 IC, and this certainly eliminates front-end overload, but the ZL2BAF mod. of applying AGC to additional stages is better and is a sound theory and good design practice.

Actually some sorting out was necessary with my particular unit, Serial No. 107936, as several minor points did not agree with the article and are described as follows:—

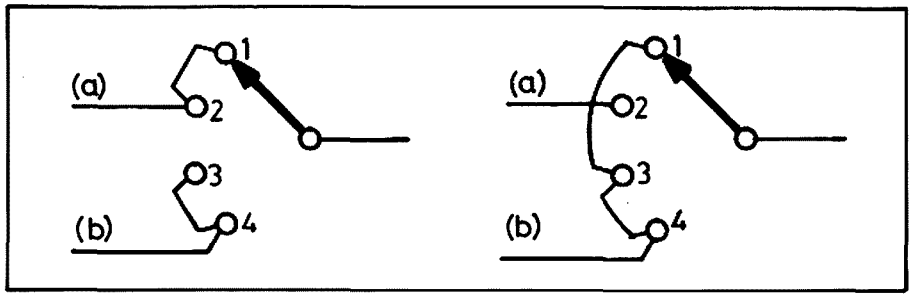
1. The bi-polar transistor preceding the noise gate is Q1 in my unit and not Q2 as stated in the article.
2. The base bias resistors are R1 and R2 (4.7K and 22K respectively) and not R5 and R2.

Once this was sorted out the job was quite simple. Actually, resistors of 1 meg and 2.2 meg were used in lieu of 1.8 meg and 1.2 meg as recommended, the latter values not being on hand.

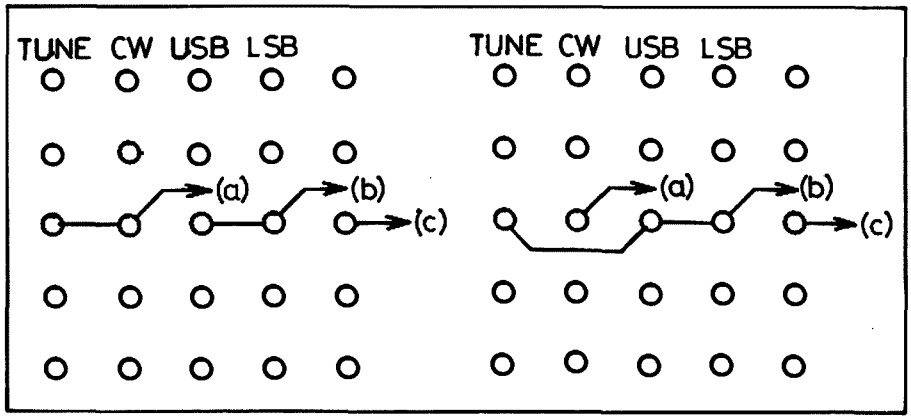
A complete re-align (as described in the handbook) was necessary to make sure all circuits were peaked, but overall the modification is a very worthwhile improvement for any FT101."

Now a simple modification to the popular TS-520 from Alan Bolton VK5TT. This one will interest the CW operators.

"The CW filter of the TS-520 is much sharper than the SSB filter, which is ideal when listening to a CW signal once it is tuned in. When tuning across the band for a CW signal, or listening to a reply to a CQ call, the wider bandwidth of the SSB filter is more convenient. This filter can be selected using the mode switch by turning to the USB or the LSB positions, but this also effects the audio note of the CW signal. This means that once the signal has been identified with the wider filter it is difficult to switch to the CW filter without losing it.



Physical layout of the mode switch contacts viewed from underneath
(a) — brown (to CW filter)
(b) — orange (to SSB filter)
(c) — orange (output of switch)



Circuit diagram of the change to the mode switch
1 — Tune 2 — CW 3 — USB 4 — LSB
(a) — brown lead to CW filter
(b) — orange lead to SSB filter

It is possible to change the TS-520 mode switch so that the tune position is used to give the wider SSB filter with the same audio note as for CW reception. Normally the tune position on the TS-520 uses the CW filter; changing to the SSB filter simply involves changing over one lead on the mode switch.

The mode switch has 5 wafers, and the filter selection is on the centre wafer. Access to the lead is obtained by removing, in sequence, the TS-520 covers, dial, knobs, nut on channel select spindle and then the decorative front panel. Then the JJY/WWV switch can be unscrewed and moved, with the leads still connected. The mode switch can be moved also, giving access to the terminal to be reconnected. The physical layout of the mode switch contacts are as shown.

After this modification the tune position can be used to locate the CW signal with the wider filter. Once the signal has been found the audio frequency can be adjusted so it will fall within the narrower passband of the CW filter while the mode switch is in the tune position. The audio note will now be unchanged when the CW filter is used. It should be noted that on the wider bandwidth some CW signals may be on the incorrect (upper) side of the demodulating carrier, but this can be realized by tuning across the CW signal. The fact that the note of the CW signal is unchanged when switching between filters makes the search for them far more convenient." ■

NOVICE NOTES

THE CQDX RADIO GROUP

I became an amateur purely by coincidence. I spent most of my life as a musician but gave that away shortly after I married. I'd heard of Amateur Radio of course, but I'd always imagined that the level of knowledge was far too hard to obtain. Through my love of music I'd developed an interest in the technical side of audio, and that was the field in which I was involved when our son Robert was born. The night he arrived on the scene changed so many things that I find it fascinating to look back and see how many people's lives it changed. This article is to do with radio so I hardly think it is relevant to mention the obvious changes that occur when a man becomes a father for the first time.

Quite a few people had said they could not imagine me walking down the street pushing a pram, but that is in fact just what happened. The difference was that I had a one channel walkietalkie antenna sticking up out of the "Mobile" and Mum was back at the "Base" with the other unit. I can't remember what the call sign was now . . . V followed by about five figures I think. But at any rate it was very useful for obvious reasons.

Trevor Reid **VK3NNR** with son Robert, who has "worked" several Stateside amateurs under supervision. Two-and-a-half year old Robert has been given the handle "Big Bubba One" by some of the locals.

The puzzling part was that I kept hearing strange call signs such as "Foxtrot Charlie One" and others, and I found that I was not the only one on the air. Evidently there was something called CB around which needed investigation. I became a CBer, and CB then was a little bit different from what it seems to be now.

I will never knock CB because it brought together a lot of very decent men (and women) who might otherwise never have got to know each other. What fun we had, ragchewing, looking for "Clowns", having "Eyeballs", etc. A mixed bunch of guys and gals, but within that bunch quite a few were genuinely interested in radio communication. When AM CB became crowded we moved "Up" to sideband. The lure of skip and "DX copies" added to the interest and the nucleus of a club formed, although we didn't know it then.

I couldn't help thinking that there had to be something more to radio than this. A chance meeting with Howard VK3ZJY, who was instructing Amateur Radio, found me attending his classes. I discovered that the best way to learn is to teach, and I set up a radio school for the members of our little group at my home. Three of us subsequently obtained licences and that attracted a few more.

By now the CB scene had become what it is today, and the serious radio enthusiasts were tending to go all out for their Novice licences or move into the UHF bands on CB. Many still stayed with 27 MHz so our Club, the *CQDX Club*, was formed, with myself as secretary. Initially, most of the members were young, but now more of the older men were joining and many are the same ones who used to ragchew on 27 MHz sideband. The wheel is turning full circle, but the circle is far far wider.

I find it difficult to describe my feelings when I first set out with my own "Call". It was like watching the world from behind a window, then suddenly walking outside with the horizon stretching in every direction. Romanticism . . . perhaps, but that's how I felt and I wonder how many others have shared that feeling. My instructor Howard, Harry VK3EK, Len VK3NAC and others had demonstrated courtesy and proper procedure, as I watched them operate their stations and I have tried to emulate this and in turn pass it on to the members of our group . . . thus the reasons for my notes.

Generally I have found that by nature most amateurs are Individualists and I accept each in this way. Such thinking is reflected in the Constitution of our Club, membership being open to anyone with a genuine interest in radio COMMUNICATION, and I stress the last word, as it inincludes CBers, SWLs, Amateurs or anyone interested in the interchange of ideas between people. Radio just provides the common ground. Maybe we don't all live up to such high ideals, but I think most of us try.

The name was of course derived from the fact that CBers and Hams alike use the term CQDX . . . it means I wish to talk to someone . . . what a good idea in the materialistic world we live in these days.

I like DX . . . those who have heard me working late at night will doubtless confirm this, but I also like to stop and talk . . . to find out something about the other guy, providing of course that there are not others waiting in a pile up, and at least then his card, if and when I get it, will mean just that much more. If Robert ever follows in my footsteps . . . I sincerely hope that this is one aspect of Ham Radio that he will adopt . . . he got me into it, I hope he carries the tradition on.

If anyone is interested in the Club or its ideals and aims, the address is PO Box 79, Heidelberg 3084, Victoria.

Trevor C. Reid VK3NNR

EDITOR'S NOTE:

From next month, we shall commence serialising parts of the CQDX Radio Group Handbook. It will make interesting reading to all novices and newcomers (VK3UV). ■

★ ★ ★

MIDLAND ZONE FIELD DAY

To stimulate interest of the Novice element in the Zone all stations in the Field Day Contest 10/11 February 1979 with the exception of the 2 metre section were manned by novice operators using novice power, all of which was within the 30 watts PEP allowed. 80 metres proved to be the highest scoring section in the six hour period with contacts into VK1, 2, 3, 4, 5 and 7, and ZL1, 2, 3 and 4 zones from a

VK3NND watches VK3BIP and VK3AGM complete running repairs

Joan VK3NLO (nice lady operator)

L. to R.: Murray VK3AMP and Norm VK3BNU on 2 Mx FM with George VK3ZZI solo on 2 Mx SSB. Don L31093 and his children in background.

(Midland Zone photos by courtesy Geoff VK3NTN and printed by Harmonic of VK3NOV).

BELOW: Murray VK3NOV, Zone Secretary on 10 Mx SSB.

simple co-ax fed half wave dipole strung up a gum tree, I suppose being about 630 metres above sea level helped a bit.

The 2 metre boys had a very productive six hours both on 2 metres FM and SSB, and the assistance of several of the AOCP members in the zone with their knowledge of antennas and how to get them into the air quickly was fully appreciated by all novice operators.

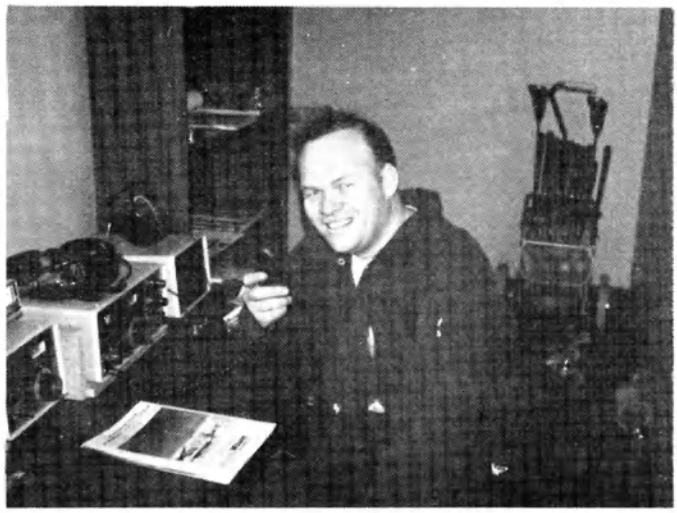
This was a very good exercise for our novice operators and next year we hope to give other zones and clubs a run for their money. Gallons of coffee were consumed, but there was a singular lack of 807s. The journey down the Mount was very enjoyable with the 10 metre mobiles taking full advantage of the propagation at 1.00 a.m. on Sunday morning, with running commentaries of the skill and otherwise of the drivers who had not been up to one of the highest points in our Zone. Amateur radio is a hobby much enjoyed by our novices in the zone and we look forward to advancing in the skills required for that "full ticket", field days take you a long way in giving you the incentive to study and up-grade your licence.

VK3ATO/P Mount Alexander, near Harcourt, the voice of the Midland Zone, WIA, Victorian Division. ■

★ ★ ★ ★ ★ ★ ★ ★ ★

AROUND THE NOVICE SHACKS

Stan Tayler VK3NGN is one of the more active members of the Western Suburbs Radio Club in Melbourne. Stan, licensed since 1977, operates either his TS-820 modified or an FTDX400 modified into a three element tri-band Yagi, and on 80 metres uses a mobile whip mounted above his superbly constructed shack. Stan recently was voted Secretary of the club for the second consecutive term, an indication of the excellent job he does.



Formerly a VK6 novice, Ward Long is now VK3NAJ and has a very impressive and extremely operational shack, complete with a recently installed tower and TH6 tri-band beam. Ward is also active in the mobile with an FT7 and helical whip. And as you can see by the photograph, Ward plays a mean golf round as well as having a mean signal on HF!!

THE ITU WARC SEMINAR— SYDNEY

The MLC Centre is a tall octagonal building in the heart of Sydney, Australia. On the 50th level spectacular views of the Harbour Bridge, the Heads and even in the distance Botany Bay can be seen from every window.

It was in this magnificent setting that the third of the ITU Regional Seminars was held, the others being held in Panama and Nairobi. 170 people took part from 37 countries and organizations. The Seminar was held on the 29th March to the 10th April, 1979, and was opened by the Australian Minister for Posts and Telecommunications, Mr. A. Staley.

The main purpose of the Seminar was to familiarize the many countries who will be attending their first Radio Conference, the World Administrative Radio Conference 1979, with the requirements for revising and updating the Radio Regulations. The Seminar also discussed topics of interest to countries in the Region, including communication problems associated with island countries and the use of high frequency radio for domestic communication.

On Saturday, the 31st March, the Wireless Institute of Australia, for itself and for the International Amateur Radio Union, hosted a reception in honour of participants on the 50th level of the MLC Centre.

Amongst guests were the Secretary-General of the ITU, Mr. Mill, and Mr. R. E. Butler, the Deputy Secretary-General.

In an adjoining area a continuous videotape showing Amateur activities and relating those activities to the definition of the Amateur Service in the Radio Regulations was shown and many of the guests took time to watch this 5½ minute segment. Booklets from IARU Region 2, with an insert giving names of IARU Region 3 member societies, describing the Amateur Service, were available and very many of the delegates accepted these booklets.

An IARU receiver was on show on a corner table and attracted considerable Interest. Delegates from many countries, particularly from developing countries, were very interested in this example of a low cost receiver, capable of receiving SSB and CW, that could be simply assembled.

For the small number of prominent Australian Amateurs who acted as host during this reception it was a wonderful opportunity to meet those involved in frequency management from so many countries and, in many cases, to answer their questions about Amateur Radio.

Michael J. Owen VK3KI. ■

WIA Federal Vice President, Peter Wolfenden VK3ZPA shows the IARU receiver to a delegate from Sri Lanka.

Federal President of the WIA, David Wardlaw VK3ADW, with ITU Secretary General, Mr. Mili and WIA IARU Liaison Officer, Michael Owen VK3KI.

At the Seminar — l. to r.: Mr. Sui Hongliang, Michael Owen VK3KI, David Wardlaw VK3ADW, Mr. Nie Banggno, Mr. Zhoo Xintong, Mr. Ding Yixing and Mr. Liang Shi — the delegates from the Peoples Republic of China together with the Australian Amateur delegates.

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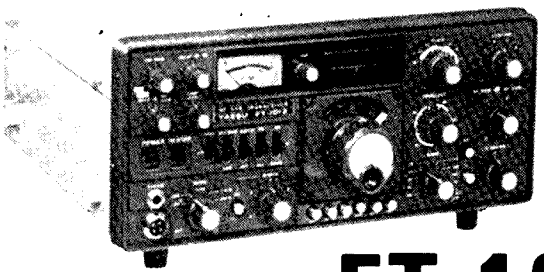

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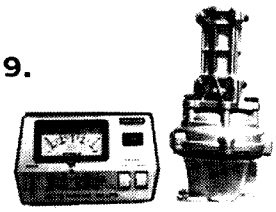

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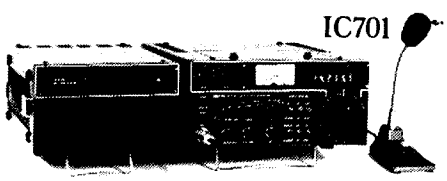

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Beside a whole range of AMATEUR RADIO EQUIPMENT and special communication systems such as RTTY and SSTV, we are also entering the exciting field of HOME and HOBBY COMPUTERS.

To mark this special occasion, all products sold during the month of JUNE will be sold at greatly reduced prices.

HERE ARE SOME OF OUR JUNE SPECIALS

NATIONAL RJX1011D — *the king of all transceivers* ~~$1990~~ *now* **$1690**

YAESU PRODUCTS

FT101E Transceiver AC-DC	$775
FT301 Transceiver	$790
FT301D Transceiver Digital	$890
FP-301 AC Power Supply	$165
FRG-7 Receiver	$315
FRG-7000 Receiver	$595

KENWOOD PRODUCTS

TS-520S Transceiver	$650
TS-820S Transceiver	$1090
TS-120V Mobile Transceiver	$550

DENTRON PRODUCTS

GLA-1000 Linear Amplifier	$489
HF-200A Transceiver	$725
MLA2500 Linear Amplifier	$1199
CLIPPERTON-L 2kW Linear Amplifier	$875
MT3000A Antenna Tuner	$447
MT200A Antenna Tuner	$270
SUPER TUNER — Plus	$206
160/10AT Super Tuner	$176
JR. Monitor	$104
80/10AT Tuner	$95
W-2 Wattmeter	$145
BIG DUMMY Load	$43
DTR-2000 2kW Linear Amplifier	$1459
ALL BAND DOUBLET	$33.50

B & W PRODUCTS

Model 333 Dummy Load Wattmeter	$122
Model 334 Dummy Load Wattmeter	$221
Model 374 Dummy Load Wattmeter	$265
AT-200 Antenna Matcher 2-metre	$38

LUNAR PRODUCTS

HF-3-100L2 Linear Amplifier	$225
BI-LINEAR VHF Model	$259
28-432 Low Noise Preamplifier	$42
PA-28, VHF Inline Preamp, Low Noise (10m)	$54
PAI-50B, VHF Inline Preamp, Low Noise (6m)	$54
PA-144B, VHF Inline Preamp, Low Noise (2m)	$54
OSCARBOX J, UHF Down Converter	$96

INFO-TECH PRODUCTS

Model 75 RTTY to Video Converter	$448
Model 150 RTTY Keyboard	$407
Model 200E RTTY and ASCII to Video Converter	$668
Model 300 RTTY and ASCII Keyboard	$564

ROBOT PRODUCTS

Robot Scan Converter	$955
12 in. Video Monitor AVM-090	$289

BALUNS

KAUFMAN	$23
HY-GAIN BN-86	$25

WAWASEE PRODUCTS

JB1001SFCM Scope/Wattmeter/SWR	$379
JB1002FC/M Counter/Wattmeter	$225
JB1003C/M Clock/Wattmeter/SWR	$135
JB2000SW Wattmeter/SWR Bridge	$75
JB1000S/M Scope/Wattmeter/SWR Bridge	$310

MICROPHONES

SHURE 444	$55

NOT ALL PRODUCTS CAN BE LISTED — COME AND SEE US!!

'ASK FOR OUR SPECIAL PRICES!!

YAESU

bail

AMATEUR RADIO EQUIPMENT FROM BAIL ELECTRONIC SERVICES

FT-101Z NEW MODEL TRANSCEIVER

160-10m P.A. 2 x 6146B $779

FT-101/101E W/S Maintenance Manuals	$27
FT-901 W/S Maintenance Manuals	$27
FT-221 W/S Maintenance Manuals	$19
FT-227 W/S Maintenance Manuals	$14
Add P&P $2.50 per manual	
FT-7B Transceiver	$629
YC-7B Digital Readout for FT-7B	$125
FL-2100B Linear	$559
FT-227R 2m FM Digital	$339
YC-500S Counter, 500 MHz	$499
YC-500E Counter, 500 MHz	$656
YP-150 Dummy load/power meter	$112
SP-901 External Speaker for FT-101 and FT901	$56
FTV-901R, YO-901, SP-901P, F-101, & DC kit,	$TBA
CW Filters for 101Z and 901	$63
CW Filters for FT-101E	$59
FRG-7 Receiver	$319
Battery holder for FRG-7	$10
LFC-2A Selective SSB filter for FRG-7	$20
FRG-7000 Digital Receiver	$599
QTR-24 World Clock	$35
YH-55 Yaesu Headphones, 8 ohm	$19
YD-844 and YD-148 dual impedance desk mics., 600 ohm/50k ohms	$49
YE-7A 600 ohm and YD-846 50k ohm hand mics.	$21.50
RS Series Yaesu HF Gutter mount mobile Antennas — RSM2 base, inc. RSE2A stub mast, with Co-ax. cable attached	$29.90
Resonators — RSL-3.5 $22, RSL-7 $21, RSL-14 $20, RSL-21 $19, RSL-28 $19, RSL-145 (5/8 2m) $24.	
6JS6C P.A. Valve FT-101E	$11
Other Yaesu valves also available.	
SRC-146A Standard (Japan) 2m hand-held 5 chan. 2W FM transceiver, built-in mic., spkr., "S" meter, inc. carrying case and crystals, to clear	$199
Base adaptor SRC	$23
Also available Rubber ant., optional hand mic., mobile adaptor, Nicad batteries.	

ROTATORS:
103 LBX $165, 502 CXX $255, 1103 MXX $395, 1102 MXX $368.

MAST CLAMPS:
For 103 $18, 502 $29.50, 1102 and 1103 $45.

FLEXIBLE COUPLERS:
For 103 $16, for 1102/3 and 502 $32.
Mast and Tower Top Bearings $32

L.P. FILTERS:
LP-7 $6.50, TV-42 $15, TV-476 $10, FF-501DX $39.

ANTENNAS:
TH6DXX $275, TH3JR $195, VS-33 $249, DX-33 $215, DX-32 $135, DX-34 $255, AM4-2 $159, VS-20CL $145, VS-11CM $89, VS-41/80KR $109, VS-RG $25, 18V $38, TD-1 $68. (Note: The Hidaka "VS" beams inc. balun; VS-33 & DX33 equiv. to TH3 — Mk III. DX-32 & DX-34 are 2 and 4 element versions. All heavy duty construction, 2 kW rating).

DENSO 430 Anti-Corrosive Compound for jointing antenna & beam elements, per tube $2.90
add $1.10 P&P

Hy-Gain BN-86 balun	$28
Lightning Arrestors	$4.95
Co-Ax. Switches, TWS-120, 2 position	$16
ASW-1, 5 position $34, 590G, 5 position $39.90.	
Antenna Egg Insulators, Porcelain	50c

ANTENNA COUPLERS:
HC-75 $65, HC-250 $89, HC-500A $119, Yaesu FC-901 $245

SWR METERS:
RS-101 $7.50, SWR-40 $15, SWR-200 dual $75, FSI-5 dual $29.

MORSE KEYS:
HK-708 $14.99, HK-706 $25, HK-808 $85, Morse osc. EKM-1A $13.90. Practice set TC701 $19.50.

The above list is not complete. There are many more items available. Contact us for your requirements.
Above prices (R.R.) inc. S.T. Freight is extra. Prices and specs. subject to change. 90 day warranty on sets, excluding power valves and power transistors. Full service facilities and comprehensive range of spares.
Most items ex stock at time of advert. preparation.

bail ELECTRONIC SERVICES

60 Shannon Street,
Box Hill North, Vic. 3129
Phone: 89 2213

FRED BAIL VK3YS
JIM BAIL VK3ABA

Agents in all States and A.C.T.

KENWOOD

New shipment of the superb TS-520S just arrived in Australia.

Ask your nearest Kenwood distributor for your extra special deal on the ever popular TS-520S all band (1.8 to 29.7 MHz) SSB Transceiver. Amateurs throughout the world aclaim this rig which was specially engineered for the serious enthusiast.

TS-820S series
If you require a more progressive HF Digital Transceiver then move up to the functionally engineered TS-820S Pacesetter rig.

Due to production delays overseas, the TS-120S and the TS-180S Transceivers previously advertised will not be available until the end of June.

TRIO-KENWOOD (AUSTRALIA) PTY. LTD.
31 Whiting Street, Artarmon, Sydney, N.S.W. 2064. Telephone (02) 438-1277

Interstate Distributors:

N.S.W.: SIDE BAND ELECTRONICS SALES (02) 438-4191 — CUSTOM COMMUNICATIONS (02) 681-3544 •
VIC.: VICOM IMPORTS PTY LTD (03) 699-6700 • **QLD.:** MITCHELL RADIO CO (07) 57-6830 •
S.A. & N.T.: INTERNATIONAL COMMUNICATIONS SYSTEMS PTY LTD (08) 47 3688 •
W.A.: WILLIS TRADING CO (09) 321-7600 • **TAS.:** ADVANCE ELECTRONICS (003) 31-5688 •

PLUS MANY OTHER REGIONAL OUTLETS THROUGHOUT AUSTRALIA

VK/ZL/OCEANIA DX CONTEST — 1979

The WIA and NZART, the national amateur radio associations in Australia and New Zealand, invite world-wide participation in this year's VK/ZL/Oceania DX contest.

WHEN

Phone — 24 hours from 1000 GMT, Saturday, 6th October, to 1000 GMT, Sunday, 7th October, 1979.

CW — 24 hours from 1000 GMT, Saturday, 13th October, to 1000 GMT, Sunday, 14th October, 1979.

RULES

1. The sections in the contest are:—
   (a) transmitting phone, 24 hour period,
   (b) transmitting CW, 24 hour period,
   (c) transmitting phone, 8 hour period VK/ZL only,
   (d) transmitting CW, 8 hour period for VK/ZL only.
2. All amateur bands may be used, but no crossband operation is permitted. NOTE: VK/ZL stations, irrespective of their location, DO NOT contact each other for contest purposes EXCEPT on 80 and 160 metres on which bands contacts between VK and ZL stations are encouraged.
3. Only one contact per band is permitted with any one station for scoring purposes.
4. Only one licensed amateur is permitted to operate any one station under the station's call sign. Should two or more operate any particular station, each will be considered a competitor and must submit a separate log under his own call sign. This is not applicable to overseas competitors operating club stations.
5. **CYPHERS**
   A serial number of five or six figures will be made up of the RS (phone) or RST (CW) report plus three figures, beginning with 001, increasing in value by one for each successive contact.
6. **8 HOUR SECTION (FOR VK AND ZL ONLY)**
   Operation must be continuous and a 24 hour entrant cannot enter this section.
7. **SCORING**
   (a) **For Oceania stations other than VK/ZL**
   2 points for each contact on a specific band with VK/ZL, and
   1 point for each contact with the rest of the world.
   (b) **For rest of the world other than VK/ZL**
   2 points for each contact on a specific band with VK/ZL, and
   1 point for each contact with Oceania stations other than VK/ZL.
   (c) **For VK/ZL stations**
   1 point per contact, multiplied by the prefixes worked on that band. NOTE: W1, K1, WA1, A1, N1 (although in same call area) are different prefixes and count as multipliers; W6AA/1 is same as above and counts as W1 and not W6; JK1AA/5 will become the common prefix for the "5" area, namely JA5.
   (d) **80 metre section**
   For contacts between VK and ZL, each VK and ZL call area will be considered a "scoring area", with each different call area counting as a multiplier.
   (e) **160 metre section**
   As for 80 metres, plus contacts for scoring permissible between VK/VK, ZL/ZL.
8. **LOGS**
   (a) Logs to show, in order — date, time in GMT, call sign of station worked, band, serial number sent and received. Separate log for each band required.
   Summary sheet — to show call sign, name and address, and each band, QSO points multiplied by VK/ZL call areas worked.
   All band score will be total QSO points for all bands multiplied by total VK/ZL call areas worked on all bands.
   (b) VK/ZL stations — as for overseas stations and the summary sheets to show call sign, name and address, and each band, QSO points multiplied by prefix worked on that band. All band score will be total of single band scores.
   Signed declaration that all rules and regulations have been observed also required.

IMPORTANT NOTE:
Should a VK or ZL entrant so desire, submission of a summary sheet signed by at least two other operators, who need not have been in the contest, will be accepted by the contest manager, who reserves the right to call for the log should he so desire.

AWARDS

World wide, except VK/ZL
(a) Mounted medallion to top world scorer.
(b) Bronze medal to top scorer in each major area of contest activity.
(c) Top scorers in each country (call area WJU) will receive a certificate. Depending on actvity, other awards may be made.

VK and ZL stations
(a) Mounted medallion to top scorer in VK and in ZL (two medallions).
(b) Bronze medal for top scorer of each band for VK/ZL (six medals).
(c) Top scorers in each call area of VK and ZL.
(d) Top scorers in VK and ZL on each band.

ENTRIES
Should be posted to:—
WIA,
GPO Box N1002,
Perth, West Australia 6001,
or VK6NE-WIA VK/ZL Contest Manager,
388 Huntriss Road,
Woodlands, West Australia 6018,
to arrive on or before 31st January, 1980.

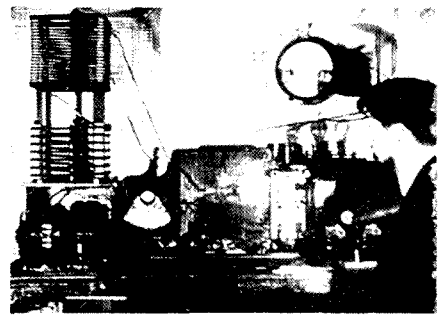
Results may be obtained by enclosing 1 IRC with your log.—VK6NE. ■

HISTORICAL FILM

At this year's Federal Convention David Wardlaw VK3ADW, the Federal President, presented a copy of an historical wireless telegraphy film to the Institute.

The film, of French origin, does not deal directly with Amateur Radio, however, because of its age, it portrays wireless installations not unlike many amateur stations of the early days.

Originally, the film was on 28 mm (not 35 mm), a relatively rare film gauge which was used for early home movies and by educational institutes.



"The sparks fly as the operator keys" — a frame from the film.

The copy of the film presented to the Institute was photographically reduced from 28 mm to 16 mm by Peter Lord VK3NPL at Victorian Film Laboratories using the "Wetgate" technique. This provides enhancement of the image by reducing the effects of scratches on the original.

Both "old-timers" and newcomers alike will find interest in this new acquisition which will be available via the Institute Videotape Co-ordinator, John Ingham VK5KG. ■

TRIAL AOCP EXAM

TRIAL AOCP EXAM — IN JULY, MULTIPLE CHOICE TYPE, CLUBS OR DIVISIONS. CONTACT ROY HARTKOPF VK3AOH, FOR DETAILS.

WARC 1979 — WHY?

P. D. Williams VK3IZ
R. J. Kelly VK3NT
C/- Vicom

The basic appeal of the Amateur Service has probably been impaired by changes in allocation over the years. Congestion in some parts of the world and a confirmed opposition to amateur activity in other parts have contributed to decreased operations and no doubt, some technical progress.

Although there has been growth and innovation especially in Australia, it is apparent that further reductions or even small changes in a negative direction will lead to a loss of many of the vital functions performed by the amateur service.

Of course, an increase in the allocations will be accepted in the spirit in which it is given! Hopefully, they will be wisely used to enhance the status of the amateur service. We, at Vicom believe that the amateur service has, as a base for its continued existence, the following arguments:

1. TECHNOLOGICAL DEVELOPMENT

Amateur radio can provide a source of self training in electronic skills, limited only by the effort the individual is prepared to put into it. Despite proliferation of "black boxes", an understanding of the techniques used, plus a desire to implement these principles in experimentation must stimulate the development of communications technology.

2. ECONOMIC CONTRIBUTION

Although not particularly appropriate in the Australian context, the indirect extension of amateur radio and related equipment into professional consumer and government markets must advance to play a role in raising the general level of technological knowledge.

3. THE NATIONAL IMAGE

Especially on DX bands, the image of the country is portrayed through personal and unrehearsed dialogue. Unlike international broadcasts which consist of political discussions and news with strong editorial undertones, the amateur service can project abroad a strong and creditable image of the nation.

In supporting the WIA and Region III IARU, we at Vicom believe that the Amateur Radio Service clearly emerges as a national and international resource whose value to any nation is great. Any attempt to prune this resource must constitute a serious loss. We welcome and support the activities of the WIA and IARU Region III. We hope all amateurs share this philosophy. ■

AMATEUR SATELLITES

Bob Arnold VK3ZBB

OSCAR 7

Despite serious battery failure the satellite is still operating and can be heard In modes A and B. Operation through these modes are possible on occasions, but please use restricted power. I am reinstating the predictions.

OSCAR 8

This satellite is now running four minutes earlier than the predictions given in previous editions. The predictions in this issue are appropriately corrected.

On some occasions AO8 has been switched to mode J on Tuesday and Thursday in addition to the scheduled Wednesday, Saturday and Sunday. On some days both modes A and J are operable.

RUSSIAN SERIES

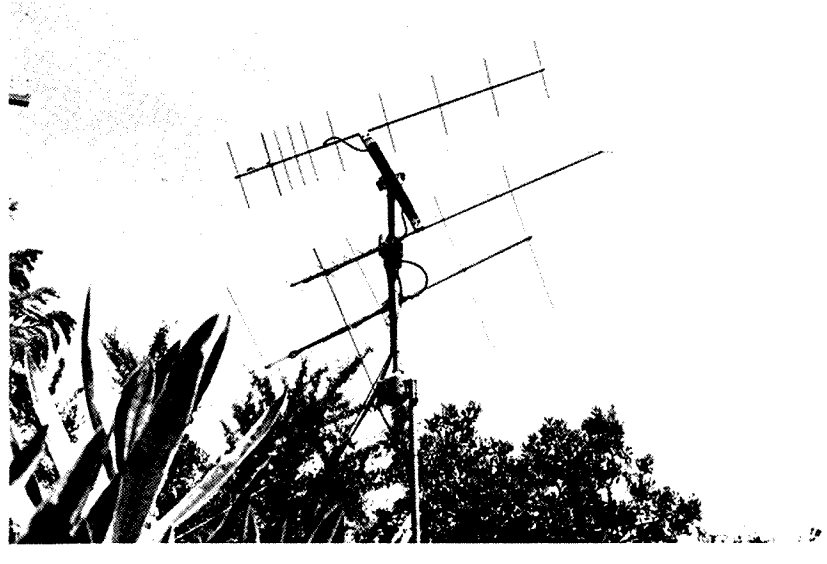
Both RS1 and RS2 appear to be in difficulty due to battery failure or damage to solar cells. RS1 telemetry is very weak. It is doubtful if operation will be possible through either of these satellites. Unfortunately reliable detailed information is extremely difficult to obtain.

VK4 DIVISION

Peter VK4PJ is now including a segment on amateur satellites in the weekly VK4 Divisional broadcast, I hope this idea will be considered in other Divisions where it is not already a part of the broadcast. ■

ORBIT PREDICTIONS — JULY 1979

	OSCAR 7			OSCAR 8			RUSSIAN RS1		
	Orbit No.	Eqx. GMT	Eqx. °W	Orbit No.	Eqx. GMT	Eqx. °W	Orbit No.	Eqx. GMT	Eqx. °W
1	21151	0021	69	6728	0041	56	2965	0155	276
2	21164	0115	83	6742	0046	57	2976	0000	248
3	21176	0015	68	6756	0051	59	2988	0005	251
4	21189	0109	81	6770	0057	60	3000	0009	254
5	21201	0009	66	6784	0102	61	3012	0014	257
6	21214	0103	80	6798	0107	63	3024	0019	259
7	21226	0002	64	6812	0112	64	3036	0023	262
8	21239	0056	78	6826	0117	65	3048	0028	265
9	21252	0151	92	6840	0122	67	3060	0033	267
10	21264	0050	76	6854	0128	68	3072	0037	270
11	21277	0144	90	6868	0133	69	3084	0042	273
12	21289	0044	75	6882	0138	70	3096	0047	276
13	21302	0138	88	6895	0000	46	3108	0052	278
14	21314	0037	74	6909	0005	47	3120	0056	281
15	21327	0132	87	6923	0010	49	3132	0101	284
16	21339	0031	72	6937	0015	50	3144	0106	286
17	21352	0125	85	6951	0021	51	3156	0110	289
18	21364	0024	70	6965	0026	52	3168	0115	292
19	21377	0119	84	6979	0031	54	3180	0120	295
20	21389	0018	69	6993	0036	55	3192	0125	297
21	21402	0112	82	7007	0041	56	3204	0129	300
22	21414	0012	67	7021	0046	58	3216	0134	303
23	21427	0106	81	7035	0052	59	3228	0139	306
24	21439	0005	66	7049	0057	60	3240	0143	308
25	21452	0100	79	7063	0102	62	3252	0148	311
26	21465	0154	93	7077	0107	63	3264	0153	314
27	21477	0053	78	7091	0112	64	3276	0158	316
28	21490	0147	91	7105	0117	66	3287	0002	289
29	21502	0047	76	7119	0123	67	3299	0007	292
30	21515	0141	90	7133	0128	68	3311	0011	294
31	21527	0040	75	7147	0133	70	3323	0016	297

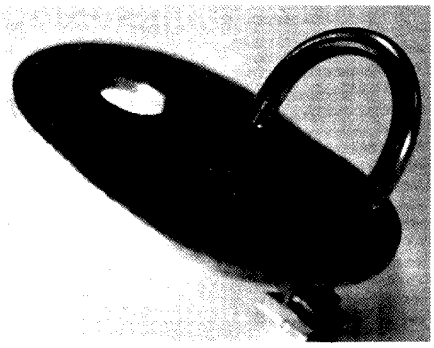


Oscar antennae at VK3ZBB — Bob Arnold.

AROUND THE TRADE

SKI-BAR BRACKET

Something new on the market from Barry Chivers, 19 Naomi Court, Bayswater, Vic. 3153, is the J & D cadmium plated ski-bar mounting bracket. Just the thing for Amateur or CB whips, and it saves one of those little "problems" If you are



trying to make one up yourself from the junk box.

They are available for $2.00 plus 50c postage.

Enquiries to Barry at the above address or phone (03) 729 3906 (A.H.). ■

NEW MFJ ANTENNA NOISE BRIDGE

GFS Electronic Imports, Australian agents for MFJ Enterprises, Mississippi, USA, have just announced the release of the model MFJ-202 antenna noise bridge.

Housed in a compact 5 cm x 7.5 cm x 10.2 cm case it offers the user the ability to read pure resistance of the unknown source over a range of 0 to 250 ohms and both inductive and capacitive reactance with a ± 150 pF capacitor. Frequency range is 1 to 100 MHz.

Powered from an internal 9 volt battery the MFJ-202 makes solving antenna problems a breeze. For example: Resonant frequency on the antenna can be determined, electrical half wave length of a transmission line calculated, input and output impedance of an RF amplifier may be found, baluns can be measured for impedance, velocity of transmission lines can be calculated.

With the addition of a Range expanding resistor the MFJ-202 may be used to make resistive measurements up to 5,000 ohms and inductive capacitive reactance measurement up to 2,200 ohms.

Price of the MFJ-202 is $78. For more information contact GFS Electronic Imports, 15 McKeon Road, Mitcham, Vic. 3132. Ph. (03) 873 3838. ■

BWD APPOINTS SA DISTRIBUTOR

BWD Electronics Pty. Ltd., the manufacturer in Australia of precision instruments, announces that Protronics Pty. Ltd. is their sole distributor in South Australia and the Northern Territory.

The announcement was made during a recent visit to BWO Electronics by Bob Crabbe, Managing Director of Protronics. Mr. Crabbe, on the left of

the photograph, is seen with Bruce Owen, Managing Director, and Ron West, Marketing Manager, for BWD Electronics at the signing of the agreement. Ron West said Protronic's five sales engineers and comprehensive service facilities would make a significant contribution to the already successful distribution of BWD products in Australia and would further strengthen local customer sales and service facilities.

A larger order has been placed by Protronics for items from the wide range of BWD products, in particular for the Powerscope, Oscilloscopes, Signal and Waveform Generators, Power Supplies and "Mini-Lab" (the teacher's friend).

Protronics address is 174-180 Wright Street, Adelaide, SA 5000. Phone (08) 212 3111. ■

VICOM SUPPORTS WARC 1979

As a contribution to the effort in preparing and maintaining a presence at the coming World Administrative Radio Conference, VICOM have donated $1,000 towards the Wireless Institute's funding for the project.

A spokesman for VICOM said that the Conference will have a profound effect on the long-term interests of both the Amateur fraternity and the viability of the commercial interests throughout the world! ■

Russell Kelly VK3NT (Vicom Commercial Director) signs a cheque for presentation to David Wardlaw VK3ADW, WIA Federal President. Peter Williams VK3IZ (Vicom Technical Director) looks on.

VHF-UHF

An expanding world

Eric Jamieson, VK5LP

AMATEUR RADIO BEACONS

Freq.	Call Sign Location
50.001	WA6MH7 — San Diego
50.004	PY1HO — Brazil ††
50.010	HL9TG — Seoul *
50.023	HH2PR — Haiti
50.025	6Y5RC — Jamaica
50.050	WA1ENX — Maine *
50.050	K6FV — California *
50.050	ZS6LN — South Africa *
50.075	HK3/4 — Columbia **
50.080	TI2NA — Costa Rica
50.088	VE1SIX — New Brunswick
50.091	WA6JRA — Los Angeles *
50.092	W7KMA — Oregon*
50.101	FO8DR — Tahiti *
50.104	KH6EQI — Pearl Harbour
50.110	HL9WI — Seoul *
50.110	KQ6JDX — Guam *
50.110	JD1YAA — Marcus Island *
50.110	KH6HK — Marshall Islands *
50.144	ZS6LN — South Africa *
50.500	5B4CY — Cyprus
51.999	YJ8PV — New Caledonia
52.050	JD1YAA — Marcus Island *
52.100	VK0BC — Casey Base †
52.200	VK8VF — Darwin
52.300	VK8RTV — Perth
52.350	VK6RTU — Kalgoorlie
52.400	VK7RNT — Launceston
52.450	VK2WI — Sydney
52.500	3D2AA — Fiji
52.500	JA2IGY — Nagoya
52.500	ZL2VHM — Palmerston North
52.510	ZL2MHF — Mt. Climie
52.800	VK6RTW — Albany
52.900	VK6RTT — Carnarvon †
53.000	VK5VF — Mt. Lofty
53.100	VK0MA — Mawson ***
144.010	VK2WI — Sydney
144.400	VK4RTT — Mt. Mowbullan
144.475	VK1RTA — Canberra
144.500	VK6RTW — Albany
144.700	VK3RTG — Vermont
144.800	VK5VF — Mt. Lofty
144.900	VK7RTX — Ulvarstone
145.000	VK6RTV — Perth
145.100	ZL1VHF — Auckland
145.150	ZL1VHW — Waikato
145.200	ZL2VHF — Wellington
145.250	ZL2VHP — Palmerston North
145.300	ZL3VHF — Christchurch
145.400	ZL4VHF — Dunedin
432.400	VK4RBB — Brisbane
432.450	VK3RPX — Ballarat
432.475	VK7RTW — Ulvarstone

* Denotes these beacons operate on an attended basis, i.e. when the operator is in the shack, or available, and the frequencies may vary according to the whim of the operator or how accurately he sets the dial, e.g. FO8DR was heard by me on 26-4-70 on 50.105, not 50.101 as listed. However, these stations are useful and so are included. There may be some others which should also be noted thus; if you are sure please let me know.

** This station appears to be a repeater, with an output of 50.075 and input of 50.125 FM. Probably more useful as an indicator for the USA.

*** VK0MA has never or not been heard for a very long time. Operation is therefore doubtful. I will list it for another couple of months, if no one disagrees then it can be deleted.

† Two new beacons. VK0BC is operating from Casey Base in the Antarctic on 52.100 with auto CW ident, running 300 mW (!) to a 6 element beam at 20 ft. The operator has no receiving equipment. See general notes for further information on this one.
Advice has just come to hand that VK6RTT, the Carnarvon beacon on 52.900, has been re-activated and will be running continuously. That's good news.

†† PY1RO is a new beacon, news of which comes via HL9WI.

If you scan the full list you will see a number of new beacons appearing under the attended operation category, namely HL9TG, K6FV, ZS6LN, JD1YAA, all of which could be very useful.

SIX METRES

There is just so much going on at the moment on six it is difficult to know where to start and then when to stop! The distances being worked by individual stations are being extended all the time, currently it appears signals have been worked halfway across the world — you can't go much further than that — beyond that it would be difficult to say whether or not you were receiving a station the other way round! I think the easiest way to give you the information is to start with what David VK5KK has tabulated and that can be added to as required. No matter what I include at the moment will not be the complete story, so much has been going on that hasn't really been reported, or it is heard as hearsay, which if I print I can be accused of lacking creditability, so if you have done something which should have been noted and you don't rate a mention, it is because you or anyone else hasn't told me. I get some off the air, but I can't be in the shack all the time. I do have to keep the wolf from the door, at times eat, and keep the peace with the XYL, who is very understanding to say the least! And I still find time to shower!

From David VK5KK: "24-3 to 27-3 good JA conditions to all VK call areas 1 to 9. 28-3 HL9TG to VK3OT at 0245Z, marginal CW contact. Then on SSB to VK5KK, VK5ZJG, VK5ZMO, VK5SV, VK5AVQ, VK5LP, VK4DO and to VK2BYX three times, signals 5 x 5 to 5 x 9+ on peaks. Also HL9WI worked VK5KK 5 x 9 at 0310Z. Probably the first widely available HL9 opening to the lower States and the following weeks saw the same thing repeated over and over again. Most openings to VK2, 4, 5, 6 and 8, although several to VK3 and one excellent opening to VK7 on 3-4, and VK1 same day. HL9TG worked a total of 7½ (?) VK7s, thus he has now qualified for WAS in VK. The only explanation for the sudden upsurge in HL to VK contacts is perhaps the recent interest shown by both HL9 stations towards VK more often. Conditions have certainly been good enough before.

"Also KG6 has become more widely available to VK1, 2, 3, 4, 5, 6 and 8, mainly with Joe KG6DX, but also KG6JKS, KG6JIP and KG6JDX. Openings fall into various time slots from 2245Z to 1530Z in VK5 at least. Some early morning openings have great flutter. KG6DX runs FT101 to FTV 650B to Tempo 6N2 with about 500 watts to a wide spaced 6 element beam.

"30-3 HL9WI and HL9TG to 5 x 9 at 0240Z to most areas. Also JAs for 4 hours. 31-3 again to HL9 plus JA, KG6 and KH6. From 0900Z KH6IAA to VK4, 5 and 8. AI worked 10 VK5s, so what an opening. Signals to 5 x 9+ on SSB. KH6NS from 1100Z to VK5ZMO, VK5KK and VK5RO plus VK4s from Brisbane up. Frequency used, well 52.050 still seems to be popular. I don't think anybody (nearly) worries about this kind of usage of 050! 1-4: April Fool's Day didn't yield anything before midday. During daytime KG6 and HL9 worked again from 5 and up. Large night opening to JA from 1000 to 1300Z. Band open to VK2, 3, 4, 5 and 8, with the times 1000 to 1300 being the borderline for 5 x 9 signals! At least to VK5 anyway. 2-4: Another JA opening from 0000 to 0600Z continuous to most States with peaks to 5 x 9. 3-4: Band open to JA, KH6, HL9, KG6 and VK1, 2, 3, 4, 5 and 7. Also notable contact VK3OT to KH6NS. Claimed to be the first VK3-KH6 contact, but KH6 had worked to VK3 earlier in the year. Also that night some excellent backscatter contacts between VK2, VK5 and VK8, including VK5KK to VK8GB in Darwin, distance 1600 miles.

"On GMT day 2-4 some interesting easterly bearing DX. AI 2320Z VK3OT to XE1GE peaking 579 on CW. At 2330Z also VK5KK to XE1GE 599 CW and 5 x 7 SSB. Distance 8756 miles to Cuernavaca, which is 50 miles south of Mexico City. Geoff XE1GE, runs a Heath HH30 to 829B final. On receive he uses a crystal controlled converter to a Collins 75A2. A 6 element yagi at 60 feet. Only previously recorded XE1-VK contact was XE1FU to VK3ALZ in 1959, which until now was still the VK distance record on six metres. XE1GE also heard by VK2BYX at least, and VK5ZMO and VK5ARZ. 4-4: More night time JA to VK5 and VK8, etc., from 1000 to 1300Z with HL9TG 5 x 9 at 1035Z. GMT day 4-4 another excellent Central American contact, this time between VK4RO and KZ5NW at 2330Z. KZ5NW, Phil, is located in the Panama Zone and had been heard the previous month by VK8GB. Distance about 9400 miles, so things really stretching out! Same day to VK lower States, KH6EQI 0128 to 0300Z, HL9TG 0100 to 0120Z, and KG6DX from 0000 to 0130Z. JA7, JA8 from 0100Z. 6-4: KG6DX from 0000Z to VK5 at least. Later JAs from 0825 to 1100Z with 7 areas worked on FM on 52.150 and above from VK5KK. Also small KH6 opening on 5-4 to VK3, 4, 5, etc., late at night from 1300Z. Also VK8VV worked on backscatter on 6-4 at 0038Z. 7-4: HL9TG at 0500Z. JAs from 1310 to 1410Z, KG6DX from 1350 to 1430Z with usual 5 x 9 signals.

"Back towards the east on 8-4 VK4RO stretches that record to about the 9300 mark again when he worked W4YYS and WB4GHA on SSB and CW between 0145 and 0205Z. W4YYS in Orlado, Florida, was heard first. It is also understood Barry VK4ZBJ worked one of the above stations. Certainly proving to be the centre of a lot of DX activity on six with also TI2NA being heard by VK4RO on 10-4 around 2230Z. And not forgetting 7-4, when W6XJ worked a total of 26 VK stations!!! But from VK1, 2, 3 and 4! VK1FT worked Gary W6XJ with 10 watts, 5 x 9! Closer this way only two VK3 contacts, using 400 watts at that, but the fifth call area totally missed out, like 12-3 again! Must be that borderline again or someone scoops it all up before it gets here! Signals to 5 x 9+ and best W6-VK opening, probably because it occurred on a weekend. Time around 0000 to 0100Z. Also WB6NMT San Diego amongst the DX. 10-4: KH6 from 0750 to 0810Z to VK3, VK5. KH6EQI peaked 5 x 7 and KH6IAA from 0757Z on working a VK4 on 52.050 for complete opening. Signals heard by VK3NM, VK3AUI and VK5ZZZ, VK5ZBU and VK5KK. Also XE1GE up again with signals heard on 8-4 on 50.005 559 from 2345 to 2355Z. XE1GE worked by VK3AQR at 2256Z split frequency on CW on GMT day 9-4. Also 2306Z to VK5KK split 599 CW. XE1GE also heard by VK2BA, VK2BOU at least, and VK5LP. First signals from XE1GE at 2210! (And that's easy.) Closed 2330Z. Later that day some Es to VK4RO from VK5 around 0700Z.

"On 12-4 at 0020Z WD4IYS heard by VK5ZMO, VK5KK on 50.103 ending at 0024Z. He was calling CQ. Then at 0040Z W4NVV came through and was worked from 0042 to 0045Z, 5 x 9 on SSB to VK5KK. Also heard by VK5ZMO and VK5ZBU. The band shut shortly after. (Shows you need to be on the ball for such brief openings . . . 5LP.) Last signal heard on 52 MHz was W4YYS on CW at 0047Z. For next 10 minutes some meteor extended peaks from W4YYS but no consistent signals. W4NVV, Carroll, is located near Port Richey, near Tampa, Florida, runs 600 watts to 8 element KLM at 90 feet. Distance 9980 miles. VK3ATN also hearing pings of W4YYS later. On 13-4 VP1MT to VK2, 3 and 5 from 0030 to 0120Z. VK5KK to VP1MT at 0047Z, 5 x 5 SSB. Distance 9300 miles. Also heard by VK5RO 0045Z and VK3ATN from 0110Z. Some unconfirmed reports of hearings from VK2 for 13-4 and GMT day 15-4 when ZLs heard VP1 around 2200Z. VP1MT located in Cormal, Belize, formerly British Honduras. Station was a DXpedition and disbanded several days later. Operator Bob had 70 watts to a 3 element yagi. Very popular station on any band, especially six metres. Also later to 0130Z KG6DX on 50 MHz with very fluttery signal. HL9TG testing to VK3OT, 5 x 9 on 50.010 at 0400Z, although no signals to VK3. GMT day 13-4 KG6DX 5 x 9+ to VK2, 4 and 5, etc. Also enormous backscatter between VK2, 3, 4, 5 and 8 from 2345 to 0030Z. GMT day 14-4 XE1GE heard again from 2315 to 2320Z, 519 on 50.009 MHz. Later JA8s from 0200Z and VK4 via Es from 0245 to 0330Z. Also ZS6LN copying KH6EQI 5 x 8 from 0645 to 0731Z! More on that anon. 16-4: W4YYS on 52.010 being heard via pings from 0110 to 0120Z by VK5KK, VK5LP, VK5RO

plus VK2. Later Es between VK5 and VK2 and VK4 from 1020 to 1100Z. And after everyone had gone to bed John VK5ZBU worked KG6DX for a good 30 minutes from 1400Z at 5 x 9+, and VK3AKN but not other contacts.

SIX METRES CONTINUES

"On 17-4 VK8VV worked W7LYI and AA6S from 0355Z 5 x 9, also believe VK8GB worked also. Previously Graham had worked into W5. Band opened into VK4 twice with the usual early 2300Z time and repeating from 0200Z onwards. The later opening was better. This pattern repeats itself over the next few days. At 0610Z (!) YJ8KM worked K6HCP and K6FV on SSB and CW. Ken also heard K6MYC (Mike Stahl of KLM) on 50 MHz but no contact. During previous days YJ8PV had been copied Stateside many times but unfortunately Ken is having troubles with equipment during the wet season. Pity manufacturers cannot make amateur gear to be usable in really humid climates. However, congratulations, Ken, and yet another country for the only permanent 6 metre operator on YJ8. Back home JAs from 0945 to 1130Z on 17-4. On 18-4 not much activity on 6 from here but you should have heard it on 28885 kHz. One VK3 was pointing the bone (literally) at a VK5 for running a keyer on 52.001 MHz! Later on 18-4 JAs from 1142 to 1510Z to 5 x 9 from all districts except 8. Also KA6HF (Okinawa) to VK5RO, VK5KK, VK5AVQ, VK5ZZZ, VK5ZBU, VK5LP and VK5RO to HL9WI. Times from 1130 to 1240Z. Also VK5KK to JR6SVM, Okinawa at 1205Z. KA6HF runs a barefoot TS600 and peaked to S9. Band also open between JA and VK2 and VK3 to 1220Z. From 1305 to about 1400Z A8KQ/MM was audible to VK5KK, VK5ZZZ and VK5RO, although barely readable most of the time. Frequency 52.032. Also VK6OX copied same station slightly stronger but also didn't make contact. A8KO is on a Liberian oil tanker and was working JAs at 5 x 9 from the Java sea area. The tanker was heading towards Japan. KG6DX worked said station on 20-4. Not much hope VK working such a station with all those JAs so strong. 20-4: JAs (lower areas) 5 x 9++ from 0800 to 0900Z to VK2, 3, 5, etc.

"On 23-4 KH6EQI from 2320 to 0310Z, peaking S9 and never disappearing for more than 5 minutes! From 0025Z KG6JDX, Joe, to VK2, 3, 5, etc., peaking S9. Around 0140Z KH6IAA to VK5KK, VK5ZBU and VK5SV, peaking 5 x 7. HL9TG 5 x 5 to VK3 and 5 around 0300Z. Also JAs from 0300 to 0400Z to 5 x 7. Next day 24-4 KH6EOI again from 2245Z to S9 until 0030Z. At 2325Z KH6NS to VK5SV, VK5KK, VK3AQR, VK3OT, VK3AUI, VK3ATN and VK3AMK. Signals 5 x 7 in Adelaide and averaging 3 to 4 in VK3. Also from 0000Z KG6JDX worked VK2, 3, 4, etc., to 5 x 7/9 in VK5 and 5 x 4 in VK3. From 0245 to 0335Z KH6EQI heard in VK2, 3, 4, 5 and 8."

MORE ON SIX METRES

David VK5KK continues: "More generally the DX so far this year has outstripped all predictions, at least those based on the 1957-59 period. For those able to pick patterns in DX there has certainly been quite a bit to follow; e.g. take the openings like the following . . . VK4 and VK8 to KZ5; VK3 and VK5 to VP1; XE1; VK4 and VK5 to W4; VK4 to W5, etc. It is no coincidence that these, generally, took an easterly bearing. They almost all occurred between 1-4 and 14-4. XE1GE appeared to VK2, 3 and 5 many times in this period between 2200Z and 0000Z. However, the other contacts to W4, W5, KZ5 and VP1 all occurred between 0000Z and 0220Z. ZL to W6 has occurred as early as 1800Z and as late as 0000Z. And how about 27 day cycles? The only VK3 to W6 openings and probably the best W6 openings, occurred 12-3 and 7-4, 27 days apart! The W openings started in early March with afternoon openings and only after 18-4 did the same afternoon conditions return to VK4. By then the peak of conditions for the lower States had well been passed. Also VK60X and VK6ZCC, and Perth stations to a lesser extent, have been copying KH6EQI almost 6 days out of 7 from 1-4 to 20-4. Path is approximately equivalent to VK2-W6, yet seems to be slightly more consistent despite lack of contacts. Most noted calls during W openings are . . . VK1FT, VK2BA, VK2ASZ, VK2BOU, VK2BYX, VK2ZZV, VK4DO, VK4HD, VK4PU, VK4ZBJ, etc. And finally what about the flutter on KG6 signals from 2200 to 0130Z? Any answer on this one as it is very consistent and regardless of signal strength, i.e. can be S1 or S9. Has it got anything to do with the fact that Guam is directly below the Magnetic Equator? In fact, why does it open so often regardless of general conditions? Will we have KG6 throughout May or even later? At present KG6 is more consistent and predictable than JA to VK3 and VK5. Although with high sunspot counts the TE does deteriorate, that keeps the JAs quiet here at least! By the way, the flutter has a fast rate like 20 to 40 Hz, although not as bad as auroral (for those lucky enough to have had it!) propagation, it is quite noticeable and a lot faster than TEP 2 flutter. Is it a morning "hangover" form associated with the previous night's TEP? Some feedback from VK4 and VK8 stations on the intensity of TEP the night before may help. Some of the above may be a bit doubtful but is presented to stir some effort towards this unusual little type of opening.

OVERSEAS AND OTHER DX WE MISS

"Amongst other outstanding overseas contacts comes ZS6 to KH6. On 16-4 from 0645 to 0841Z ZS6LN worked KH6HI, KH6NS, KH6IAA and KH6JSI. Greatest distance being between KH6IAA and ZS6LN, about 11,900 miles, is not far short of the present world record of 12,094 miles. VK record is now about 9980 miles, although the VK6s could scoop the pool by working to VP9, Bermuda. Quite possible, as it is only 1200 miles out from W4. Bearing from KH6 was 240°T, which is down this way. In fact, most times KH6 tried to ZS6, the VK8 beacon was audible in KH6 and vice versa. Also on the same day that ZS6LN first heard KH6EQI, VK8GB heard ZS6LN on 50 MHz. Our 2 MHz difference doesn't help at these times! But is VK the stopover for such contacts, or does it fly over us, say, 100 miles up?

"3D2CM has been worked from W4, W5 and W6. ZK1AA is now active with a Clegg (Venus) and can operate on 50, 51 or 52 MHz. He has worked KH6NS. Antenna KLM 8 element. Possibility of VR6 (Pitcairn Is.) and CE0A (Easter Is.) being activated on 6 metres although a difficult path for VK. Some stale news (or it will be), 9N1BMK (actually JA8BMK), Nepal, will be active on 50.110 and 52.045 from 2-5 to 6-5. However, he has a licence to operate for the next 12 months so he may be worked during one of the later visits to Nepal. Also YB0X has obtained permission to work 50.105 and 52.05 from 28-4 to 6-5. Only information to be exchanged are RST reports, one of the provisos because 6 metres is not allocated to Indonesian operators. Permission was obtained on the understanding it is simply a propagation test. QSL to JA1UT. Watch out for MK3/4 repeater in Columbia. Often heard in USA and provides indicator for South American openings to US. Input is 50.125 and output 50.075 MHz. Mode FM. And locally, who is it that works JAs on SSTV on 52.015 MHz? Absolutely no complaints about the frequency but I wish I had a SSTV monitor! What about RTTY too? Wonder what happens to the picture when TEP 2 flutter sets in?"

Again many thanks, David, for the complete coverage you have given of the 6 metre scene. Does not leave a lot for me to fill in! The reason such good coverage of activity from VK5 is given is fairly obvious, firstly we live here, but, more importantly, David is the only one who takes the time to write to me with such complete information, and he doesn't have to be prodded either, and that's worth a lot. Being a dedicated VHF operator and with a great interest in propagation, it is inevitable he will have a lot of information at his fingertips, but most will agree his notes are pretty well all embracing and shows what is happening interstate and elsewhere.

In writing the above paragraph I would not want any readers to feel the letters they send to me are not acceptable, every bit of information I receive is studied and used where possible, and I am grateful for the continuing information which comes into my office, but we are sadly lacking information from VK4 and VK7. Some comes from Tony VK6BV, covering that end, occasional writers send news from VK3 and VK2, nothing these days from VK8, so that's where everybody fits in.

OTHER SIX METRE NEWS

ZL seems to enjoy contacts to areas not heard by VK very often. I refer to working H11 Dominican Republic early April, and at that time 6 W States . . . ZS6LN usually runs his attended beacon on 50.050 but during the KH6 contacts was using 50.144 . . . ZS5TR usually transmits on 50.100 . . . On 20-4 John VK5ZBU and Mark VK5AVQ heard the VE1SIX beacon on 50.088 at 0857Z for a short period, not strong . . . 26-4 FO8DR beacon to S9 on 50.105 at 2244Z lasting until 2300Z . . . Steve VK3OT going to YJ8 from 12-5 until late June, will be operating as YJ8OT on 6 metres, plus 10 and 15 metres we believe . . . On 26-4 VK8GB in Darwin worked H44DX Solomon Is. 1222Z 5 x 9 and again on 28-4. Advised also there is another H44 station operating. VK8GB has now worked 17 countries on six metres . . . On 25-4 KH6NE heard VK8VF for 7½ hours! . . . 28-4: Commercial CW station signing DZJ 50.175 at 2347Z to S5 to 9, may be in Philippines . . . same day HL9TG beacon on 50.010 0445Z for 1½ hours . . . 29-4: VK5KK and VK5LP hearing W6XJ 50.020 0030 to 0200Z S1-2, VK5KK tried for a long time to work split from 52.020 without success, liaising on 28885 to Gary, once again the 2 MHz disadvantage shows up well . . . W6XJ worked Joe VK7JG on 22-4 at 5 x 9.

26-4-79: I am sure this date needs special mention. It was probably one of the outstanding days of the March-April equinox; here are a few of the things which happened as we saw them from VK5. Firstly, FO8DR heard 2231Z at S3, later to S9. 2313Z very strong backscatter signals to VK3OT and VK3AOR. 2326Z worked KG6DX 5 x 6. 2329Z worked VK8GF Alice Springs 5 x 5. 2355Z worked VK2HZ 5 x 7. 0002Z worked KH6IAA 5 x 6. 0012Z worked VK2BQJ 5 x 9. Then I had to go to the salt mines. But those still at home worked plenty of JAs, starting with JA7. HL9TG worked by John VK5ZBU at 0447Z on backscatter, whilst HL9TG was beaming over China! Still beaming China, Gary worked VK2, 3, 4, 5, 6, 7 and 8, KA6EDI, KG6JEI, KG6JFK, etc. During 26-4 VK2BQJ is reported as working over 200 JAs. From VK5 at various times all the relevant beacons of the Pacific area were audible. JA1RJU worked ZK1AA and FO8DR at 2300Z 5 x 9++, also DU1DM on 50.105, plus VK4, 5, 6 and 8, and VQ9KK on 50.030! On that day Kazu heard 15 countries on 6 metres! Still continuing the saga of 26-4 as mentioned earlier, Graham VK8GB and Brian VK8VV worked H44DX, JD1YAA Marcus Is., also heard FO8DR and YJ8PV, heard W stations but unable to contact. KH6EQI very strong. Later at night from 1300Z many strong JAs were worked in VK5 and other areas, call areas contacted JA1, 2, 3, 4, 5 and 6, signals to 5 x 9+. Last station worked at 1425Z. So it was a great day, no doubt many other VK areas did just as well, so the day would help to put the VK position even more firmly on the map, though again our 2 MHz discrepancy from the remainder of the workable areas preclude the contacts with the more elusive stations which are only there for a few minutes. If we could only be permitted to go down and call them on their frequency with a view to either working split frequency or requesting them to look on 52 MHz, or even having a brief exchange of RST reports on 50 MHz would help. Surely no harm could be done if we were granted this concession.

NEWS FROM VK6

Tony VK6BV passes on information re activity in the West, saying first of all that Es activity to the eastern States was rather poor this year. First JA openings occurred 18-2, then 10-3. 30-3 saw the first of the good openings to Japan with JA1, 2, 3, 4, 7, 9 and 0 from 0450 to 0532Z, 26 stations worked. 3-3, 17 JAs worked. 1-4 to JA1, 2, 7, 8, 9 and 0 plus HL9TG from 0531 to 0741Z, 29 stations. JAs continued on 2-4, 5-4, plus HL9TG. On 6-4 KG6DX on 52.020 at 0108Z for what was believed to be the first time to south of Western Australia. 7-4 KG6DX beacon on 50.110 at 0145Z S7. Also heard in Busselton at S5 by VK6AM and others. 8-4: VK6WD, VK6ZKO, VK6JY, VK6KZ, VK6OM and possibly others worked KG6DX about 0200Z from Perth, signals to S5. KH6EQI beacon also S9 at same time. JAs 9-4, 11-4, 12-4 also, plus KG6DX, KG6JKS for 2 hours around 0200Z. 13-4 KH6EQI beacon, plus JA.

On 14-4 Don VK6HK heard and recorded the KH6 beacon from 0155 to 0233Z, peaking S9. Unable to get KH6 stations on via 28885 net. W6XJ suggested checking the tape, and another CW station

was noted under the beacon, being W6XJ running his keyer 1 kHz removed! This the first recorded copy of a W station on six metres in VK6. Russian station believed heard on 52.000 0215 testing at S9+. On 15-4 KH6 beacon again into Perth 0133 to 0140Z, and during this time Wayne VK6WD heard and taped W6XJ on 50.005 at 519. Also recorded by Tony VK6BV in Northam 2 minutes earlier at 0133Z. Same time open to KG6 . . . Well at least we know the VK6 boys are sharing in the six metre spoils.

NEWS FROM VK3

Gil VK3AUI sends two letters with a coverage of activity in the Box Hill suburban area of Melbourne. He commends the action of Gary W6XJ in co-ordinating the 28885 MHz net for six metre operators, which has proved to be immensely useful for liaison for six metre openings, and no doubt has done much to overcome the problems associated with our 2 MHz difference when the US stations hear the VK and ZL TV stations. Such liaison first helped to ensure the success of the contacts between W and VK3 on 12-3, when W6XJ, N6CT, N6AZ, WB6NMT and AA6S were contacted by VK3OT, VK3AMK, VK3AKK, VK3AQR, VK3AUI, VK3AUQ, VK3ZZX and others. Same day openings to JA, and late at night to KG6DX.

On 18-3 via 28885 were reports of the W6 opening to VK2, VK9 and ZL, but nothing heard in Melbourne. W6XJ also worked VK9NI at 2226Z, ZL1BIQ on Kermadec Is., and several other ZL stations. Four countries on six in a short space of time. Other Melbourne openings to JA were on 29-3, 30-3, 31-3. On 3-4 KH6, JA and HL9WI. 8-4 worked KH6IAA at 0903Z. 10-4 JA. on 9-4 at 0005Z whilst tuning on 50 MHz Gil heard an FM signal on 50.125, which could have been the Columbian repeater HK3/4. Beam heading was right.

Gil reports it is pretty hard going in Melbourne due to the rubbish from Ch. 0, but a vertically polarized antenna of 4 elements has been giving him some success, and hopefully the removal of Ch. 0 later will see VK3 being heard much more regularly. Thanks for writing, Gil.

FROM JAPAN

Kuni JA2TTO writes to say his 6 metre equipment consists of FT101, FR101 and FTV650, using two 6146 valves to give about 100 watts input, 7 element yagi up 17m. Currently he is trying a TS600, home brew linear for 100 watts input. He is Editor of 6 metres column in "The Mobile Ham", a monthly magazine. He is 24 years of age, and he lives in Hamamatsu City, with a population of over half a million people! Included with the letter were details of the Indonesian DXpedition with the call sign YB0X for 28-4 to 8-6, any reports of which will be given next month. JA1UT will handle the QSL info, address being Yoshio Hayashi, 4-20-2 Nishigotanda, Shinagawe, Tokyo, 141, Japan.

EME HAPPENINGS

For a change of subject, Ray VK3ATN advises during the April EME session and using his 16 foot dish he heard VE7BBG, ZE5JJ, a JA6, JA1 and two W stations which were not identified. At the same time Chris VK5MC using his 20 foot dish contacted VE7BBG, ZE5JJ, I5MSH and a JA6. All these hearings and contacts were on 432 MHz. Ray is now working to put his 28 foot dish on Meridian Transit position which will allow him to see the moon any time it passes within the position. He is currently doing Radio Astronomy work with his dish. ZL2BCG and ZL3AAD are almost on 432 MHz EME, and a KV6 is working on a 20 foot dish. Ray has also obtained a new type GAS FET for his receiver front end which should further aid his reception of the weak signals.

PORT LINCOLN NEWS

Peter VK5ZCT writes from Pt. Lincoln at the lower end of Eyre Peninsula to say that amateur radio is forging ahead there. They have formed the Lower Eyre Peninsula Radio Club, which now has a membership of 30. Licensed members include Jack VK5EJ, Ern VK5EN, Jim VK5ZSM, Greg VK5ZER, Peter VK5ZCT, plus about 6 Novice calls, with numbers in all categories likely to increase in the next 12 months. Peter's QTH is 30m above sea level, but it conditions look good on 2 metres he goes to the top of Winters Hill overlooking Pt. Lincoln, which is 23m a.s.l. and a clear take off in all directions. Presently equipment only allows repeater operation but is aiming towards two metres SSB later this year.

A condensed version of Peter's operating at peak reception times is as follows: 10-2, 2245 to 2300Z worked VK7ZBY, VK7ZFP and VK7ZTA via Ch. 8 VK7RAA. Swinging his beam to the west at 2310Z worked VK6CB and VK6JI through the Bunbury repeater Ch. 6RBY. 2320Z worked VK6JI on Ch. 8 6RAW. At 2330Z worked the same station on Ch. 40 noise free until 2350Z. On 11-2 at 0730Z worked through Ch. 8 7RAA again from his home. Shifting to Winters Hill at 1025Z worked VK7ZFP Ch. 3 7RNW. 1030Z VK7ZGG and VK3SS via Ch. 8 7RAA. 1105Z VK7RR and VK7ZTA via Ch. 2 7RHT. 1110Z VK3BYL near Warrnambool S2 on Ch. 40, also VK3AUR at Halls Gap S3 Ch. 40. 1250Z VK3YNV via Ch. 4 Bendigo 5 x 9 + 30 dB! 1310Z VK6TE Bunbury Ch. 6. 1320Z VK6ZBT and VK6JI Ch. 8 Wagin repeater. 1355Z to 1402Z worked nine VK6s through Ch. 6 Bunbury. At 1445Z triggered Ch. 4 which could have been Ch. 4 VK6RAH at Perth.

That shows what can be done if you are keen. And as it appears, all this type of activity is leading Peter into getting on to SSB which could well increase his coverage on the band. Good luck with the project.

WHAT CAN BE DONE TO HELP?

As mentioned at the start of these notes VK0BC at Casey Base in the Antarctic has installed a manned beacon on 52.100 beaming towards Australia. The equipment runs 300 mW output, and no receiver is available, so for the present no contacts can be made other than perhaps crossband. The active VK5s on six meters, and they don't really number that many, have been discussing the situation and have agreed to do something to ensure possible two-way contacts with Casey Base. It is proposed obtaining a secondhand IC502 which will be the SSB originating source and the receiver, and a PA to provide about 25 to 30 watts of SSB output. David VK5KK has already offered a solid state PA which runs 25 watts out from 12 volts.

It is therefore proposed we make up a unit which is able to be taken anywhere for that matter in the absence of other six metre gear, and used to provide OX contacts. If necessary a 4 element beam would be available with the package. In the present instance it would go to Casey Base, but this cannot be arranged until next October when first physical contact is possible with Casey due to the long winter there.

In the meantime, it seems to have been generally agreed for the moment, that I (VK5LP) should promote the idea, and invite anyone interested who would like to make a financial or equipment contribution to contact me (phone (08) 389 1204) or at Forreston, SA 5233, stating what they are prepared to contribute, and if the idea reaches fulfilment then we will be quickly asking you to send your donation to the appropriate address. The idea should be of prime importance to VK3, VK5 and VK7, being the nearest to the base, but there are no reasons really why it should not be of total VK interest as I cannot see the signals from that area stopping at State borders. October will soon come around, so let us not tarry, let the project get under way now, and you will ensure this if you can help with contributions.

A similar arrangement was undertaken when Steve VK3OT ensured H44 was put on the map. We have mentioned an IC502 above, mainly because the whole package could be run off 12 volts, but I guess we would not be looking down in the mouth at an FTV650, etc., but these require more backup equipment and complicates the whole programme.

FROM OTHER SOURCES

The WA VHF Group News Bulletin mentions several items of interest.

First: The Albany Beacon was descended upon by VK6KZ, VK6HK, VK6XY and VK6EO and now VK6RTW has a new 5 element beam pointed at Perth, being fed through a directional coupler donated by VK6ZFY. Roger VK6NR reported a 20 dB signal increase from Kattaning where he was monitoring field strength. Field strength at Ledge Point decreased 3 dB and the beacon was heard in Adelaide after the mod. was done, the beam towards Adelaide is a 6 element and the RF to each beam is 4 watts.

Second: Diego Garcia VQ9KK in the Indian Ocean is now on 6 metres. And Russ ZS6LN and ZS6XJ are now operating a 50.050 beacon, 80 watts into an 8 element yagi. From 0400 to 0700Z the antenna is beamed to JA. From 0700 to 1000Z the beam is pointed at VK. During beacon times there will be activity on the liaison frequency of 28885 kHz. The May MUF to Northern Australia is expected to go to 48 MHz. For those looking for openings there is a Rhodesian TV station on E2, i.e. 48.250 MHz.

Third: 5B4AZ in Cyprus and ZB2BL in Gibraltar both have 6 metre permits.

Fourth: The bad news. Concern is being expressed about the continuing proliferation of Ch. 5A despite the promises of the Minister for Post and Telecommunications. At Leeman, on the coast 20 km WSW from Eneabba, there is another Ch. 5A, which is already causing widespread interference to 2 metres. So much for the word of those in authority.

FINALLY

I note with interest a paragraph in "QST" that during March there was a successful two-way contact on six metres between ZS6LN in South Africa and 5B4AZ in Cyprus, the latter running 70 mW output. That's certainly getting miles per watt!

There's not much to report on 2 metre activity — possibly very few people are on that band at the moment, six metres being all the rage. As the winter months come we should see some more contacts there.

And now the thought for the month: "Opportunity knocks only once, but temptation leans on the doorbell."

73. The Voice in the Hills.

STOP PRESS

2m FM DX TO JAPAN

On 20th April at 1333Z a husband and wife team, VK8HW and VK8EW from Darwin, worked JR6LHZ on 145.16 FM. Signals were 5 x 9 each way. This could be a new record, and a certain first for a YL to work outside of Australia on VHF. Further details will be published as they come to hand.

YB0X worked VK5KK and VK3OT on 30th April between 0100 and 0200Z. CW and SSB signal reports exchanged.

EI2W in Dublin has a licence for 50 MHz and is getting on the air. ■

AWARDS COLUMN

Bill Verrall VK5WV

7 Lilac Ave., Flinders Park, SA

ENDEAVOUR AWARD

The Royal Naval Amateur Radio Society has great pleasure in announcing a third award called the Endeavour Award for contacting Society Members residing in Australia. The title of the award links the Royal Navy with Australia.

VK RNARS Lists are available from the custodian or the Australian Organiser. Or use the general RNARS List from G3HZL-QTHR.

RULES OF THE ENDEAVOUR AWARD

1. The name of the award shall be the ENDEAVOUR AWARD, and shall be open to all radio amateurs.
2. Applicants must establish two-way amateur communications with RNARS Members residing in Australia. Points will be awarded on the basis of one point per VK RNARS Member worked per band, after the commencement date of January 1st, 1979. To qualify the following is required:— For amateurs residing inside Australia, 15 points; for amateurs residing inside Oceania, 10 points; for amateurs residing outside Oceania, 5 points.

In addition, for amateurs residing outside Oceania, contacts with VK RNARS Members on the 3.5 MHz band will count double points. For the purposes of this award, any RNARS Maritime Mobile Member when located inside Australian waters may be counted as a VK Member.

3. The award will be endorsed ONLY on the request of the applicant and the following endorsements are available: "ALL CW", "ALL SSB", "ALL 3.5 MHz", "ALL 28 MHz", "ALL NOVICE", "FIVE-BY-FIVE". The last endorsement being for gaining at least five points on each of the five high frequency bands.

4. To claim the award, no QSLs are required. However full log details showing the VK Member (or /MM plus QTH) worked, their RNARS number, date, time, frequency, mode, plus an application fee of $1.50 Aust. or 7 IRCs are to be sent to the Endeavour Award Custodian, Mr. R. Baty, VK5MD, 43, HMAS Australia Road, Henley Beach South, SA 5022, Australia. Please ensure all cheques are in Australian currency and made payable to "A. Baty". Clearly state what endorsements are claimed. Certificates to successful applicants will be forwarded by airmail as soon as possible after the claim has been checked. ■

JOHN MOYLE MEMORIAL NATIONAL FIELD DAY CONTEST 1979—RESULTS

24 HOUR

Section A: Tx Phone.

5QX	3508		4AHO	240	
4NFU	1613		4NPY	102	
3NZM	1352		8NT	85	
4XZ	1122		4NDX	60	
4ARH	250		4NLV	60	
4ADB	240		4NHS	60	
4AAQ	240		4NDW	60	

Section B: Tx CW.
No entries.

Section C: Tx Open.

5QR	2079		2BDT	300	
3AUQ	1756		2VEO	125	
3AKG	1295				

Stction D: Tx Phone Multiop.

4WIZ	8148	9	4FM	2531	2
8DA	5727	8	4WIT	2157	13
3BGG	5328	5			

Section E: Tx Open Multiop.

3ATL	15981	17	1WI	3445	5
2DBK	8455	16	5ZL	3269	7
3APC	7678	19	1RC	3094	2
3ATM	7250	12	1ACA	2841	3
3ANR	6371	6	7NB	2713	9
2WG	5532	9	4WIP	2218	7
2BTZ	4213	8	3AWS	2157	6
3BML	4014	10	2AM	443	2

Section F: Tx VHF.

1ACA	1702		4ZIG	250	
3YLD	1445		2BUT	232	
4ZPG	312		4PV	102	

Section G: Home Tx.

3XB	1955		3KS	750	
3AEW	925		4AZE	455	
7KC	845		3KK	355	
1RP	830		7NFR	340	

Section H: Rx.

L30042	550		L40018	545	

6 HOUR

Section A: Tx Phone.

5NDY	471		3NEA	323	
5NIM/ZIM	450		3EF	259	
3AAW	345		4PJ	150	

Section B: Tx CW.

2JM	274		3XU	266	

Section C: Tx Open.

2EL	1038		5ALX	467	
3VF	624				

Stction O: Tx Phone Multiop.

3ATO	2057	10	4QC	960	3
4BA	1066	5	3CAU	712	4

Section E: Tx Open Mulliop.

3UV	1650	5	4WIN	1556	10

Section F: Tx VHF.

3AVJ	613		2ZTB	68	
3ZJS	588				

Section G: Home Tx.

7BD	855		2BQS	345	
P29GC	525		3ZPA	270	
5OU	470		1LF	155	
4ADC	435		5NLC	100	

Check Logs:
3XK, 3LR, 5ACE, BBW, 5WIE, 4AMA/MM, 4ATS, 4WIR, 6WZ.

Log presentation was much better than in the "RD". Please note carefully in future the date of the postmark required for a valid log.

Note third figure in sections D and E represents number of operators.

CONTEST CHAMPION TROPHY
Aggregate points so far allocated to individual amateurs towards this trophy are shown, however all points are subject to confirmation of WIA membership. Other nominated contests for this year are the VK/ZL and the RD.

ALLOCATED POINTS
16 points: 3AUQ.
10 points: 2HZ, 4DO, 5QX, 5OR, 3YLD, 3XB, 5NDY, 2JM, 2EL, 3AVJ, 7BD.
9 points: 2ZBD, 4NFU, 4ZPG, 3AEW, 5ZIM/N1M, 3XU, 3VF, 3ZJS, 5OU.
8 points: 3NZM, 3AYL, 4ZIG, 7KC, 3AAW, 5ALX, 2ZTB, 3AUI.
7 points: 4XZ, 2BDT, 2BUT, 1RP, 3NEA, 2BQS.
6 points: 2YHG, 4ARH, 2VEO, 4PV, 3KS, 3EF, 3ZPA.
5 points: 4ADB, 4AZE, 4PJ, 1LF.
4 points: 4AAQ, 3KK, 5NLC.
3 points: 4AHO, 7NFR.
2 points: 4NPY.
1 point: 8NT.

Certificates for the 78 RO, the Ross Hull and the John Moyle were held up by the postal dispute but should now be delivered. ■

Mike Bazley VK6HD
6 James Road, Kalamunda W.A. 6076

OXCC NOTES
DESECHEO ISLAND
(PRONOUNCED DAY-SAY-CHAY-O)

I hope all you keen DXers caught the operation from this Island on 5th, 6th and 7th March. By the time you read these notes we may have ARRL accreditation for this latest addition to the DXCC active countries list making a new total of 320.

The story about Desecheo Island is most interesting. This island lies in the Carribean Sea, between the Dominican Republic and the Commonwealth of Puerto Rico, at latitude 18° 23″ north and longitude 67° 29″ west and occupies an area of about 1.46 square kilometres. It has no Inhabitants, no drinking water and its vegetation is of desert type.

The island is a national wildlife refuge of the USA and is administered by the US Department of Interior, Fish and Wildlife Service. As the Island was administered separately from Puerto Rico, it was eligible for accreditation as a separate country lor the DXCC listings.

The Northern Californian DX Foundation started to plan a DXpedition to the Island using the call sign KP4AM for 6th to 12th September, 1978. This was to be an all band around the clock operation with four transceivers, linears, beams, etc. However this DXpedition was delayed for several reasons including the awaited announcement by the ARRL of the DXCC status of the island and obtaining the required permission from the US Department of the Interior.

In the meantime KV4KV and W0DX organised their own DXpedition and proceeded to the island where they operated from 12th to 16th October, 1978, and produced about 6,000 QSOs. They spent the days operating on Desecheo and the nights aboard their boat. As a result of this operation the proposed DXpedition by KP4AM was temporarily shelved pending further demand for the island.

QSLs for KV4KV were issued and the ARRL was about to recognise the operation for DXCC when a letter of protest was received at ARRL HQ from the US Department of Interior complaining about illegal entry on Desecheo National Widlife Refuge by ham operators. This was back in late December 1978.

As a result, the ARRL posted a stop signal on accreditation for this operation and the latest unofficial information is that QSLs from VK4KV-Desecheo will not be recognised for DXCC.

Accordingly the Northern Californian DX Foundation, in co-operation with the ARRL and the US Department of Interior, proceeded with the previously planned DXpedition and the island was activated under the call sign KP4AM/D In early March. We await official word from the ARRL before adding this new country to the DXCC listings.

SABLE ISLAND
Advice has been received that the operation from Sable Island by VE1MTA during the period August/September 1978 was not legal. Further submissions of VE1MTA cards for Sable credit will be returned uncredited and I await official confirmation from the ARRL before rescinding credits already given for this operation. (Acknowledgement WRN LIDXA.)

PROPOSED NOVICE AWARD
I have received several suggestions that the WIA should issue an award specifically for Novice operators. I agree that some recognition should be given for achievements by our Novice operators as the WIA awards programme only caters for HF and VHF operators at this time.

Several criteria should be considered when a new award is created, for example —

1. The award should be an attractive piece of paper worthwhile pinning up in the ham shack.
2. The rules should provide for a special effort on the part of the operator to qualify for the award but must not be too restrictive as, for example, the WAVKCA (VHF) award.
3. The rules must allow an even chance for Novice operators in all VK call areas to qualify.
4. GCR rules to apply as QSL cards and postage are now a major expense for ham operators.
5. Separate endorsement for all SSB or all CW.
6. The award to be issued to VK Novice operators only. Once you achieve full call status you become ineligible.
7. The award must not be too difficult to administer. (From the award managers' point of view HI.)
8. A nominal fee should accompany all applications as I have received one or two award applications lately that have not contained any donation to the collers. If I am not very careful I will soon reach the stage where I will have to finance this job on fresh air.

As a suggestion I think the rules of the WAVKCA award as published in the March 1979 AMATEUR RADIO could be suitably amended to provide the basis for a proposed WAVKCA (Novice) award. Novice operators would be required to complete the 22 QSOs but would have to work hard to catch a VK0 and VK9.

I Invite any suggestions or comment before I approach Federal executive to see if they have any funds available to cover the considerable printing costs that would be involved.

Best 73 and Good Hunting. ■

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A few words of doubtful wisdom about my recent struggles with TRIO KENWOOD AUSTRALIA.
After buying around $100,000 worth of transceivers and accessories from them in the 6 months between May and November 1978, they were unable to supply me more than a miserable 5 pieces TS-120-V just before CHRISTMAS 1978 and no promise but a few more in FEBRUARY 1979. Naturally I objected to that treatment and also because their prices had become equal to what the TS-120-V costs retail in Japan, I decided to import a quantity of TS-120-V sets only, directly. As a result I had stock of them when my "friends" in Artarmon had none yet and that must have hurt them, consequently their "warning" in the APRIL 1979 issue.

TRIO KENWOOD JAPAN sell their products under the TRIO brand in Japan and exports the same as KENWOOD units. There is absolutely no difference between a TRIO and a KENWOOD TS-120-V. If Artarmon maintains there is, they simply are not telling the truth. I fully guarantee my TRIO TS-120-V imports myself and fortunately can sell them a lot cheaper than when acquired through the Artarmon Office.

But again, TRIO and KENWOOD are one and the same. My TS-120-V's carry the TRIO KENWOOD CORPORATION tag and come with English manuals. As a rugged individual in this amateur equipment business for 15 years since 1964, I have been accused of importing SWAN, YAESU MUSEN under cover, assembled in Hong Kong or salt water damaged by parties who tried to explain why they had to sell dearer than I could — all sour grapes and nothing else. Arie Bles VK2AVA

HY-GAIN ANTENNAS:

12-AVQ 10-15-20M vertical	$50
18-AVT/WB 10-80M vertical	$125
TH6-DXX 10-15-20M 6-el yagi	$300
TH3-MK3 10-15-20M 3-el yagi	$260
TH3-JR 10-15-20M 3-el yagi	$175
204-BA 20M 4-el tiger array	$230
2M 5-el yagi w/balun 6'3" boom	$25
2M 8-el yagi w/balun 12'5" boom	$30
11M 5-el yagi 17' boom	$70
BN-86 balun for beam buyers	$20
HY-Q (USA) 50-ohm balun	$15

ROTATORS AND CABLES

All rotators for 28V AC operation- KEN KR-400 medium duty	$125
CDR BT-1A light duty w/push button programmable	$90
CDR ham III heavy duty	$175
CDR tail twister extra H/duty	$225
Bottom bracket CDR rotators	$10
KS-065 stay/thrust bearing 1¼" to 2½" masts	$25
RG-58U co-ax cable, per yd.	30c
RG-8U foam co-ax cable, per yd.	80c
8-cond. rotator cable, per yd.	60c
⅞" H.D. VHF/UHF co-ax, per yd.	$3
CABLE-cutting and packing, per length	$1.50

ACCESSORIES

Voltage regulator 18V AC input 12V DC 3A output	$23
240/18V AC transformer	$10
5M RG-58U w/PL-259 one end	$2.50
Bumper mounts ⅜" 24-thread	$5
Gutter mounts ⅜" 24-thread	$3

CO-AX CONNECTORS

PL-259-SO-239 cable joiners, ea.	75c
Right angles & T connectors, ea.	$1.50
GLP right angles RG-58U to SO-239 w/lock nut & weatherproof cap	$2.50
Double female connectors	80c
In-line mic sockets 3 & 4-pin, ea.	75c
Mic sockets 3 and 4 pin, ea.	75c
MLS right angle-RG58U to PL-259	90c

KDK KYOKUTO DENSHI model FM-2016A 2 Meter 144 to 149 MHz 1000 channels 15 to 20 Watt FM transceivers with digital read-out, 4-channel memory and scanner, with microphone and mobile bracket, RIT, the lot for only $360

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TS-120V 10-80M mobile trans.	$550
TR-7625 25W 2M FM trans.	$460
TL-922 10-160M linear amp.	$1100
DK-520 adaptor (TS-520)	$15
LF-30A low pass filter	$25
TV-502 2M transverter	$300
AT-200 antenna matchbox	$175
DS-1A DC/DC converter	$75
VFO-820 for TS-820S	$185
VFO-520S for TS-520S	$160
SP-520 for TS-520S	$30
YG-3395C CW filter (TS-520S)	$50
MC-50 desk microphone	$45
MC-10 hand held microphone	$20
HC-2 ham clock	$35
BS-8 pan adaptors	$65

YAESU-MUSEN PRODUCTS

FT-7 10-80M mobile trans.	$450
FT-301S 10-160M mobile trans.	$600
FRG-7 .5-30Mhz receiver	$319

NOVICE SPECIALS — TRANSCEIVERS

10M Sideband SE-502 USB/AM 15W PEP-240V AC 12V DC-inbuilt SWR/RF meter 28.3-28.6 mhz-clarifier tuning transmit and receive	$125
10M Universe 224-M USB/AM 15W PEP 12V DC 24-ch. 28.480 to 28.595 mhz, 5-khz steps-clarifier tuning transmit and receive	$100

CONVERSION CRYSTALS for amateur licence holders — set of 8-crystals to convert 23-ch. 27-mhz CB units to 28-mhz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above — CRYSTALS and instructions $40

All prices are NET, EX SPRINGWOOD NSW, cash with order. Prices are subject to change without prior notice. All risk insurance is free: freight by air, road, rail or post at cost. All orders cleared on a 24-hour basis after receipt of order with payment

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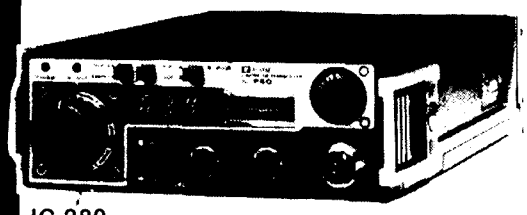
ICOM



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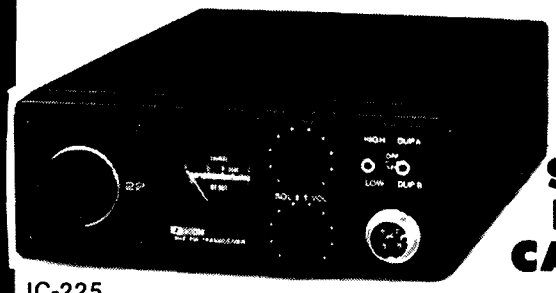

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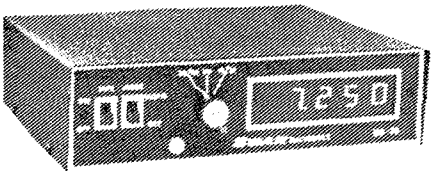
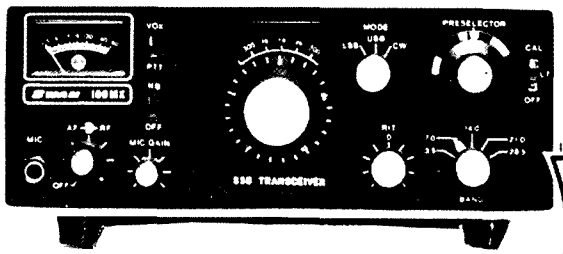
MODEL 350D HAS THE SAME SPECIFICATIONS AND CHARACTERISTICS AS THE 350B EXCEPT THE UNIT COMES WITH A BUILT-IN DIGITAL FREQUENCY DISPLAY WITH READOUT TO 100HZ.



DIGITAL DISPLAY
TO SUIT 700S
350B, ETC. $220.00



MX-100 $630.00
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ST-3 ANT. TUN.	$205.00
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ST-1 ANT. TUN.	$189.00
DD-76 DIGI.	$220.00
TR-4-HA ANT.	$200.00
TB3-HA ANT.	$180.00

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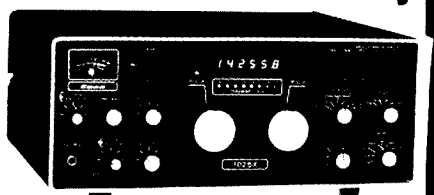
SWAN ELECTRONICS Microprocessor Technology Swan's Success Story

Swan's high technology engineering department is challenging the best in the world. In keeping with the master plan of establishing Swan as number 1 in its areas of expertise, two more state-of-the-art transceivers will be announced at the Dayton Hamvention the last week in April.

The first is the microprocessor controlled, digital synthesized ASTRO 150 amateur HF Transceiver. With powerful 235 watt PEP and CW input on all bands, and extended frequency coverage in the 2-30 MHz spectrum, it is bound for instant success. The all electronic tuning VRS (variable rate scanning) and associated microphone remote tuning gives the operator complete and precise control.

ASTRO 150

Standard features include, full or semi break-in selectable in CW mode, narrow band CW filter, USB/LSB, memory, VOX/PTT, and WWV reception. NASA (National Aeronautics and Space Administration) has already ordered the ASTRO-150 and 1500Z linear amplifier combination.



102 BX

A second state-of-the-art HF amateur transceiver, the 102-BX, is to be announced at the Dayton Hamvention. This unit offers complete base station capability in one chassis. Features include all the standard functions provided by top line equipment plus dual PTO's for true crossband operation —full/semi break-in, variable RF bandpass, —IF gain—, RF gain and audio passband display.

TRANSMITTER SPECIFICATIONS

Power Output Rating
Minimum 100 W PEP single sideband and CW. All Bands @ 13.6 VDC nominal to 50 ohm resistive load

Unwanted Sideband Suppression
Greater than 60 dB

Carrier Suppression
Greater than 50 db

STANDARD FEATURES:

- State of the art design
- State of the art styling
- Completely solid state
- 10-80 meters
- USB, LSB, CW
- Filter shape factor 1.7:1
- CW monitor with adjustable pitch and level control
- Amplifier relay keying
- Noise blanker
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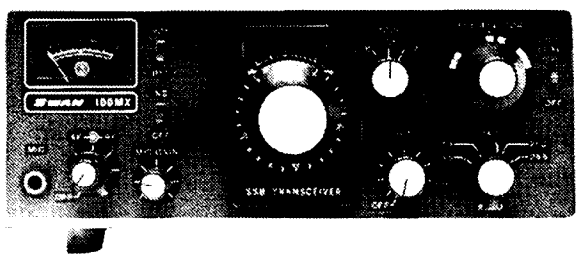
- Operates from 11 to 15 VDC source negative ground
- Current drain 130 Ma receives, 20 amps maximum in transmit at 13.6 VDC with dial and meter light on current drain is approximately 100 Ma more
- Internal speaker
- Semi CW Break in
- Mobile mount bracket (gimble)

100 WATTS SOLID STATE MOBILE



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80 meters (3.5 — 4.0 MHz)
40 meters (7.0 — 7.5 MHz)
20 meters (13.0 — 14.5 MHz)
15 meters (21.0 — 21.5 MHz)
10 meters (28.5 — 29.0 MHz)

Extended Frequency Coverage
500 KHz segments of 10 meter band 28.0-28.5, 29.0-29.5, 29.5-30.0. By replacing standard crystal with optional crystal for desired segment. No realignment required

Modes of Operation
USB, LSB, CW

I.F. Filter
9 mHz quartz crystal filter. 2.7 KHz bandwidth 1.7:1 shape factor

Calibrator
Built-in 25 KHz calibrator

VOX
Built-in standard

Noise Blanker
Built-in standard

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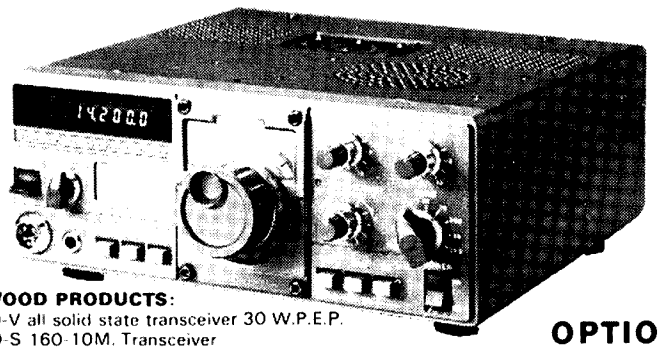

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VFO. 820 - External VFO for 820-S
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DG-5 External digital display TS-520-S
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MC-35-S Microphone 50. K.OHM
MC-10 Microphone 50. K. OHM.
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Male to male joiner
Female to female joiner
Angle connector

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MAIL ORDERS: P.O. BOX 184, SUTHERLAND 2232. **PETER SCHULZ, VK2ZXL**

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

WICEN EMERGENCY PLANS

This issue I wish to continue the WICEN training course theme with some thoughts on WICEN Emergency Plans.

Experience has shown that such a plan, be it for a State, region or area, needs to consider most of the following factors:

(a) **Regions.** Where an area of responsibility is subdivided into regions or areas it is worthwhile including a marked map clearly delineating boundaries.

(b) **Tasks.** The likely WICEN tasks can be expressed in a couple of clear statements, e.g. VHF local coverage or HF links, also mobile and fixed requirements.

(c) **Organisation.** The local organisation showing both higher and lower responsible authorities and liaison should be shown on a line diagram.

(d) **Responsibilities.** The duties of key office-bearers, e.g., co-ordinator, deputy co-ordinator, etc., should be clearly spelt out.

(e) **Activation.** When considering the aspects of activation of an emergency network list the likely reasons for activation, the recognized requesting authorities, i.e. SES, Police, and the need for P. and T. clearance.

(f) **Call-out Procedure.** The call-out procedure follows from the activation considerations. It should include the method of implementation and deployment and include key names and addresses, with telephone numbers, of both likely requesting authorities, WICEN office-bearers and the P. and T., e.g. the DRI.

(g) **Co-operative Authorities.** It is worthwhile listing likely government departments and organizations with whom co-operation could be expected during an emergency.

(h) **Facilities.** This heading covers traffic and relay stations, net monitoring, mobile and portable stations, including vehicle load lists and emergency frequencies.

(i) **Operating Procedures.** A precis of operating procedures, derived from the WICEN "Emergency Service Communications Procedure", or "the little grey book", Civil Defence Communications Part III, 1969, is usefully included for it keeps all information and instructions in the one paper.

(d) **Regulations.** As a closing reminder, the relevant Regulations from the Handbook should be noted. These are:
Reg. 84: Secrecy of Communications.
Reg. 94: Authorization of Emergency Networks.
Reg. 96: Clearance of emergency frequencies.
Reg. 109: Emergency communications.

I am sure you will find that, after compiling your WICEN Emergency Plan, you will have a better feel for your role and will be able to approach it with confidence. And that embraces one of the key phrases in the WICEN mission, namely ". . . a pool of trained licensed operators, with equipment, available for deployment . . .". ■

★ ☆ ★

In a recent issue of AR I gave an example of how to send a formal message by radio. Here I wish to cover the recording and logging actions associated with being a WICEN radio station.

LOGS

The primary record is the station log; it should contain details of time, station called or calling, and the event or message identity. At an outstation the log is adequate for all recording, as formal messages can be logged by their originators number and date time group (DTG). You will recall from my last article that these uniquely reference any formal message.

OPERATOR'S CHECK SHEET

The Operator's Check Sheet (CDF7) is normally used at control stations, relay stations or multiple net locations to supplement the log for all formal traffic. The check sheet is printed in two parts, an "IN" section and an "OUT" section and should contain sufficient information to record and trace formal messages. The top part of a check sheet, CDF7, is reproduced bleow.

THE MECHANICS OF MESSAGE HANOLING

The mechanics of message handling follow the following sequence:

Acceptance of messages —
- scan for completeness,
- note a local sequence No. and receipt time in the top shaded area,
- add DTG if necessary,
- check "from" and "to",
- check releasing officers name/authority,
- place in sending queue in priority order.

Sending messages —
- log to reference message uniquely, either in log book or operator's check sheet if used,
- complete D shaded box at foot of message form,
- file safely.

Receiving messages —
- log as for sending,
- complete R shaded box at foot of message form,
- keep a duplicate file copy if directed.

Delivery of messages —
- deliver to action (and Info) addresses by runner *or* hand.

Note that the present trial arrangements concerning emergency networks, introduced by P & T, require you to keep a complete log and to retain messages for 12 months.

R. G. Henderson,
Federal WICEN Co-ordinator. ■

CIVIL DEFENCE CDF 7 (FEB. 74)

OPERATOR'S CHECK SHEET

11235/74—L

DATE | CALL OUT | SHEET No.

IN MESSAGES					OUT MESSAGES						
No.	Date-Time Group	GR	Time Recd	Opns Instls	No.	Sig. Reg. No.	Precedence	Date-Time Group	GR	Time Sent	Opns Instls
1					1						
2					2						

Layout of operator's check sheet (form CDF7)

WICEN ACTIVITIES IN VICTORIAN EASTERN ZONE

It seems that our activities in Amateur Communications are being increasingly noticed.

Many Amateur operators aer active with State Emergency Service (SES) groups — passing on "know how" to non-technical operators and joining the various SES local groups. This results in police and other organisations becoming more familiar with our communication potential.

This Zone, upon request, had two worthwhile exercises during March 1979.

During the times of 1900 hrs. March 10 through to 1900 hrs. March 11, a sizeable team helped with communications for the Marley Point Overnight Yacht Race.

This event had over 600 yachts participating starting at the top of Lake Wellington, sailing through the night across the lake, through McLennans Straits, into Lake Victoria, and on to finish at Paynesville.

The WICEN involvement was to pass messages from starting point to finish point and between two intermediate check points. These messages were for the Gippsland Lakes Safety Council and St. John Ambulance Brigade.

Mostly the comms were on 146 MHz and 3,600 kHz. Two metre transceivers, with operators, were on two St. John Ambulance motor boats, and one Safety Council patrol boat.

We also monitored messages on the Safety Council frequenecles used by most of the yachts. Ian Foster VK3ST, on his launch "Leanica", worked 60 and 2 metre marine mobile at the finish line, and he organised a land station at the same point. Land stations were powered by batteries and portable motor alternators. Zone members supported this exercise very well, and all enjoyed the experience even though we worked through the night without sleep. Several Novice operators were introduced to portable operations, and we left most of the message handling to them.

Three weeks later the Yacht Club invited us all to an excellent free barbecue at the Club House, where we were thanked and complemented by the Yacht Club, Safety Council and St. John Ambulance Division for a communication job well done.

Then on March 17 and 18 we were involved with the "Academus" Car Rally, covering some 200 miles through East Gippsland back roads and tracks. Our job was to pass messages relevant to the safe conduct of this event and to pass car *numbers from* check points to the next one ahead. Operators worked through the night under portable conditions at manned posts in Sale, Davey Knob, Bruthen, South Bruthen and Waygara. We were officially thanked for a job well done and all operators concerned enjoyed and valued the experience.

Many operators took part in these exercises, but are too numerous to mention here. Our thanks to all concerned.

Brian VK3BBB relayed *messages* between aircraft and ground in connection with the WICEN comms with the recent Power Boat Race from St. Kilda to Lakes Entrance.

From Keith V. Scott VK3SS, Zone Co-ordinator. ■

Are you checking our bands for

INTRUDERS

AND REPORTING SAME TO THE INTRUDER WATCH CO-ORDINATOR?

MAGAZINE INDEX

Syd Clark, VK3ASC

RADIO ZS September 1978

The Mono-Jay Vacation Antenna; The Sounds of History.

RADIO ZS October 1978

When Radio Was Fun; The Unseen Eye; A Short History of Aircraft Radio.

RADIO COMMUNICATION December 1978

Heatsinks; Quartz 16, 144 MHz FM Transceiver (Review); Anti-TVI Filters; Circuit Design with NAND AND NOR; New Region 1 IARU Operating Standards; Transequatorial DX Contacts on 144 MHz; Preliminary Results of a Six-Year Study of the Lower Troposphere Over Southern England . . .; Radio Communications and the ITU.

RADIO COMMUNICATION January 1979

A 7 MHz Vertical Antenna; Preliminary Results of Six-Year Study, Pt. 2; HF Propagation Predictions Supplement; The 1978 AGM; General Rules for VHF/UHF/SHF Contests 1979; RSGB HF Contest 1979; HF Rx Contests 1979; Code of Practice for VHF/UHF Contest Operation; Code Letters for Use in RSGB Contests.

SHORTWAVE October 1978

Amateur Radio-Communication or Technology, or Both, Pt. 6; Multi-Mode with the NR-56 FM Monitor Receiver; From Stornoway on Forty Metres.

73 June 1978

Happiness is Being a Ham Manufacturer; Extended Double Zepp; New Dipole Feeder; The Cliff-Dweller's Delight; Wait Till You Try 16 Elements; Working 15m with a 20m Beam; A Better Feedthrough for Cables; Resurrecting the Beverage Antenna; How to Hang a Longwire; The "German" Quad; Mobile in Disguise; Better than a Quad; The Perverted Double Vee Antenna; Creeping Crud Got Your Signal; Towering Low Band Antennas; The 80 Metre Pile Crusher; Phased Verticals for Easy DX; Modernising the Matchbox; The Miserly Magnetic Antenna; The 75 cm DX Chaser Antenna; The Invisible All-Band Antenna; Who Says Verticals Don't Work; Low Cost Keyboard — II; Computerized Loop Antenna Design; Hey! Wait for Me; Morrow's Marvellous Monitor; Enjoy All Bands with a Remote Tuner; New Use for CB Antennas; Confessions of a Vertical Fanatic; Novice Guide to Phased Antennas; The 21 Element Brown Bomber; The "Towerless" Tower; The Two-Hour Two Metre Beam; Now Try 1296 MHz; The OSCAR Boppers; Cushcraft Does It Again; The S-Meter Bender; Amazingly Simple Log Periodic Antenna; Disguised Birdhouse Vertical.

73 November 1978

Electro Sculpture; The Sumsue Method; The UART Gear Shifter; Silence Groaning Refrigerators; Bargain Pre-amp; Murphy's Masterpiece; How About Some Ham Shack Safety; Head 'Em Off at the (High) Pass; 555 Basics — and More; Educate Yourself! Novel RTTY Autostart; The Easiest Offset Ever; The Chip Switch; Automatic Repeater Offsets; CB to 10 — The Lafayette Telsat SSB-75; The History of Ham Radio; Build an FM Tweaker; Another Surplus Treasure; Pfffft — Zapped Again; One Meter — Many Jobs; MDS: What Is It?; FM Calibration on a Budget; Build the $80 Wonder; Add — A — Scanner; CB to 10, A Realistic PLL Rig; No More Excuses; The Junk Box Station; R-X Bridge + Calculator = VSWR; High Seas Adventure — Ham Style; Look What Followed Me Home; A Hex on Your 8223; The Micro Maestro; SSTV Meets SWTPC, Pt. 1; Squelchitying Cheap Receivers; Try FM on 29.6 MHz; Build the Brute; The Multifunction Scan Can; Be a Weather Genius; Happiness is a DMM Kit; Vintage Receiver Mods; Deep, Dark Secrets of the TR-7500; The TTL Lifesaver; Build the "Version Three"; Heath's GR-88 Gets Religion; Four Terminals Are Better Than Three; CB to 10: A Realistic HT; The Circuit Board Aquarium; Build a Decent Dummy; Who Needs Transistors; Blockbuster RTTY Articles; Automatic Autopatch; Using Bargain Muffin Fans; Loran-C as a Frequency Standard; Ham Help; An Experimenter's Delight.

73 December 1978

A DXer's Dream Vacation; Close Encounters; The Schizophrenic Triangle; From CW to Computers; A 28c Touchtone Mod; Space Age Surplus; An X-Band Transceiver; SSTV Record-Controller; Receiver Diseases; Autophasing the WEFAX; The Lunch Counter; Confessions of a Stripper; Tuned Feeders and Other Good Stuff; Build a Realistic S-Meter; Wow! A Good Portable Receiver; The Xitex Video Terminal; Light Up Your Life; High Seas Adventure — Ham Style; Whither Microcomputers; SSTV Meets SWTPC, Pt. 2; A Multi-Memory Morse Machine; This is Your Computer Speaking; RTTY with the KIM; DX Delight; Big Max Attacks; The Packet Radio Revolution; This Voltage Standard Is Precise; The 22S Goes Digital; WARC 79 Preview; The "Flim-Flam" Factor; Build the Flexi-Filter; The Klassic Kilowatt; Ham Radio Goes to School; What's Your uF; Fail-Safe; Code Practice Oscillators; PCs Are Easy; The Games People Play; An Improved HV Tube Socket.

CQ October 1978

Inside K2VGV — The Amateur and His Pacemaker; An Optimum Speech Filter; Results of 19th Annual CQ 160 Metre DX Contest; Converting the Radio Shack Crossbow III CB Beam for 10 and 15 Metre Use; The National NC-101X — A Receiver that Changed Amateur Radio; GC4DAA — Guernsey Island; CQ Reviews; The Flesher Corp TU-170 RTTY Terminal Unit; CQ Reviews; The Electronic Research Model SL-55 Active Audio Filter; Rulse for the 30th Annual 1978 CQ WW DX Contest; A QRPP Transceiver; The Magicom RF Processor Module in the Kenwood S-820; A Look at the K3WX Antenna Farm; Amateur Radio Grounding, Pt. 2; Contest Calendar for October and Early November.

CQ December 1978

Amateur Radio Has Lost a Good Friend — Lawrence W. Le Kashman W2AB, 1920-1978; A CW Low Power Transmitter for 80 thru 10 Metres; A Four-digit One-IC Voltmeter—Almost; Chasing the Ultimate DX from Arecibo, Peurto Rico; Antennas 10, 15 and 40 Mx; The Ins and Outs of the Washington Scene; Sourcos of Aid for Prospective Amateurs; The EA8CR Multi-Multi Contest Story; Results of the 1978 CQ WW WPX SSB Contest.

CQ January 1979

All About Kits, Pt. 1, Should I Build or Shouldn't I Build; Solid State Tailored R/C Substitution; A Novel Beam Direction Indicator; What QSL Cards Are and How to Use Them; The K8EEG Story; An Ultra-Smooth Ball Bearing Keyer Paddle; Souping Up the Super Pro Receiver; Automatically Controlling Charge Current for NICAD Batteries; Sunspots and Unusual Antennas; Solar Cycle Update: The Early Years; All the Power to the Load; Why not Solar Power; An Inexpensive Method for Expanding Frequency Coverage; A Pipe Organ Multi-Band Vertical Antenna; The DC Analysis of a Transistor Amplifier; The Monster Quad; An Interface Concept for the Emergency Broadcast System and the Amateur Radio Service; Announcing the 23rd Annual CQ WW WPX Contest.

HAM RADIO November 1978

Mosfet Power Amplifier; Digital Synthesizer; Printed Circuit Layout Techniques; Monolithic Crystal Filters; 40 Metre Beam; Micoder Improvements; Multiple Quarter Wave Matching Transformers; Phase-Locked 9 MHz BFO; Mobile Antenna Magnet Mount; Digital Reperf/TD Ior RTTY; Tone Decoder; Antenna SWR Meter; IC Tester Using the KIM-1 Microprocessor; Simplified Capacitance Meter; Improvements for the Measurements 59 Grid Dipper.

HAM RADIO December 1978

High-Frequency Transverter; Lightning Protection; Solar-Powered Repeater; Universal Digital Readout; Oscar Calcu-puter; Simple Video Display; Collins 32S-1 Improvements; Top-Loaded Delta Loop; Updated Vacuum-Tube Receiver; 1296 MHz Double Stub Tuner; 1.5 GHz Prescaler.

HAM RADIO January 1979

Two-Metre Synthesizer; Measuring FM Deviation; 10 GHz Gunnplexer Transceiver; Fast and Quiet Transmit/Receive Relay; Adjustable 5-Ampere Power Supply; Ham-III Digital Readout; Anodizing Aluminium, CMOS Keyer; Digital Techniques: Basic Rules and Gates.

RADIO COMMUNICATION February 1979

Ladder Crystal Filter Design; Power Transformers with Low Voltage Secondaries; A Rugby MSF Time Coded Clock; Band Planning — 145.8 to 146 MHz.

RADIO ZS November 1978

The Bigear Type 2; Forgotten Discoveries; IARU Region One Conference (Hungary — 1978); The HB9CV 2-Metre Beam.

RADIO ZS December 1978

The UA3IAR Switch-Rotatable Quad; Amigos de las Americas.

SHORTWAVE November 1978

Antennas — The Weak Link, Pt. 6; A Useful 45 MHz Crystal Oscillator.

73 October 1978

DXpeditioning; VHF On Your Frequency Counter; The KM1CC Story; Good News; Mighty Mods for the 820S; Improving Heath's HT; Total Control; Oddball Splits and the IC-22S; The History of Ham Radio, Pt. 6: Re-using Coax Connectors; Building from Magazine Articles; Super Simple TT Generator; Microstrip; Low-Pass Filter Primer; Hello Hamdom; More Coming of Age; Rejuvenate a Pawnee; High Seas Adventure — Ham Style; Build a Better Beeper; DMM Buyer's Guide; Triple Threat; The Ultimate T-Hunt; Two Metre HT Survey; Interrupts Made Easy; Use Computers? Who Me?; Bird Watching in BASIC Land; Computers and the Real World; World's Cheapest QSLs; The Long-Term Effects of Working with ICs; The Lady Saw Red; The Frugal Alternative; PLL Techniques; Build a TTY Tester; It's a Ham's World; Attention Weather Watchers; Interchangeable Test Leads; Happiness is a Smart Scanner; Tweaking Your Linear; CB to 10; Tuned Circuits in Your Junk Box; Support Your Local Fire Chief; Improved Scanner for the VHF/One Plus; A Perfect Power Supply; Mobile Security Blanket; Further Adventures of the IC-22S; Antenna Design: Something New; Build an Audible Transistor Tester.

73 January 1979

The Italian Freq Generator; Happiness is a WE-800; Explore the World of VLF; The SHAFT; A Remotely Tuned Matchbox; Diodes of the Dead; Building an Economy Receiver; The ST-5 Plus; Build a $10 Digital Thermometer; CB to 10; Try a Little KISS; Autotrak II; The Twofer; Adam-12 Revisited; Digital RTTY Is Simple; Take the Pledge; Two Metre Tone Alert; Sneaky Car Security Alarm System; Design-a-Notcher; The COSMAC Connection, Pt. 1; Noise Bridge BASICs; The Morse Master; The Mini-MOUSE Key; One Step Further; Hurray for LF Filters; The Soft Touch Keyer; SOS Ship in Trouble; Minicontests; Are Your Op Amps Opping?; CB to 10; Electronics Education by Mail Order; Time-Domain Reflectometry; High Seas Adventure — Ham Style. ■

S.E. QUEENSLAND TELETYPE GROUP

SE QUEENSLAND TELETYPE GROUP

The aims of the group include promotion of the use of the RTTY mode, and education of amateurs in RTTY techniques. Towards these aims the group is organizing technical lectures for each of its monthly meetings and producing a series of circuit and other technical information for distribution to club members.

The group transmits a weekly teletype news broadcast under group members' call signs on Monday nights at 0930Z on 146.6 MHz (Ch. 52) and on 3540 kHz. A phone call-back is conducted after each news broadcast.

At the first meeting in February 1979, the following officers were elected: President, Doug Hunter

VK4ADC; Vice-President, Brian Beamish VK4AHD; Secretary, David Barnbaum VK4ADB; Treasurer, Brian Rickaby VK4RX; Technical Advisor, Roy O'Malley VK4ZQ. The group has recently gained affiliation with the Wireless Institute, Queensland Division.

The group meets on the first Friday of each month at the Holland Park State High School, Baupaume Road, Holland Park, Brisbane, at 8 p.m. Enquiries regarding the group may be directed to P.O. Box 274, Sunnybank 4109, or after hours telephone (07) 399 5366.

Yours faithfully,

D. Barnbaum VK4ADB, Secretary SEQTG. ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

68 Ellmatta Street,
Braddon, ACT 2601.

The Editor,
Dear Sir,

I refer to the letter from Edwin R. Rooms published in your March issue or, more specifically, to that gentleman's signature block.

I accept that his degree, his call sign and his being a dealer for Atlas Radio are all relevant to the subject matter of his letter; but what has his being a Yachtsman got to do with it!

As I believe I am well known in the amateur radio fraternity, I do not append the post-nominal initials to which I am entitled, but simply sign myself,

Yours faithfully,

Jim Lloyd VK1CDR,

Yachtsman, Photographer, Winemaker, Beekeeper, etc. ■

43 Barrett Street,
Gympie, Old.
20-3-79.

The Editor,
Dear Sir,

I wish to thank those amateurs who so generously answered my plea for information on the Geloso TR222 Tx.

I received five (5) replies, two of which included photostat copies of the circuit and information, and one a technical bulletin from Geloso (Italy) for my perusal and return.

Many thanks.

Your sincerely,
Barrie Bestmann VK4LN. ■

The Editor,
Dear Sir,

It is most fortunate that Mr. Rex Black VK2YA is not typical of the full-call amateurs I have had the pleasure to be associated with. His holier-than-thou narrow minded attitude towards any new innovation to what he obviously considers to be his medium of communication cannot be tolerated by any clear thinking amateur, novice or full-call alike.

Members of the Wooley Bum Charter are world-wide and I for one know the dedication which went into the Novice class instruction organised by its members.

To refer to its members as "dregs of CB" and possessors of "sinister policies" is childish in the extreme, and as a Charter member I bitterly resent Mr. Black's unfounded and libellous allegations. On behalf of all Wooley Bum members I demand an apology through these pages.

Yours in anticipation,

David F. Timson VK3NZA WB28.
33 David Street, Knoxfield, 3180, Vic. ■

21 Bovelles Street, Camp Hill,
Brisbane, Q. 4152
5th April 1979

The Editor,
Dear Sir,

For general information. The ARRL (DXCC Section) have issued the following definition of a QSL card which is acceptable for DXCC credit:

"A valid contact, no matter how it is established, is a contact between two identifying stations who have established two way communication with each other. Regulations require that you identify the station you are working, as well as your own".

Please note that there is no mention of signal strength reports! As long as the card shows the callsign, date and confirms that a two way QSO was held, it will be accepted.

Therefore, the commonly held belief that a card must show a report of at least 3 x 3 (or 339) does not appear to be true!

Yours truly,

Fred Lubach, VK4 Outwards QSL Officer. ■

15-4-79.

The Editor,
Dear Sir ,

I noted with interest in April edition of Amateur Radio that someone is using H. O. Kellas VK3AHK's call sign. I wish to say that some of the Geelong hams are also having their calls used by "pirates", the main ones being VK3SY, VK3AGN, VK3APG, and my own, VK3ALG. This has been going on for at least four years. I just wonder how many other hams in Australia are having their call used also. I myself have been very active for 31 years. I have notified the Department of such practices.

F. A. Freeman VK3ALG. ■

3 Gardenia Street,
Pakenham 3810.
16th April, 1979.

The Editor,
Dear Sir,

As I am not yet a member of the WIA, it is only through the courtesy of a friend that I have just read the February issue of Amateur Radio. Two of the letters absolutely amaze me. Firstly, I am surprised that you saw fit to publish the letter on page 39 signed (?) VK3N . . ., as surely anyone making such allegations against David Ramsbotom, or indeed any other person, should have the intestinal fortitude to put his name to them.

As to the letter from Rex Black VK2YA, his libellous attack on the Wooleybum Club is unjustified and as a licensed amateur, licensed CB operator and a holder of the WB Club Certificate No. 35, I resent the accusations and implications of the letter.

The generalizations and assumptions in his letter could only have been made by one totally unaware of the situtions. The Club's award certificate can only be gained in one of two ways, firstly by qualifying as an amateur through one of the courses run by the Club, as I did, or secondly, by earning sufficient points by contacting by radio other members. It is therefore no more an attempt to take over the band than is the issue of, for example, a DXCC award, or a JARL award or membership of the Mopoke Club, etc., etc. To suggest that the Club is "determined to inject the sub-standard mental processes of the dregs of the CB movement" is offensive in the extreme to me, and I expect, probably lutilely, an open apology from Mr. Black.

I have nothing but the highest praise for the care and diligence of the Club's radio course instructor who helped me and many others to qualify for a licence. Hardly the sort of behaviour one would expect from a group "Determined, etc. . . ." as Mr. Black so vehemently asserts.

It is unfortunate that Mr. Black does not appreciate the Club's humour either. Possibly I may not agree with his type either, but I'm not going to make such a noise about it. I thought the true interpretation came from the Editor in a recent article on the Club, which was virtually along the lines of "To each his own, but after all it's a free world".

When it's all said and done, nobody has to join the Club or obtain a certificate unless they want to, or unless they have been given the opportunity to do so.

Or is that the trouble, hasn't Mr. Black been asked?

Yours faithfully,

D. E. Jackson VK3VAA, VBB 470, WB 35.

Editor's Note: So that you may obtain your own library of ARs and partake in the many other benefits of WIA membership, I have forwarded an application for membership to you under separate cover (VK3UV). ■

TECHNICAL CORRESPONDENCE

The Editor,

Dear Sir,

Ref. mods to the FT101 in AR November, 1978.

On page 11 there is a mistake and also the info on changes to the 101-B and E. It should read:—

Locate the transistor Q2 in the 101 Mk. II and its bias resistors R5 4k7, and R6 22k; Q1 in the 101-B and E, and its bias resistors R1 4k7 and R2 22k.

I found this out the hard way!

Regards,

. L. Martin VK2II. ■

The Editor,

Dear Sir,

Because of the large variations in the "standards" adopted for calibration of receiver signal strength (S) meters the value of signal strength reports in assessment of the performance of an amateur station's equipment and aerial system is questionable.

The attached copy taken from December 1978 "Radio Communication" appears to be a move towards standardisation of calibration and as such should, I believe, be encouraged. Perhaps you would consider its publication and recommend its use.

Yours faithfully,

G. E. Wiencke VK6WX ■

INTERNATIONAL NEWS

"S-METER STANDARDS

In order to make a uniform reporting system on the amateur bands possible, taking into account the widespread use of the 'subjective' S-system, and the large deviations between the characteristics of S-meters on current amateur equipment, IARU Region 1 recommends the use of the S-system for signal strength reporting on the amateur bands, based on the following standards:

(a) One S-point shall correspond to a level difference of 6 dB.

(b) On the bands below 30 MHz a meter deviation of S9 shall correspond to an available power of a CW signal generator connected to the receiver input terminals — 73 dBm.

(c) On the bands above 30 MHz this power shall be —93 dBm.

(d) The metering system shall be based on quasi-peak detection with an attack time constant of 10 ms ± 20 ms and a decay time constant of at least 500 ms.

COMMENTS

1. Signal reporting on the amatuer bands at the moment is based on the well known 'subjective' RST system. Although the system is very useful, the availability of modern, sometimes professionally made, receiving equipment, makes the use of a less subjective system lor the measurement of the strength of the received signal possible. The system to be chosen, however, must not deviate too much from the 'subjective' system.

2. The lirst, and most important, standard to be recommended, will be the definition of an S-point. A value ol 6 dB seems very practical. It corresponds to an already widespread 'un-

official' standard and gives the least problems for non-mathematically-oriented amateurs.

3. Once having agreed upon the value of one S-point, a second, less important, but very useful recommendation is the definition of a reference level.
   Taking into account the practical situation it is not possible to define one reference level for all amateur bands. On the HF bands a level of —73 dBm (50uV over 50 ohm) does not deviate too much from current practice. On the higher bands, however, where thermal noise is the limiting factor in many cases, a lower level must be chosen and —93 dBm (5uV over 50 ohm) seems appropriate.

STANDARD TABLE S

	HF bands dBm (V over 50Ω)	Bands above 30 MHz dBm (V over 50Ω)
9 + 40 db	—33 (5mV)	—53 (500uV)
+ 30 dB	—43 (1.6mV)	—63 (160uV)
+ 20 dB	—53 (500uV)	—73 (50uV)
+ 10 dB	—63 (160uV)	—83 (16uV)
9	—73 (50uV)	—93 (5uV)
8	—79 (25uV)	—99 (2.5uV)
7	—85 (12.6uV)	—105 (1.26uV)
6	—91 (6.3uV)	—111 (0.63uV)
5	—97 (3.2uV)	—117 (0.32uV)
4	—103 (1.6uV)	—123 (1.16uV)
3	—109 (0.8uV)	—129 (0.08uV)
2	—115 (0.4uV)	—135 (0.04uV)
1	—121 (0.21uV)	—141 (0.02uV)

4. Although the standards given above are based on continuous signals, in real traffic non-continuous signals (i.e. A3j) will be encountered. It is necessary, therefore, to define the measurement system in more detail.
   In many cases the S-meter is coupled to the AGC system of the receiver. Therefore a quasi-peak detector will be taken as the standard, with an attack time constant of 10 ms and, although of less importance, the decay time constant shall be more than 500 ms.
5. It is hoped that the recommendation will be followed by all equipment manufacturers, so that in the not too distant future one will know how to interpret the strength report of the other station.

Societies should advise their members about equipment manufacturers adhering to this recommendation, and try to avoid publication of receiver designs which do not, in principle, use the recommended standards. Simple means for calibration of at least the 6 dB level ratio should be published." ■

WANTED

The Project ASERT Committee of the WIA is anxious to obtain a number of Rustrak miniature recorders, preferably having a range 0-1 mA and a chart speed of 5 cm/hour.

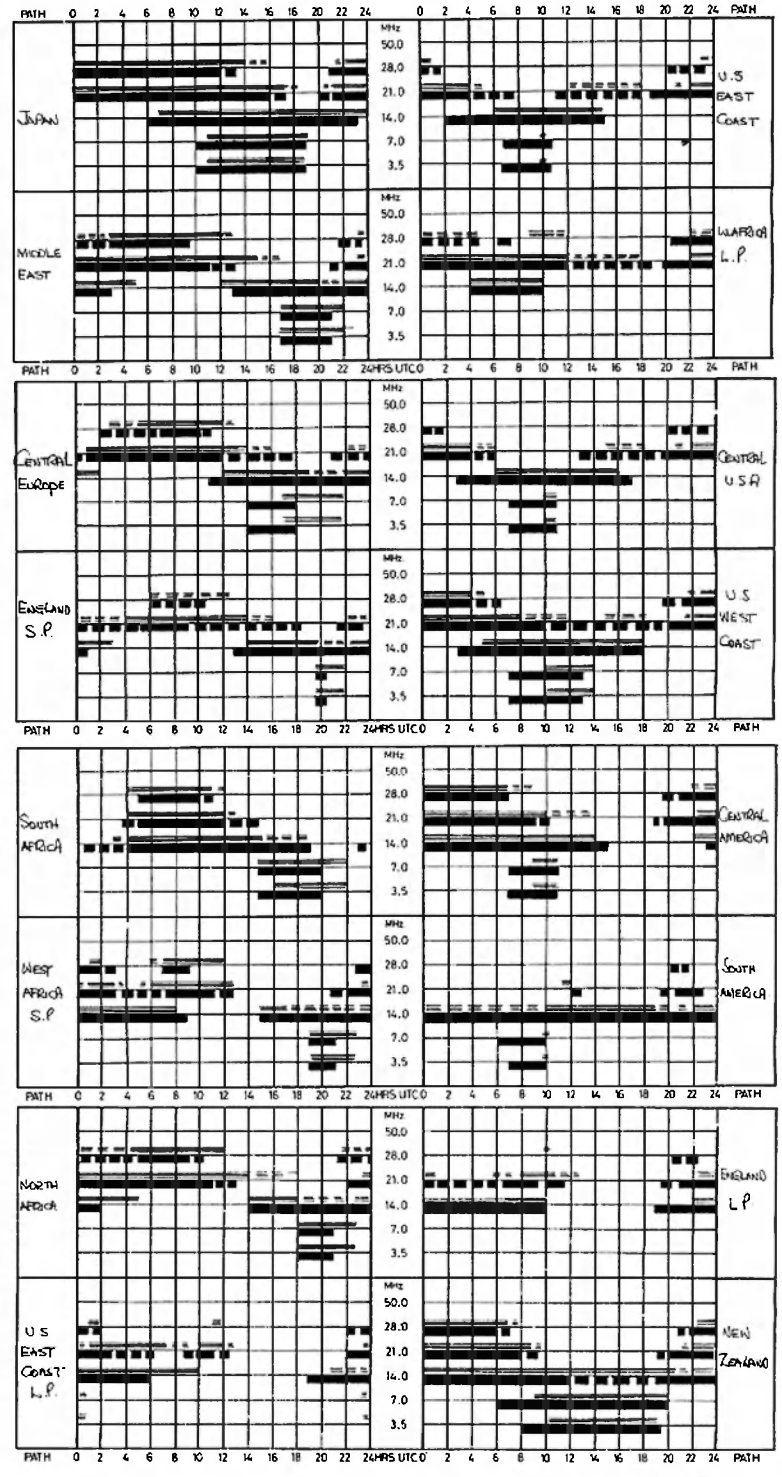
If any member or other person reading this advertisement is prepared to donate or sell a recorder of this type, the ASERT Committee would be most grateful.

Please have a look in your junk box and see what you can find; then either write to Box 150, Toorak, Vic. 3142, or telephone Les Janes (03) 338 9284 A.H.

Technical Articles Always Needed

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



IPS update for June is delayed due to mail strike — this is the chart for May for information only.

MEET THE VK2 DIVISIONAL COUNCIL

Photo taken at WI Centre on the night of the 1979 Annual General Meeting.

From l. to r.: Tim Mills VK2ZTM (Sec.), Ian Mackenzie VK2ZIM (Vice-Pres.), Stephen Pall VK2VHP, Eric Van Der Weyer VK2ZUR, Fred Parker VK2NFF (Pres.), Phil Card VK2ZBX (Vice-Pres.), Henry Lundell VK2ZHE.

(Photo by Ken James VK2NWK.)

20 YEARS AGO

Ron Fisher, VK3OM

JUNE 1959

The situation in June 1959 was much as it is today. The Editorial page puts it in a nut shell; To Geneva — What then? Sounds familiar. In fact most of the June issue was taken up with reports on the forthcoming Geneva conference and also the proposals released by the Post Master-General's that we would have to face cuts in many of our popular bands. The proposed cuts were: 80 metres, down 100 kHz to 3.7 MHz; 40 metres, down 50 kHz to 7.1 MHz; 20 metres, down 100 kHz to 14.25 MHz; 15 metres, unchanged; 11 and 10 metres cut from 56 to 60 MHz, down to 56 to 58 MHz and an interesting one on the two metre band, a change from 144/148 to 146/150 MHz.

On the basis of this report, Federal Executive sent urgent telegrams to the then Prime Minister, The Rt. Hon. J. McEwan and other members of parliament. This apparently hit the right spot and a great deal of discussion followed in The House, most of which was reported in the June issue of Amateur Radio.

Supporters at the time included Senator Hannan, Mr. (later Sir) A. Fairhall VK2KB and Mr. J. Fraser, Member for the ACT.

A transcript of a talk given by Mr. A. Fairhall via VK2AWX on all HF amateur bands was printed in full.

As you can imagine, this left very little room for technical articles, but a description of a two stage transmitter for 7 MHz was included. Alan Smith VK3AN showed how to built it but omitted to say what the power output was; perhaps too low to measure.

Note that the second edition of the ARRL Single Sideband Handbook had just been published. A review commented on this.

An advertisement from R. H. Cunningham Pty. Ltd. announced the arrival of the Geloso G222 transmitter and the matching 209R receiver at about $600 the pair. Perhaps we shouldn't complain about the price of amateur gear these days. ■

QSP

NBS RADIO STATION WWV

Effective December 1, 1978, WWV resumed its previous transmission on 20 MHz. This transmission has been reinstated because of improved propagation conditions on the 20 MHz frequency and will continue as long as propagation conditions warrant.

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

Yaesu FL2100B Linear, 10-80m, 400W PEP output, 1 year old, little use, mint, with manual, $450; Cushcraft 2m ringo with instructions, $30; Hallicrafters FPM-300 SSB/CW Tcvr, 10-80m, 250W DC input, AC-DC, solid state, tube final USA made, with manual, new spare finals, mike deluxe mobile bracket USA made, mint cond., with manual, urgent sale, $450, ONO; Drake TR4C, SSB Tcvr, RV4C, AC4, MS4, MN4 mike, manual, mint, $975 firm. John Berry, 40 Grosvenor Street, Woollahra, NSW 2025. Ph. (02) 389 6455 Bus.

Telefunken Rx E127KW/4 for 1.5 to 30 MHz in 5 bands, plus 6 switched xtl chs., A1-A3, AGC on-off, BFO, S-meter, variable bandwidth 0.1 to 3 kHz, all circuitry and cabinet near original condition, also separate connected dual-path antenna diversity unit (with electronic switching), 17 transistors, 6 diodes, handbooks, only $120 pair, or will separate. VK2KR. Ph. (02) 449 4524.

Kyokuto Synth 2m Transceiver, in box with manual, $325; Katsumi MC22S speech compressor, $40; SP400 speaker box, $35; Osker block 200 power meter, $45. VK2ZHF, QTHR. Ph. (02) 631 1269.

Comm. Rx Yaesu FRG-7 0.5 to 30 MHz, continuous coverage Rx, latest model, w/fine tuning, as new cond., $280, ONO. Ph. (03) 91 4041.

Four 8873 Conduction Cooled Tx Valves with two Beryllium heat sinks, sockets and screen rings, brand new, never used, $200 the lot. Doug McArthur VK3UM, QTHR. Ph. (03) 609 1511 Bus.

Comm. Rx, R5223, 29 bands, 1 MHz wide, 1.5 to 30.5 MHz, v.g.c., with matching RTTY demodulator, $270 the pair; Creed 7B teleprinter with 50 and 45 BWD governors, sound proof wooden cabinet, $65; metal cabinet, $60, v.g.c.; white laminex enclosed cabinet on coasters, suits Siemens model 100 teleprinter, $30, extremely quiet TTY operation; model 15 teleprinter, v.g.c., $75; and model 14 typing reperf, v.g.c., $45; RTTY demodulator, valve type, covers all shifts, v.g.c., $35. VK3AQB, QTHR. Ph. (03) 337 4902.

FRG7 High Perf. Triple Conv. Comm. Rx, all bands 0.5 to 29.9 MHz, continuous coverage, drift free Wadly loop system gives excellent stability, as new, only $300; Realistic SX190 comm. Rx, a little beaut on 80-40-20m ham bands and eight SW bands, covered in 500 kHz dial segments, plug in two more xtls for two extra bands of your choice, with ext. speaker and manual, a bargain at only $120. Wright VK2BZ, QTHR.

FT75 Transceiver with AC power supply and DC power supply, with 8 xtals 3.565, 7.008, 7.085, 7.097, 14.150, 14.200, 21.400, 28.550 and VFO, plus mobile cradle, $350, ONO; PFT203 2m mobile with xtals, channel 40, 50, 1 and 4, $250, ONO; AC power supply for 2m rig, $50. Greg Whyler. Ph. (03) 873 3939.

TS520S, modified for Novice use, plus DC supply, $600; FRG-7 Rx, $200; Home brew 10/15m 4 el. each yagi with KR400 rotator, $200; home brew tower, 2 sections, 40 ft. total with winch, $150; HC500 ATU, $100. Jeff Boyd VK3NJS. Ph. (03) 391 7519 A.H.

KLM 140W 2m Class B Linear, two RCA 5786 valves, suit linear for 2m, three 810 valves, incl. jumbo sockets, three 572B/TI60L valves, all used but in good cond., three 2C39 valves, 4CX250B single ended 2m amplifier, tube, socket, mechanics and tuned line only, offers on any or all; first reasonable offer on any item will be accepted. Ian Foster VK3ST. Ph. (051) 56 8311.

Photocopying Machine, "Arclight", complete with developer, will take copies up to a full 32 in. width, $100, plus freight. Ian Foster VK3ST. Ph. (051) 56 8311.

TS520 Transceiver (Kenwood), $550; also MB40A Swan transceiver, solid state, ideal mobile/portable/home station, for 40m, $275. Ph. (02) 709 7242.

Communic. Rx AX-190 Amateur band double conversion superhet, covers 80, 40, 20, 15 and all of 10m, complete with matching speakers, $190. VK2ZIO, QTHR. Ph. (02) 872 1334.

FT620, fitted xtals for 50 to 54 MHz operation, with 4 el. yagi, coax., etc., $350; near complete collection of AR, 1949 to date, $40. VK5GU. Ph. (08) 223 2296 A.H.

Hallicrafters SX28, 550 kHz, 54 MHz Rx, incl. full handbook, $35, ONO. Allen Crewther VK3SM, QTHR. Ph. (03) 386 4406 A.H., (03) 630 5794 Bus.

Teletype Model 15, good working order, plus spare paper, $70; MTR 13 2m rig, 5 ch. conversion, with xtals, $35; Old Philips crow, $10. VK3SU, QTHR. Ph. (059) 44 3552.

Yaesu FTDX 401 Tcvr, last model with CW filter and AM, as new cond., $500. VK4IJ, QTHR. Ph. (07) 356 2610.

Yaesu FRG7 Communic. Rx, mint cond., $260. Ph. Bill VK3VDW (059) 75 4067 A.H.

Yaesu FL2100 Linear Amplifier, unmarked cond., $480. VK4AGL, QTHR. Ph. (071) 41 2315.

Unmodified FT200 with full 10m coverage, 240V AC power supply, and DC-DC power supply for FT200, also full set valves, $520, ONO the lot. Trevor Bartlett VK5NTB, 143 Murray St., Nuriootpa 5355.

Icom IC22A 2m FM Transceiver, repeaters 2 (also reverse), 3, 4, 5, 6, 7, 8, Simplex 37, 40, 50, 53, with original packing and cradle, B12-12 final in very good cond., $175; KRACO 2340 23 ch. AM/SSB, suitable for conversion to 10m, $95. Lew VK1ZLW. Ph. (062) 47 3661 A.H., (062) 49 2695 Bus.

Astatic Mic., Modal 10DA, the dynamic which succeeded the D104, made especially for SSB, complete with stand, new, in original carton (surplus). Roth Jones VK3BG, 23 Gaudion Rd., Doncaster East, Vic. 3109.

Kenwood Communic. Rx QR-666, 0.1-30 MHz, Incl. amateur bandspread, all solid state, 12V/240V, good cond., $220. VK8Z/NLD, Ph. Alice Springs 50 2359 (no STD), or write Box 1786.

Urgent — FT101E Tcvr. modified for Novice use, 12 months old, perfect cond., $630, ONO; Yaesu FRG7, perfect cond., very little use, $240, ONO; HC 500A antenna matcher, 1.6-30 MHz, 8 months old, $85; Hansen power meter, 100W max., coax. switch — 3 outlet, plenty of coax. approx. 50-60m, laminated copper wire for 80m dipole, $35. Ph. (03) 398 4853 A.H. or (03) 314 0344, Ext. 259, Bus. Ask for Alan VK3NOD.

Kenwood TS-820S, incl. DC-DC Invertor, service manual, $950; Hidaka VS-33 triband 3 el. yagi, 14 ft. boom, $200, incl. balun; ext. speaker SP-820, suits TS-820S, $50; Shure 444 50k imp. mic., $40; Emmotator rotator 103LBX, 150 kg vertical load, $150. VK5NPM, 8 Macintosh St., Mt. Gambier. Ph. (087) 25 2407.

Tech Model TE-15 GDO, as new, $50.00. RTTY plug-in boards for ST-6 demod., set of 8, $26.40. UT-4 regen. rpt., set of 4, $21.00. Monitor scope, set of 2, $6.60. AK-1 AFSK mod., auto CW Ident., auto freq. control, each $3.30. VK3ZY, QTHR. Ph. (03) 277 4748, after 6.00 p.m.

Kenwood TS-120V, mobile HF transceiver, with MC-355 noise cancelling microphone, $500. Phil VK2VII. Ph. (044) 24772 after 1700h EST.

10m conversion of Gemtronics GTX-3325 CB Transceiver. Covers 28.30-28.59, AM and SSB 25W PEP, fine tune operates on both Tx and Rx, mic. etc., had little use, suit noice. $120 ONO. Jim VK5JI. Ph. (08) 295 8094.

FRG7 Communications Rx with narrow SSB filter, mint condition, $260. EA, Jan.-Feb. 1976 3.5 MHz Tx with 4 xtals, $65. John Thurston VK2VFQ, Corrimal, NSW. Ph (042) 83 3509.

KW2000E Txcvr., 160-10m, like new, AC power supply, $650 ONO. Yaesu YD844 desk mic., $40. Dick Smith transverter 11 to 80, like new, $60. CRO, $100. ATU, suit 80m, two of $15 ea. Ph. (052) 75 2421, after 18.30h.

Yaesu Mobile Antenna, complete roof-side set. RSL-3.5, RSL-7, RSL-14, RSL-21, RSL-28, plus RSE-M-2 (element and base), brand new in box. $100. VK2AYV. Ph. (02) 326 2752.

Communications Rx Drake SSR-1, 0.5 to 30 MHz, solid state, battery and 240V AC, built in speaker and antenna, with handbook. $200 ONO. VK2NVY. Ph. (02) 98 0507.

FTDX560, in mint cond., with all features as the FTDX401, $450. Galaxy SWR/watt meter, 0-400W and D-4000W, $75. Both together for a cheap price of $500. VK2RM, QTHR. Ph. (047) 58 6569.

Complete RTTY station — Model 19 page printer, $70; Model 14 tape distributor, $20; Model 14 typing reperforator, $20; Motor and loop supplies, $40; EA Terminal, $50; Lot $170. All in perfect working order. Ham "M" rotator, $100. VK2BLK. Ph. (057) 64 1238.

Icom IC211, as new, complete in original packaging $600 ONO. Bob Anderson VK2ZXR. Ph. (02) 869 2695 or (02) 218 4848.

Kyokuto, in good condition with 10 kHz scanner added, $200. TR7600, 2 months old, still in original carton, $365. Willson 1402SM hand held, in good condition, Rept. 4, 8; Simp. 40, 50, 51 & 146.520, light duty rotor with 100m of cable to suit, unused, $45. Richard Cowles VK2ANB (VK2NBN, QTHR). Ph. (02) 699 9403.

FT101, very good condition, $550; FV101, new, $120; IC202E, new, $160; IC280, near new, $330; TH6DXX with Ham 2 rotator, complete, $350. Peter VK3BEJ, QTHR. Ph. (050) 24 5814.

Linear Yaesu FL2100B, perfect, used only few times. Lee Wilms VK3AB, QTHR. Ph. (03) 20 1754.

Kenwood TS-520, 240V AC, 12V DC, power supply, C Wfilter, remote VFO, new 12BY7 driver, and new pair 6146Bs in final amplifier; all in excellent condition. For sale complete to first genuine offer. (Sydney area). Ph. (02) 487 1273.

Drake SSR1 Comm. Rx, .5-30 MHz, Wadley loop cct. batt. and AC operated, as new, in excellent cond., handbook and cct., $230. Ph. (004) 25 3357.

ACI Marine Tcvr, 12-14V DC, solid state, broadband, 20W SSB/CW, modified to 80/40m VFO control, 4 xtal positions available, NB, RIT, meter, 260 x 100 mm x 300 mm, $195 ONO. VK3UJ, QTHR. Ph. (03) 874 5632.

Deceased Estate — Kenwood TR2700G 2m Tcvr, mint cond. w/manual, $200; Trio 2m external VFO for above, $100; 13.8V PS w/meter for above, $30; Yaesu LP filter FF50DX, $10; Hansen dual SWR meter, $15; Vibroplex key, $15; MC50 H/L Z Kenwood desk mic., new, $40; 28 MHz to 3.5 MHz ATU, $30; 240V isolation transformer, $10; 24 hour LED digital clock, $20. VK2BEK, QTHR. Ph. (02) 476 5096.

Deceased Estate — Yaesu mic. 500 ohms PTT with plug, $10; Plantronics boom mic. & ear phone MS50, 3000 ohms, $40; B & W coax switch, $10; Dow Key with 6EH5 and instructions, $8; Ant. noise bridge, Mod. TE7-81, $20; MD722 mic., $10; Rota meter, $5. Plus numerous tubes, coax, etc., please send for list to VK2DA, QTHR. Ph. (02) 94 1039.

WANTED

Large Reflex Horn Loundspeakers for PA work, also 15 or 20W 500 or 600 ohm drivers in good working order. VK2UJ, QTHR. Ph. (068) 65 3213.

SB-600 Matching Speaker for Heathkit HW-101 Transceiver, also SB-650 readout in any cond., and any useful information of mods. for HW-101, RIT, etc. VK5NCO. Ph. (08) 298 4072.

Urgently — 2 x 813 Valve Sockets, good price paid. Errol VK2BET, QTHR. Ph. (02) 476 2933.

Drake T-4XC Tx and AC-4 power supply. R. Lyon VK6LK, QTHR. Ph. (09) 457 2202 AH, or (09) 277 2122 ext. 214, bus.

Remote VFO for Yaesu FT101E, also extension spkr, Osker Block and Yaesu aerial tuner, instruction book for FTDX400. Ken Cassidy VK4QZ, QTHR. 14 Alice St., Townsville, Qld. 4814.

EXCHANGE

Swap FT101E AC/DC, near new and in mint cond., for linear amplifier, i.e. Dentron MLA2500, Drake LB4 or similar, cash adjustment either way if necessary. Ian Foster VK3ST. Ph. (051) 56 8311.

W6MXV Slow Scan TV Monitor, complete with circuits and alignment notes, wish to exchange for a solid state, 2m FM mobile transceiver. Steve VK3ZY, QTHR. Ph. (03) 277 4748 after 6 p.m.

TRADE HAMADS

QSL Cards, Log Books, Contest Sheets — send 20c stamp for samples and prices to Linda Luther VK4VV, PO Box 498, Nambour, Qld. 4560.

Are you on frequency? Be on frequency with DSI. Full range of top quality counters up to 1300 MHz. 0.1 parts per million accuracy. Quik-Kit 50 Hz-550 MHz counter kits, 95 per cent assembled, 100 per cent tested, 12 months part warranty, AC or DC operation, 8 digits ½ inch LED, accuracy 1 part per million. Special introductory price $135, incl. postage. Write for further info or check ads in American QST, Ham Radio, etc. Australian distributors ATN Antennas, Box 80, Birchip, Vic. 3483.

CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

June:
16/17 ALL ASIAN PHONE CONTEST
23/24 ARRL FIELD DAY

July:
14/15 IARU RADIOSPORT CHAMPIONSHIPS

August:
11/12 REMEMBRANCE DAY CONTEST

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. W. B. MUDIE	VK3XS
Mr. G. M. FOWLES	VK5HG
Mr. K. W. M. MAGEE	(VK3KM) YJ8KW

OBITUARY

WELL KNOWN OOT BECOMES SILENT KEY

Members of VK/CHC Chapter 66 wish to record their regret at the passing of Cliff Evans, K6BX, founder and creator of IARS (International AR Society), CHC (Certificate Hunters' Club), FHC (Flying Hams' Club), etc., etc.

Cliff died at Bonita, California, on the 30th March, 1979. He was first licensed in 1914 and was an active ham for 65 years. One of his many outstanding accomplishments was the creation of Hamdom's largest ever Awards Programme and its first Directory, produced in book form, called the "D". He was also an outspoken critic of any activity in AR that he saw as unworthy of the service; this brought him into conflict with many people and groups.

The Awards Programme in particular and AR in general will never be quite the same again without him.

VK4SS CHC 563 ■

ADVERTISERS' INDEX

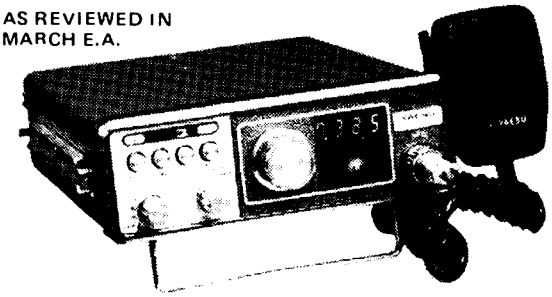
Join a new Member
— NOW —

YAESU from DICK SMITH

WHEN YOU REALLY CONSIDER THE ALTERNATIVES – THERE ARE NONE!

COMPUTER TECHNOLOGY COMES TO VHF COMMUNICATIONS

AS REVIEWED IN MARCH E.A.



FABULOUS YAESU FT227R 2m FM MOBILE $335

WHAT ARE THE FREQUENCY SPLITS FOR REPEATERS?
Don't worry! Yaesu has computerised it. In addition to a conventional + 600kHz split, any transmitter offset frequency is memorised with the touch of a button.

WHAT WAS MY LAST FREQUENCY?
Don't check – a touch of a button will bring you back to the memorised channel instantly.

WHY ONE KNOB TO SELECT A CHANNEL OUT OF 800?
Yaesu utilises an 'OPTICAL COUPLING' system to select each channel in 10kHz steps and the channel may be offset 5kHz higher with the touch of a button. Thus 800 fully synthesised channels are provided with one knob and no rotary switches to get oxidised or noisy.

WHAT ARE THE OTHER FEATURES OF THE 227R?
Many. Just to name a few – tone burst accessed repeater operation; automatic final protection; busy channel indicator; high and low power output selection . . . we could go on & on.

WHY SETTLE FOR ANYTHING LESS THAN THE 227R?
The fabulous FT-227R. Yours for the low, low Dick Smith price of only $335.00. Cat. D-2890

GREAT CIRCLE WORLD MAPS: Ideal for the shack – based on Australian east coast. Mount under the rotator pointer for true bearings
Cat B-4502 . . . . . $3.00

CLUBS – Apply on your club letter-head and we'll send you a copy of the world map FREE! (Limit one per club)

WORLD CALLSIGN MAP: Shows prefix on each country plus capitals and major cities, also DX zones. Cat B-2264 . . . . . $1.95

SHINWA TVI FILTER: We don't have to tell you how good the Shinwa is! 1dB insertion loss, 30MHz cut-off, max. attn from app. 50MHz.
Cat D-7080 . . . . . $19.50

2m 45W AMPLIFIER KIT: 8-12W of drive for 35–45W of output. F'glass pcb, instructions inc.
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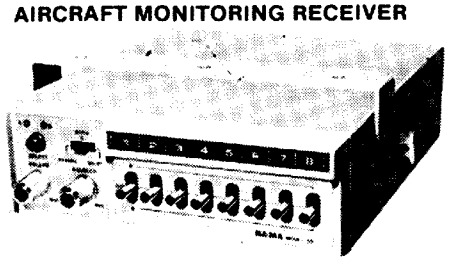

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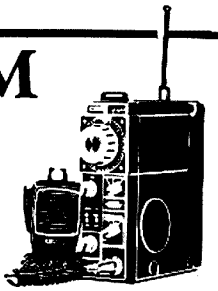


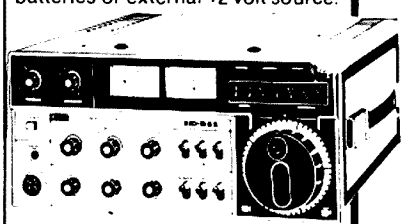
ICOM IC-402 432 MHz SSB & CW portable

Frequency range 430-435.2 MHz in any 200 KHz bands • Power output 3 watts PEP SSB • CW, USB, LSB • Receiver sensitivity 0.5 UV at 10 dB SINAD. Provisions for external antenna & power sources • BC-20 nicad battery pak & charger optional

ICOM

ICOM IC-202S 2m SSB portable

The IC-202 features: • Frequency coverage: 144-146 MHz • Modulation: A3J and A1 • RF output power: A3J 3 watts (PEP), A1 3 watts • Sensitivity: 0.5 microvolts at (S+N)/N 10 dB or better • Includes a true IF noise blanker • Requires "C" batteries or external 12 volt source.



ICOM IC-211 2m transceiver

• 144 to 148 MHz coverage • Modes: SSB, CW, FM • LSI synthesizer PLL • 4-digit LED readout • Pulse-type noise blanker • VOX w/adjustable gain • SWR bridge • CW monitor • Automatic power control • AC/DC power supplies • Antenna impedance: 50 ohms unbalanced • TX output: 10W PEP.

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amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 7 JULY 1979

FEATURED IN THIS ISSUE:

- ★ 25 cm VERTICAL FOR HF MOBILES
- ★ WATCHING SUNSPOTS
- ★ KULROD STORY
- ★ REMEMBRANCE DAY CONTEST 1979 — RULES
- ★ 1979 FEDERAL CONVENTION

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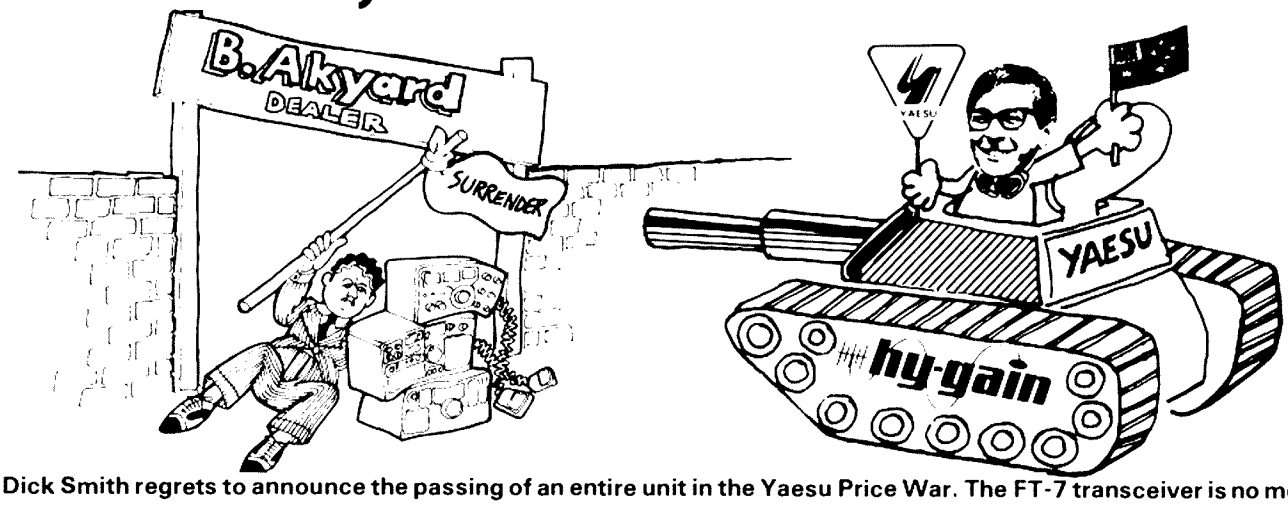

Dick Smith regrets to announce the passing of an entire unit in the Yaesu Price War. The FT-7 transceiver is no more. Other units are still going strong, some with reduced numbers. Don't miss out – at these prices they could be wiped out! Even the famous FT 227R has had its price ticket shot full of holes. No longer are they $379.00 (reduced from $395.00). Now save an extra $60.00 while they last: only **$319.00!**

LATE NEWS FLASH: Save $120 on the fabulous FT-901D! Now reduced to only **$1229.00**

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FT-227 2m FM transc with memory	Cat D-2890	~~$370.00~~ SEE ABOVE	CPU-2500 computerised 2m transc.	Cat D-2889	**$549.00**
FC-301 Antenna tuning unit	Cat D-2896	**$219.00**	FC-901 antenna tuning unit	Cat. D-2855	**$249.00**
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Published monthly as its official journal by the Wireless Institute of Australia, founded 1910.

amateur radio

JULY 1979
VOL. 47, No. 7

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CONTENTS

TECHNICAL

GENERAL

DEPARTMENTS

Cover Photo

A BIT OF NOSTALGIA

With thanks to R. N. Torrington VK3TJ for supplying the photo, here is a picture of the Zero Beat Radio Club Field Day at Lansdowne Bridge, Carramar, NSW, 1936. Those identified are:

STANDING: Basil Dale VK2XX (now VK2AXX) 2nd left, Mrs. Stocks 3rd left, Noel Smith 4l, Cam Moginie VK2CN 5l, Peter Mulligan VK2ABH 6l, Clive Hutchison VK2YP 8l, Harry Whytemeach 9l, Bob Fussel VK2SS 10l, John Gue 11l, P. Torrington VK2TJ 12l.

SEATED: Les Stocks 2l, Bill Piggott VK2WN 3l, Harry Branson 4l, Andy Kerr VK2AX 7l, George Shelley VK2QF 8l, Russ Miller 10l. VK2s ABH, YP and AX still hold these calls.

Is anyone able to identify any of the others?

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Federal Council:
VK1 Mr. R. G. Henderson VK1RH
VK2 Mr. T. I. Mills VK2ZTM
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Secretary — Mr. Peter Savage VK6NCP.
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Vice-Pres. — Barry Burns VK8DI
Secretary — Graeme Challinor VK8GG
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal information:
VK1 — P.O. Box 46, Canberra, 2600.
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h). P.O. Box 123, St. Leonards, NSW 2065.
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Weekdays 10.00-15.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton.
VK6 — G.P.O. Box N1002, Perth, 6001.
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VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 46, Canberra, A.C.T. 2600.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse, 83 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001.
VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP —

THE WIA AND YOU

The Federal Convention having been and gone, one must be broad-minded enough to sit back and review the effectiveness of the meeting and whether the members of the WIA and the Amateur Service generally have benefited from the exercise.

A report on the proceedings will come from Executive in due course, and although the policies of the WIA show no radical changes for the year ahead, attitudes of members and the Amateur Service generally, need to be examined to determine if adequate inputs are being received so that meaningful decisions can be made by the Institute.

It has been often and rightly said that the members ARE the Institute. Generally speaking, criticism of the Institute is warranted if it acts contrary to the wishes of members, but there is an increasing feeling that members, individually or acting through their Divisional Councils are unperturbed at the direction their hobby is heading and the potential encroachments in their spectrum.

As a case in point and of topical interest is WARC 79.

Quoting exceptions such as some radio clubs and industry, feed-back from members has, in short, been apathetic.

The meeting details of WARC will be history after September but what of the future? Any new bands will be a bonus — the converse is obvious, yet what contingency plans does the Amateur Service have if it suffers a reduction in its facilities?

One answer lies in improving the amateurs' image — an image currently viewed in many circles as equalling that of CB radio. An examination of current technical licensing standards leaves much to be desired with the "appliance operator" perfectly catered for.

How much better it would be if incentives were given in the form of additional or extended bands in return for an increased standard of technical awareness and expertise!

As President of our newest division I am also concerned that our national image as the official voice of Amateur Radio is not making sufficient and significant impressions.

When the tumult of WARC 79 subsides, Institute policy must be regenerated in the areas of direction and purpose. Improving our lot to obtain increasing credibility and efficiency must be our next priority for the 80s.

ANDREW DAVIS VK1DA
Divisional President of ACT Division. ■

WIANEWS

Members will be interested to know that the Minister for P. and T. personally telephoned the Federal President on 25th May to assure him there would be no increase in the amateur licence fees resulting from the mini budget announced in Parliament the previous evening.

FEDERAL CONVENTION

1979 Federal Convention notes appear in greater detail elsewhere in this issue than could be prepared in time for the June issue of AR. The Federal President comments that many people believe that Federal Conventions are dull and uninteresting. By their very nature these Conventions must handle controversial and other topics of the day in as much unemotional detail and depth as possible to enable solutions to be found which are acceptable throughout Australia and can receive majority support.

Federal Conventions are very much a multiple interchange of views as well as being a forum of common agreement on matters affecting the amateur service in our land.

The Federal Executive in Melbourne has to be made aware of current Federal Council thinking on a wide range of topics if it is to function properly throughout the rest of the year. Conversely, Divisional delegates must be made aware of the multitude of considerations which influence actions at the central focal point of the WIA. Much can be committed to writing but neither the Executive nor the Divisions can function in vacuo as isolated units.

This is what makes the WIA tick. Those who return to their Divisions take back with them an immense background of information to pass on to their Divisional Councils and membership in general. This way dispels local ignorance by enabling Federal Councillors to explain the reasons for particular actions or lack of them. An informed cohesive membership is more than ever necessary in this day and age of national and international pressures, intrigue and political expediences. This is what Federal Conventions are all about and why they appear dull to the spectator. Perhaps there is no word yet coined to replace the word "Convention".

Newcomers to the WIA take note. If you believe some aspect of amateur radio requires changing take it up with your Division. If it is of sufficient moment it will most certainly be presented to the Federal Council, either in Convention or otherwise, for nationwide debate and decision.

JOINT COMMITTEE

There was a Joint P. and T./WIA Committee meeting on 23rd May, attended for the first time by Mr. Jim Wilkinson, First Asst. Secretary P. and T. Department Radio Frequency Management Division. Michael Owen was a member of the WIA team and, as might be expected, the main topic of discussion was the proposed new legislation to replace the 1905 Wireless Telegraphy Act and its train of Regulations. It is now possible to see how the WIA's view of the amateur service can be made clear to those involved in drafting the proposed legislation in a much better way, perhaps more effectively, than previously thought.

REGULATIONS AND HANDBOOK

So many of the restraints and restrictions on what amateur operators may or may not do stem from the Regulations. There has been consistent talk at high levels about the need for self regulation of services. The Handbook revised edition has been stopped in mid-stream. Much work has gone into the revision and a lot more is now happening. The constraint, however, is that it must parallel the existing Regulations. All the more reason to do everything possible lor the amateur service to make its views properly known in good ime for the proposed new legislation. This is being done at the Executive level, well briefed and instructed in Federal Council policies and requirements.

A new set of terms of reference of Amateur Advisory Committees is to be forwarded to the WIA for comment.

AUGUST EXAM

It appears likely that the August AOCP examination will give candidates the choice of answering either (i) the existing essay style of format or (ii) a 50 multi-choice question paper. There is at last some hope that the style of the Novice morse exam has achieved the kind of standard long advocated by the WIA.

SIX METRE REPEATERS

The Department agrees in principle to granting approval for some 6 metre repeaters on a trial basis, but these would have to be well outside TV Channel 0 reception areas.

Another item which is now to be allowed by the Department on a 12 month trial basis is the F5 mode on the 32 cm band. Here again, individual applications would receive consideration by the Department.

1979 CALL BOOK BEGINS TO TAKE SHAPE

The Publications Committee has spent much time on the 1979 Call Book. The output of our EDP programme will be incorporated into a tape for direct typeset print-out as opposed to the process used tor the 1977 Call Book, which was done direct from the actual computer print-out. Compatability has been established and every hope is expressed that the final printed version will be good.

Excellent co-operation from the P. and T. Department has ensured that the latest possible call sign information will be no more than about two or three months old by the time it appears in print.

OFFICE AND AR

At the May meeting of the Executive a decision was made to approve in principle the publication of a Call Book in 1980. This meeting also approved the appointment of a new member of the Executive office to undertake a wide range of routine work associated with the production of AR, in addition to servicing advertisers and generally learning the work and functions of the office, so as to become an effective assistant to the Secretary-Manager. This post had been the subject of discussions at the Convention brought about through representations that AR had outgrown the continuing efforts of volunteers and unless something was done quite soon the very future of the magazine in its present form could not be guaranteed.

Intensive investigations were carried out prior to the Convention to examine a very wide range of magazine production methods. Details of the outcome of these researches were reported to the Convention in an Executive paper. Federal Council agreed with the proposals that the bulk of the day-to-day drudgery associated with putting together a journal such as AR should become one of the major duties of a new recruit in the office. This had special validity since the expenses involved would not be materially greater than is already expended on salary for an advertising representative, honoraria and allied subjects. The increased volume of work flowing through the Executive office also had relevance to this decision.

Mr. Mark Stephenson VK3NOY, a young man who has displayed great interest in Institute affairs tor some time, was appointed to the position with effect from 28th May. It is hoped he will successfully conclude his probationary period and become a valued long-term employee of the Institute.

WIA BANNER

The Executive commissioned the production of a large 9 ft. x 3 ft. banner as a display item and this was on show at the Convention with posters and other material. The banner is now available on loan, under certain conditions because of its quite considerable cost, to Divisions for display at major amateur events.

WARC 79 DONATIONS LIST No. 3

The Executive wishes to acknowledge with grateful thanks the receipt of the following donations tor WARC 79 from members.

VK4NLX	3.82	VK3NNH	10.00
VK3CX	7.00	VK2NDJ	6.00
VK5AGL	2.50	VK1ZBJ	4.90
VK2BCU	2.00	St. George ARS	300.00
VK3NFE	3.00	VK3NF	10.00
VK3AJL	4.00	VK2VA	50.00
VK5GU	9.10	VK4TS	11.50
WIA Cen. Qld. Br. members	74.00	Mackay ARC	50.00
Liverpool & DARC	50.00	VK3ABR	20.00
VK5UE	1.60	VK5NZ	5.00
VK3HD	5.00	L31066	10.00
VK2NMB	4.00	VK3BL	5.00
L30357	8.00	Qter Cent. WA (via VK2MA)	110.00

ADVERTISERS' DONATIONS TO WARC '79

The Federal President wishes to extend grateful thanks to our advertisers for generous donations towards the expenses of WARC representation

MARCH 1979	$
Dick Smith Electronics	500
Vicom International	1000
Bail Electronics	500
Chirnside Electronics	100
Scalar Industries	50
Elmeasco Instruments	25

These are entitled to the use of the WIA emblem and the words: "WARC Amateur Supporter" in their advertising displays.

VK3JY	10.00	VK2HZ	10.00	NW AR Gp. (via VK2BXT)	50.00	VK3ADN	30.00
VK3AOH	25.00	Cen. Coast ARC	100.00	VK5CCT	20.00	VK4UX	10.00
WA VHF Gp. (Inc.)	54.00	VK2BBN	50.00	VK3BM	20.00	VK7JV	10.00
VK5MF	4.15	VK7ZZ	10.00	VK5JB	20.00	SE Radio Gp.	33.73
VK2NMM	4.50	VK2BKG	20.00	VK2ACH	5.00	VK4UX	10.00
VK5NTB	5.00	L40018	2.00	VK4NSR	20.00	VK7DG	8.16
VK7NC	20.00	VK3PW	10.00	Mid. S coast ARC (via VK2ATO)	10.00	FAMPARC (via VK3NXA)	100.00
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VK6NEY	5.00	Redchiffe RC	20.00				
VK3SZ	10.00	Cairns ARC	25.00				
		VK4ZA	30.00				

QSP

JOTA

The date of the 22nd Jamboree on the Air this year is 20th-21st October, 1979, from 0001h on the 20th to 23.59h on the 21st.

One of the biggest single events of the 150th Anniversary celebrations of Western Australia will be the 4th Asia Pacific (12th Australian) Jamboree in Perth from 29th December, 1979, to 7th January, 1980. Up to 1,200 Scouts, local and overseas, are expected to attend. Scout Amateur Radio VK6SH, of Box 7, West Perth 6005, will be the special station for the event.

The Australian Radio Scout Net is held on the first Sunday of each month from 09.30h EST on 7090 kHz ± QRM and then QSYing to 14190 kHz an hour later. The net station is VK4QH. Special Novice classes for Scouts have begun in VK3 by VK3TR, Branch Organiser for JOTA in VK3.

AMATEUR RADIO — VIDEOCASSETTES

Is your Club or Group looking for high class promotional material for amateur radio?

Ask your Division for the loan of videocassettes in colour. Titles available now are:—

"Amateur Radio the Natural resource of every Nation" (6 minutes).

This was specially produced by VK5KG, the Federal Videotape Co-ordinator, for the CCIR Seminar in Sydney.

"This week has 7 days" (25 minutes).

ARRL films (60 minutes in all).

"ATV in Australia 1978" (30 minutes).

"VK5 ATV History" (30 minutes).

"VK5 — official opening of Burley-Griffin Building" (60 minutes).

"G6CJ Aerial Circus" (90 minutes). On special loan ONLY.

Also, a service exists for copying any of these titles (except G6CJ Aerial Circus) on your own cassette — you pay postage both ways.

CLUBS — Why not start your library now, write to your Division or direct to VK5KG.

NOTE — Educational tapes are now being considered but please wait for an announcement in AR.

NAMES OF COUNTRIES

Want to know the correct official names of countries? The ITU Telecommunication Journal often lists names as officially notified by the Administrations of the countries concerned. In the January 1979 issue the following appear — The Federal and Islamic Republic of the Comoros, The Democratic Socialist Republic of Sri Lanka, The Republic of Suriname. In the March issue we note "People's Revolutionary Republic of Guinea".

4U1ITU

There is an ever increasing volume of visitors to Geneva, according to January 1979 Telecommunication Journal's Radio Amateur notes, making it impossible for radio amateurs on the staff of the ITU to meet requests for station operation unless advance notice is given. A licensed radio amateur wishing to operate from 4U1ITU should write to "The Station Manager of 4U1ITU, PO Box 6, Place des Nations, CH-1211, Geneve 20, Switzerland" so that his letter arrives at least four weeks in advance of the proposed visit. Operators will have to demonstrate their ability to use and tune the 4U1ITU gear because of past damage by operators unfamiliar with the station equipment. All QSL cards from 4U1ITU are made out at the time of the contact and go via national Bureaux; do not ask for a direct QSL.

USA BAN ON LINEARS 24-35 MHz

OST December 1976 reports on a speech by FCC Commissioner White relating to the FCC ban on the manufacture, importation and marketing of linears capable of operating from 24 to 35 MHz. Commissioner White is reported as saying — "There is no question that there is an increasingly serious problem of TV interference or TVI caused by the use of linear amplifiers operating on or near the 27 MHz CB band . . . I believed that the type-acceptance program was all that was necessary, that a linear ban would not be effective and that to include it was regulatory overkill for cosmetic purposes . . . Finally, I felt the Commission did not adequately explore the proposal from the industry to provide an opportunity for self-regulation through the proof of licence at point of sale. An amateur simply would have to present a valid amateur licence to buy an external amplifier from a retailer. Although there may be some problems with this proposal, such as in the case of mail orders where licence verification would be difficult, it was certainly a more reasonable and fair approach than the ban."

MOROKULIEN FOR PHILATELISTS

Morokulien is located on the borders of Norway and Sweden and was founded in 1959, the UN Refugee Year. ARIM — Amateur Radio in Morokulien — operates under the call signs LG5LG/SJ9WL. In the period 1st June to 15th September this year a special envelope will be obtainable carrying both a Norwegian and a Swedish stamp. The price will be $US2 or 7 IRCs and the address of ARIM is Kongleregen 3, N-2200 Kongsvinger, Norway.

WAC ON 2m

GW4COT is close to achieving WAC on 144 MHz, having already worked 5 continents on moonbounce. He lacks only Australia to complete his WAC. G3LTF has already received his WAC moonbounce certificate for 432 MHz, but nobody has yet achieved this on 144 MHz. Rad. Comms. March 1979. Later news has it that GW4CQT has now worked VK5MC on 2m to complete his WAC on 2. ■

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A 25 cm VERTICAL FOR HF MOBILES

Tim Hunt VK3IM

I began operating mobile with a large helical antenna and then heard about increased efficiency from the use of capacitance hats. I kept increasing the size of the capacitance hat and decreasing the length of the antenna: then I went into the theory and I found that it had all been done before, about 35 years ago!

Here are some details of one of my small top-loaded verticals.

The height of the antenna is the length of the coil stock plus an extra inch or two both at the top and at the bottom. With a capacity hat 2½ feet in diameter and having six spokes, the antenna will operate on 3.5 to 28 MHz simply by shifting the position of the alligator clip tap on the coil and repeaking the 100 pF variable capacitor. My present capacity hat is made from aluminium tubing and covered with aluminium wire netting in order to increase the capacity. I have also made up a 4 foot diameter capacity hat which is sometimes used with a 6 foot vertical on top of the car roof!

With regard to the matching, the capacitor is set at about ¼ capacity and the alligator clip is run up and down the coil until maximum received signals are obtained. Then on transmit the capacitor and tap are carefully juggled until a 1 to 1 SWR is obtained at the desired operating frequency. The bandwidth of the antenna on 3.5 and 7 MHz is about 10 kHz, becoming larger on the higher frequencies. However a repeak of the variable capacitor will bring it down to acceptable limits over a much wider bandwidth.

There is nothing magical about the 2½ foot diameter associated with the capacity hat. The only "design" considerations were:

(a) It had to fit in the car when dismantled
and
(b) It shouldn't look too conspicuous.

Within reason, it is always desirable to make the diameter of the hat as large as possible and the vertical section as long as possible — consistent with resonance as a quarter wavelength. The most lossy component in the antenna is the coil and large capacity hats imply small coils.

In order to reduce ground losses, a good earth connection is essential. My ground connection is a wire soldered to the middle of the car roof! The antenna is located in the middle of the car roof to ensure reasonably uniform radiation in all directions. Mounting the antenna at the front, back or side of the roof gives the antenna strong directivity (and also some power gain in the direction of maximum body area). I have used the antenna on the lawn, making a reasonable ground plane by driving in a gorund stake and laying aluminium foil along the ground.

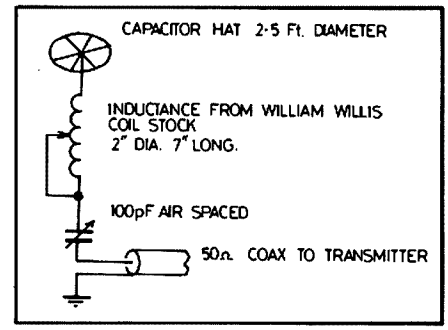
Another consideration is the length of the vertical section. Increasing the length increases the bandwidth, radiation resistance and efficiency (since less power is burned up in coil resistance and ground losses). If the antenna can be made 2, 3 or 4 feet long all the better, but the coil should be kept at the top and aluminium tubing should be used for the bottom section.

The matching method is simple. The antenna is made sufficiently inductive for the magnitude (real part) of the base impedance to be 50 ohms. The inductive reactance is then cancelled out using the series capacitor. (Note: Most of the 50 ohms will be coil and ground losses.—Ed.)

As a rough guide to the performance to be expected when operated against a car body ground plane, a loss of 3 to 5 dB on 14 MHz 5 to 10 dB on 7 MHz, 10 to 20 dB on 3.5 MHz and less than 3 dB on 21 and 28 MHz, is observed when compared with a substantially full size vertical on the same ground plane. If the coil is wound with copper tubing (turns held in place by means of a small polystyrene strip, outside coil), a significant improvement in efficiency can be obtained on the lower frequency bands.

It is possible to be a little more scientific in the design of this antenna:

If the antenna height h is small compared with the wavelength λ, the radiation resistance R can be calculated from



$$R = 1600 \left(\frac{h}{\lambda}\right)^2$$

Notice that for a 1 metre vertical on a wavelength of 40 metres,

$$R = 1600(1/40)^2 = 1 \text{ ohm!}$$

and if 100 watts were fed into the antenna, a current

$$I = \sqrt{\frac{P}{R}} = \sqrt{100/1} = 10 \text{ amps}$$

would flow in the inductor. This assumes no loss resistance in the coil but does give some indication of the maximum current to be expected, and reinforces the necessity for a good ground connection and a low loss coil.

We can also calculate fairly exactly the values of inductance and capacitance needed for resonance on each desired band, but since it takes only a second or two to re-position the alligator clip, there isn't too much in favour of the (complicated!) mathematics!

(Reproduced from "Ground Wave", journal of the Darwin Amateur Radio Club, April 1978.) ■

MML 144/100 Watt Linear Power Amplifier

* 80 watts minimum RMS output 100 watts RMS typical.
* Fully protected against poor load VSWR overheating and excessive or reverse supply rails.
* Equipped with RF VOX and manual override.
* Frequency bandwidth 144 – 148 MHz at – 0.5 dB.
* 10 watts nominal for 80 watts output.

PRICE AMATEUR NETT: $265.00

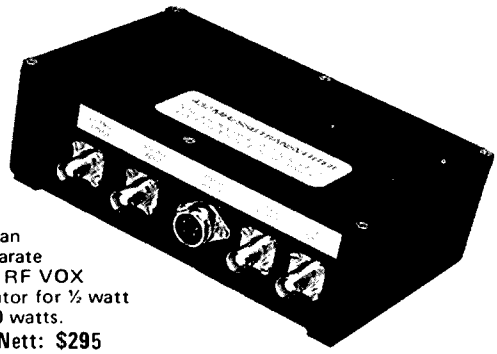
MML 432/100 100 Watt 432MHz Linear Power Amplifier

* 100 watts minimum output 10 dB minimum gain.
* Fully protected against poor load VSWR, overheating and excessive or reverse rail.
* Equipped with RF VOX and manual override.
* Frequency Bandwidth 435 MHz – 15 MHz @ – 1dB.
* 10 watts nominal input for 100 watts output.

PRICE AMATEUR NETT: $395.00

Transverter Model MMT 432/144'S'

UTILIZING an IF of 144MHz * 10 WATTS DRIVE of ½WATT * VOX OPERATED, TWO SELECTABLE RANGES 432 - 434/434 - 436 MHz. FEATURES EXTENDED COVERAGE FOR OSCAR 8



FEATURES: High quality double-sided glass fibre printed board * Highly stable zener controlled oscillator stages * PIN diode aerial changeover relay with less than 0.2 dB through loss * extremely low noise receiver converter, typical 3 dB * Separate receive converter output gives independent receiver facility * Built-in Automatic RF VOX with override facility * Built-in 10 watt 144 MHz termination, selectable attenuator for ½ watt * Use of the latest state of the art Power Amplifier transistors provide reliable 10 watts. continuous output.

MODEL MMT 432/144 'S' Price Amateur Nett: $295

Transverter Model MMT 432/28'S'

FEATURES EXTENDED COVERAGE FOR OSCAR 8

Second Crystal Oscillator gives two ranges: Low 432 – 434 MHz – High 434 – 436 MHz programming available to either Transmit/receive both Low, both High, or a mixture of the two. Adjustable Drive Level is now provided by an input potentiometer. Optional RF VOX. Power Output 10 watts minimum * 28 MHz IF * Drive 1 mW to 500 mW * Aerial Changeover by PIN diode switch * Modern Microstrip Techniques * Power requirements 12 volt nominal at 150 mA 2,5 amp peak * Case size 187 x 120 x 53 cm * Spare 432 input socket.

MODEL MMT 432/28 'S' Price Amateur Nett: $245 MODEL MMT 144/28 Price Amateur Nett: $185

NEW READY-TO-OPERATE MODULES AVAILABLE IN THE SALES PROGRAM OF VHF COMMUNICATIONS.

All modules are enclosed in black cast-aluminium cases of 13cm by 6cm by 13cm and are fitted with **BNC** connectors. Input and output impedance is 50 ohms. Completely professional technology, manufacture, and alignment. Extremely suitable for operation via sattelite or for normal VHF/UHF communications.

10 METRE MOSFET CONVERTER: Input frequency range 28 - 30 MHz * IF output frequency 144 – 146 MHz * Overall gain 15 dB min * Overall noise fig. 1.8 dB * DC Power requirements 11 – 13.8V at 50 mA. **PRICE AMATEUR NETT: $45.00**

6 METRE MOSFET CONVERTER: Featuring 24 MHz local oscillator output for transverter use. Input frequency 52-54 MHz. I.F. Output frequency 28-30 MHz. Typical gain 30 dB. Noise figure 2.5 dB. Typical image rejection 65 dB. Crystal Oscillator frequency 24 MHz. Power requirements 12 volt ± 25% at 35 mA. **MODEL MMC52/28LO PRICE AMATEUR NETT: $49.00**

2 METER MOSFET CONVERTER: Noise figure typ. 2.8 dB. Overall gain typ. 30 dB. IF: 28-30 MHz. 9-15 V 20 mA. **PRICE AMATEUR NETT. $45.00**

DUAL RANGE 432 – 434 MHz & 434 – 436 MHz Converter. Type MMC 432/28 'S' & MMC 432/144 'S' Input frequency ranges 432-434 MHz (low), 434-436 Mhz (high). I.F. output frequency 28-30 Mhz or 144/146 Mhz. Typical gain 30 dB. Noise figure 3 dB maximum. D.C. Power requirements 11-13.8 volts, 12.5V nominal. Current consumption 50 mA maximum. **PRICE AMATEUR NETT: $67.00**

1296 MHz CONVERTER; Mircostripline, Schottky diode mixer. IF: 28- 30 Mhz or 144-146 MHz. Noise figure: typ. 8.5 dB. Overall gain 25dB. Power requirements: 12 volts DC ± 25% at 50 mA. **PRICE AMATEUR NETT: $65.00**

VARACTOR TRIPLER 432/1296. Max. input at 432 MHz. 24 W (FM,CW) – 12 W (AM) Max. output at 1296 MHz. 14 W. **PRICE AMATEUR NETT: $74.00**

500 MHz COUNTER 6 DIGIT LED DISPLAY. Two ranges 0.45-50MHz, sensitivity. Better 50mV. 50-500 MHz, sensitivity better 200mV. Features low angle AT cut quartz crystal, typical temperature stability of 0.5ppm per degree C. Power requirements 11-15 Volts DC at 300 mA approx. **MODEL MMD050/500 PRICE: $175**

BNC CONNECTORS – Excellent quality, fully imported from U.K. U.S. Mil. No. UG88E/U. PRICE AMATEUR NETT: $1.35 each.

CONVERTERS PACK & POST $2.00

AMATEUR ELECTONIC IMPORTS IS THE EXCLUSIVE AUSTRALIAN DISTRIBUTORS FOR THESE PRECISION BRITISH MADE UNITS FROM MICROWAVE MODULES LTD.

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BI-BAND ANTENNA

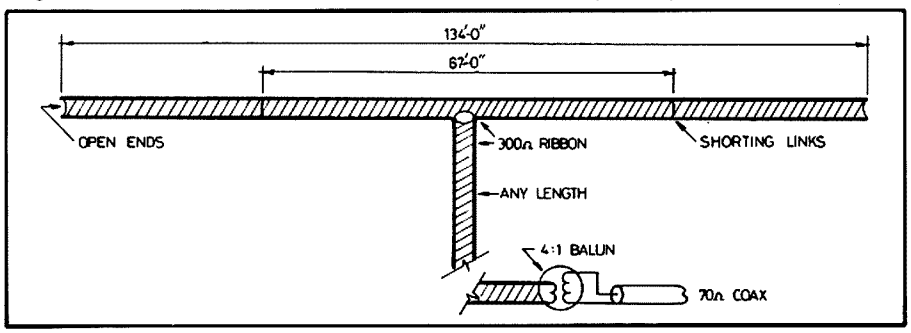
(Reprinted from "Forward Bias", Feb., '78)
Ron May VK1PM
74 Brereton Street, Garran 2605

This antenna uses the impedance properties of ¼ wave stub lines to present an approximate 300 ohm load to a 300 ohm feedline on two harmonically related bands.

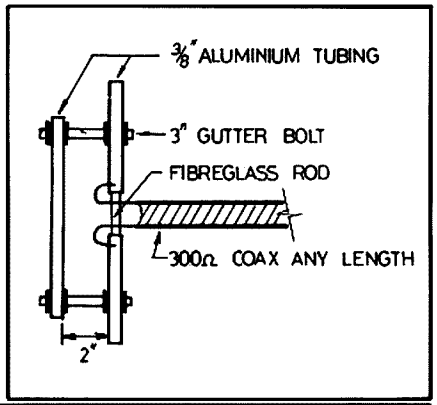
On the lower frequency band the full length of the antenna acts as a half wave dipole with a "T" match section to the 300 ohm line.

On the higher frequency band the centre section of the antenna acts as a folded dipole which presents 300 ohms to the feedline. The end sections, being each a ¼ wavelength long do not introduce unwanted reactance, but are effectively disconnected from the folded dipole section because of impedance mismatch.

A standard 4 : 1 balun transformer as shown for example in the "ARRL Antenna Book" at page 103, can be used to feed a 70 ohm coaxial line or connector. ■



ABOVE — FIGURE 1: 80m and 40m Dipole.



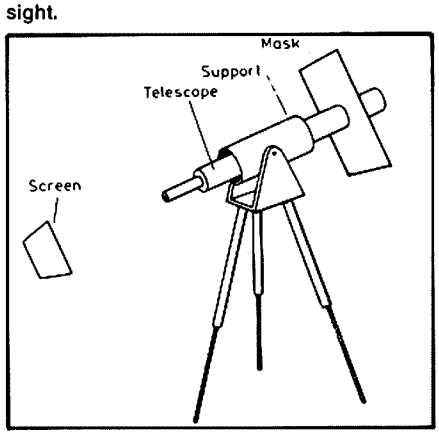
RIGHT — FIGURE 2

WATCHING SUNSPOTS

G. P. Anderson G2QY

It is apparent from discussion on the air that amateurs are very often unaware of the ease with which spots may be observed on the face of the sun, so providing an added interest to Amateur Radio activities.

But first of all a warning that cannot be repeated too often: never, repeat *never*, attempt to look at the sun directly through a telescope or field glasses. This rule applies even if a smoked glass or other optical filter is used, as such a device can easily slip and expose the eye to the concentrated full power of the sun, resulting in damage and possibly destruction of the sight.



ABOVE — FIG. 1: General Arrangement

Having said that, the method to be described is perfectly safe, and calls for little equipment. The principle item is a telescope, which can be quite a simple terrestrial model; in the writer's case it is of unknown specification and is at least 100 years old, having been used by his grandfather during service as a ship's engineer in the Far East in the 1860s.

The telescope is set up on a convenient stand, constructed so that the telescope may be moved both vertically and horizontally in order to line it up on the sun (an old camera tripod with a simple mount made to fit to the top is convenient). It is also beneficial to fit a simple mask around the barrel of the telescope — a piece of cardboard about 12 in. square is suitable, in order to minimise the direct sunlight falling on the screen.

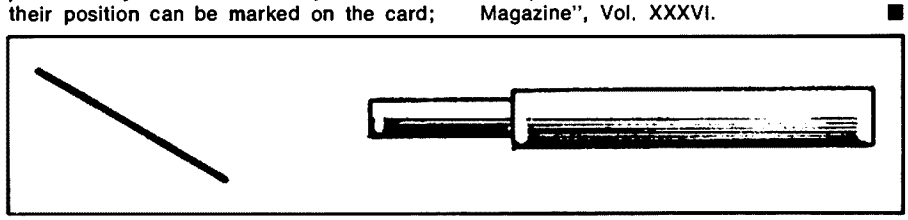
Having set up the telescope on its stand (obviously choosing a day when the sun is clearly visible!) point the end with the larger lens — the Objective — at the sun, and holding a piece of white card or plastic near to the eye-piece, move the telescope until an image of the sun appears on the "screen"; with the telescope so aligned move the card away from it until the desired size of image is achieved. During this procedure it will be necesary to adjust the telescope in order to focus a sharp image on the screen.

If any sunspots of reasonable size are present they should be readily seen, and their position can be marked on the card; it will be found advantageous to prepare a circle of suitable size, say 2 in. diameter, on the card before making the observation, so that the locations of the spot may be marked with reasonable accuracy. It is important to keep the card upright — that is, the sides vertical to the ground, so that later observations may be compared, and the progress of spots across the face of the sun followed. When weather conditions permit, daily inspection of the sun is worthwhile, and co-ordination with observations on radio conditions, particularly at the higher frequencies of 21 and 28 MHz will show interesting results.

A note about the screen may be useful. Good quality clean white card or paper is satisfactory, but some experiments with white plastic may be worthwhile, to find a better reflecting surface; the lid of a plastic margarine box has proved very suitable.

One further point: although obviously a true picture of what is happening on the face of the sun is required, and consequently the screen should be set up perpendicular to the axis of the telescope, it has been found to be helpful to move the screen away from this position while inspecting the image, as shown in Fig. 2, especially when projecting on to a plastic surface. The resulting image is of course distorted, but spots stand out much more clearly, as they are enlarged by the distortion.

Reproduced from "The Shortwave Magazine", Vol. XXXVI. ■



RIGHT: FIG. 2

AMATEUR RADIO WEEKEND — SPRINGWOOD NSW

The remainder of this year will see two special weekends being set aside for a whole array of radio studies, experiments, and get-togethers for newcomers, students and licensees. The WIA Education Service, incorporating the Youth Radio Service, would like to invite all amateurs, their families and friends as well as all newcomers to the hobby, and everyone studying for their licence to come along to one or all of the following weekends, where crash study classes for the novice and full licence exams will be held as well as on-air and other demonstrations.

PHOTO No. 1

The amateur radio weekends will be held at the Blue Gum Lodge at Springwood, NSW, from 8 p.m. Friday till 2 p.m. Sunday on the weekends of the 27th to 29th July and the 2nd to 4th November, 1979. These weekends correspond to P. and T. exams, which are held a month later, hence are ideal for those needing a brush up for novice and full exams. An additional weekend in the Wagga area is currently being discussed.

Here are some of the highlights of the last weekend which was held at Katoomba, NSW.

160 TO 2 METRE AMATEUR STATION (Photo 1)

Various on-air activities were available, including world-wide exchanges. Here you see newcomers being introduced to the art of relaying the WIA news broadcast from 2 metres FM up to the 160 metres AM frequency.

From right to left we have Bruce VK2YIU controlling the 2 metre patch, Steve VK2VFB making technical adjustments on 160 metres under the supervision of Peter VK2PV. John, who is studying for his novice (up from Bathurst), looks on.

PHOTO No. 2

CONSTRUCTING ELECTRONIC PROJECTS (Photo 2)

Steve VK2VFB shows some of the newcomers how to construct some of the simple projects available at these weekends. These weekends have given Steve valuable experience towards his plans to start up a radio club at his school in Sydney.

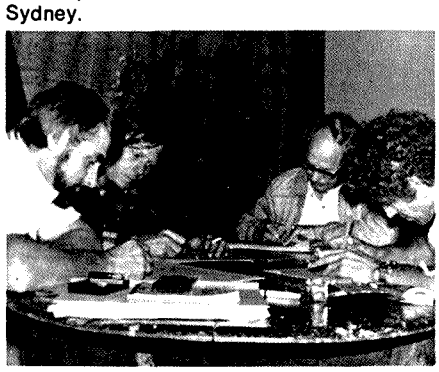


PHOTO No. 3

ROUND TABLE STUDY (Photo 3)

Here is one of the small group study sessions where theory discussion or morse code practice can be undertaken. Going around the circle, from left to right, we have Sel VK2NOK (one of the weekend organisers), Chris VK2ZPB, Hal VK2NSF and Ken VK2NWK (another of the weekend organisers).

All food and accommodation is provided during these weekends. To book your place write to Box 52, Asquith 2078, or phone Ken on 638 1687; Sel on 827 3589, or Les on 47 3044.

VK2BVS. ■

A LETTER OF PROTEST

To Dear Mr. P. and T.,
Please excuse my typing since my hands shake badly due to a Parkinsons disease affliction.

My reason for writing is to protest the speed increase of amateur RTTY. You see, I am an old CW (A1 to you) operator but no longer able to operate due to the shakes.

The Senior Citizens' League recommended that I take up a hobby to occupy my mind. Dancing was out of the question unless the beat was in sync with my shakes. (I found a record once that sync'd in on a sub-harmonic but the physical exertion put me in bed for ten days.) Other hobbies have ended up the same way in disaster.

However, in my efforts to discover a hobby, I found that I could copy 60 w.p.m. RTTY in my head and it was in perfect sync with my shakes. The up-shift and down-shift were quite exhausting until I converted the jumping off my chair and re-sitting to a nod of the head. It works beautifully and I have spent many pleasant hours reading the news (60 w.p.m. press) and listening to the Ham band.

I have checked with my Doctor to see if there is a drug available that could increase the speed of my sync. Some of the drugs have possibilities but they are not legal and that is another story. To date I have only been able to sync in on 60 w.p.m. stations.

I implore you to maintain at least a few 60 w.p.m. stations for old-timers like me. Sure, you can call it progress, but the automobile didn't entirely replace the horse — I can still see a few of them around.

Yours faithfully,

A. S. Shaker.

P.S.: Developed a reperf system by installing punches on my teeth. But the added weight caused my uppers to keep falling out and the tape almost choked me so I had to give that away.

From AARTG, No. 12. ■

REPEATERS ACCESS IN THE SOUTH

Gareth Davey VK2ANF
29 Wyuna Road, West Pymble 2073.

Early in December 1978, my wife Rosemary VK2NID and I spent an enoyable week holidaying in Tasmania. We drove from Sydney to Melbourne, flew across to Launceston, and then rented a car as part of a fly/drive package holiday.

Not wanting to lose touch with the world of Amateur Radio, we took portable 2 metre FM equipment with us because of its convenience and widespread use. This information elaborates on the notes made during the trip which should be of interest to amateurs holidaying or travelling in the same areas.

VK3RNE MT. BIG BEN — Channel 8 (48)
Hume Highway:
Accessible from north of Holbrook (NSW) through to Euroa (Vic.).

VK3RGL MT. ANAKIE — Channel 8 (48)
Hume Highway:
Copiable up to about 60 km out of Melbourne.

VK7RAA MT. BARROW — Channel 8 (48)
Tasman Highway:
From Launceston, excellent coverage until about 10 km west of Scottsdale; then only intermittent access (e.g. near Derby and Weldborough Pass).

Good signals from St. Mary's south to the top of Elephants Pass.

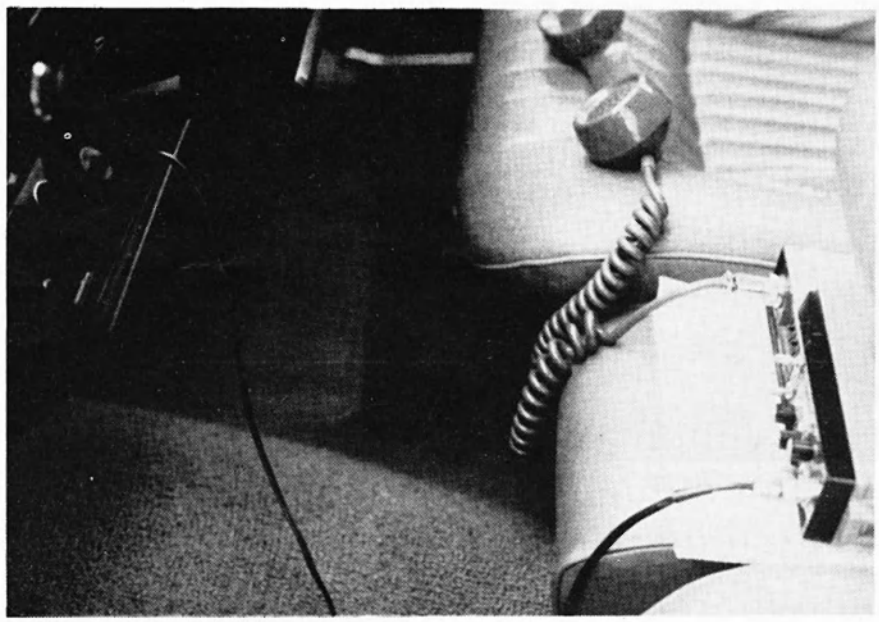
Bass Highway:
From Launceston, good coverage to Deloraine (where we turned south on to the Lake Highway).

Lake Highway:
From Deloraine, patchy coverage south. Accessible from the Scenic Point just north of Breona and at most places alongside the Great Lake, which were somewhat elevated (i.e. not near water level).

Good access at the Marlborough Highway intersection (where we turned south-west).

Hobart City:
From the Mt. Wellington lookout, VK7RAA was easily workable by 1 watt hand-held transceiver (we found VK7RHT being keyed simultaneously due to its physical proximity).

Quite a few base stations in Hobart were able to work into VK7RAA with little difficulty.



Simple mobile operation (good for rented cars), power from cigarette lighter, rig "squashed" under centre armrest.

VK7RHT MT. WELLINGTON — Channel 2 (42)
Lake Highway:
Accessible from the Scenic Point just north of Breona by 1 watt hand-held transceiver. Intermittent access south to the Marlborough Highway intersection. (Scratchy but workable signals were heard from a mobile with a similar set-up to ours from just north of Bothwell.)

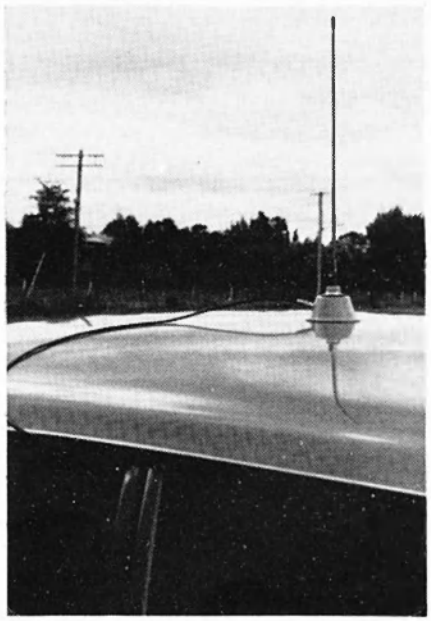
Marlborough Highway:
Very intermittent access.

Tarraleah Highway:
Intermittent access from Bronte to Tarraleah. Good coverage from Tarraleah to Ouse.

Lyell Highway:
From Hobart, good coverage to Ouse (where we turned on to the Tarraleah Highway).

Huon Highway:
From Hobart, good coverage to Glendevie.
South of Strathblane, only very intermittent access was possible.

Historic Richmond:
From Hobart, good coverage. Workable by 1 watt hand-held transceiver in Richmond.



Simple Antenna Installation. Magnetic CB base converted to 2 Mx quarter wave. BNC socket on base for quick disconnect.

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City and Showroom: 649 GEORGE STREET, SYDNEY, N.S.W. 2000. PH.: (02) 211 0531
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A Unique New SSB/CW Transceiver For Amateur Communications

There is no substitute for quality, performance or the satisfaction of owning the very best.
Hence, the incomparable National RJX-1011 amateur transceiver. The RJX-1011 covers all amateur bands 1.8-30 MHz (160-10 metres). It utilizes advanced Phase-Lock-Loop circuitry with dual gate MOS FETs at all critical RF amplifier and mixer stages. There's a rotating dial for easy band-scanning and an electronic frequency counter with digital readout and a memory display that remembers frequencies at the flip of a switch. And that's just the beginning.

Special ~~$1990~~

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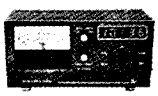
MODEL 200 TRI-MODE CONVERTOR

Based on the powerful F-8 Microprocessor system, this new product from Info-Tech. advanced technology is an addition to the popular Model 100.

$668

WAWASEE JB1003C/M

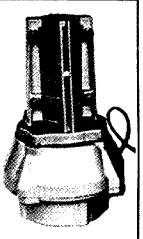


CLOCK/WATTMETER/SWR BRIDGE

ELECTRONIC CLOCK has 5 in. red LED digits, AM-PM light, flashing seconds colon, and 12 hour format. Peak-reading WATTMETER has 3 ranges — 0-20, 0-200, 0-2000 watts. SWR BRIDGE shows standing wave ratios of 1.5, 2, and 3 from 3 to 2000 watts. Operates on 240V AC. Great base station accessory for Hams.

$135

ANTENNA ROTATOR



MEDIUM-SIZED HAM ANTENNA ROTATOR — FU 400. Additional mast clamps. Constructed for long trouble-free operation. 200 kg vertical weight capacity. Extra heavy duty disc brake that prevents wind-milling.

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SCOPE/ COUNTER/ WATTMETER/ SWR BRIDGE

The most deluxe Black Cat accessory. MONITOR SCOPE permits measuring RF output to antenna and viewing modulation patterns. FREQUENCY COUNTER has six big LED digits, 1 to 50 MHz range (typical), 100 cycle readability, 50m V sensitivity. Peak-reading WATTMETER has 3 scales—0-20, 0-200, 0-2000 watts. SWR BRIDGE reads standing wave ratios of 1.5, 2, and 3. Perfect for Ham base stations. JB1001SFCM.

$379

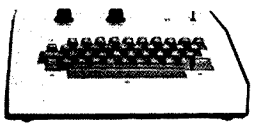
MULTI PALM II 2M/FM POCKET TRANSCEIVER

SPECIFICATIONS

Transceive frequency range 2 MHz in 144-148 MHz, transceive channels 6, channels antenna impedance 50 ohms unbalanced, BNC connector power requirement 12V DC (negative grounded). Power consumption transmit 300 mA, receive 100 mA stand-by 25 mA, size 68 mm (2-43/64 in.) wide, 154 mm (6-1/16 in.) high, 41.5 mm (1-41/64 in. deep, weight 470g (1.03 lbs.). Repeater offset +600 kHz modulation variable reactance phase modulation, max. deviation +5 kHz microphone condenser, microphone receiver, double conversion superheterodyne (1st IF, 16.9 MHz; 2nd IF, 455 kHz). Sensitivity —4 dBu NQ 20dB). Audio output maximum 0.3 watts. Attachment rubber ducky antenna. Nicad battery pack. DC cable with cigarette lighter plug. Carrying strap.

$229

INFO-TECH M-300 TRI-MODE KEYBOARD



A microprocessor controlled keyboard that generates Morse, RTTY and ASCLL. Write or call for further specifications.

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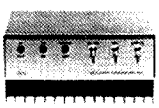
FDK B1GEAR TRANSCEIVER Type2

2m FM PLL SYNTHESIZED MOBILE TRANSCEIVER

● 144-148 MHz. PLL digital synthesizer system (800 channels) ● A large-sized LED, digital display system provides readings up to six figures ● Easy-operating separate and selective mechanism displayed by the frequency unit for wider operation ● Transmitting output: 25W/1W, two-step selector switch ● Provides repeater operation of ± 600 kHz and desired frequency ● RF output with S meter indicator.

LOOK $316

MODEL HF3-100L 2 DUAL POWER B1-LINEARIZED HF AMPLIFIER



● Full 80-10m broadband coverage ● Full 100 watts output AM (150-200 watts PEP on SSB ● Dual power: Selectables S/10 watt input power ● Operating modes: AM, FM, CW, SSB, RTTY, SSTV ● Broadband — requires no tuning across band ● Harmonic levels typically —50 dB or better (see specifications) ● RF actuated switching relays ● Full VSWR and reverse voltage protection ● Extra stabilization circuitry ensures spurious-free operation at all input power levels ● Under 1 dB insertion loss in receive or bypass mode ● Remote control capability ● Receive pre-amp nominal 18 dB gain across band.

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LUNAR VHF AMPLIFIERS

● Low power input yields nom 10 dB gain ● Covers entire amateur band w/o tuning ● Built-in receive pre-amplifier ● Automatic TR switching or hard keying ● Variable TR delay for SSB/CW use ● Pre-amp and power amp independently controllable ● Pre-amp nom 11 dB gain, 2½ dB overall NF.

2M 10-80P	$256
2M 10-150P	$323
6M 10-120P	$323
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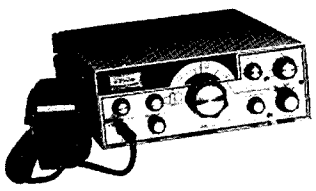
alda 103



3¼" H x 9" W x 12½" D

totally solid state SSB Transceiver 80 through 20 metres

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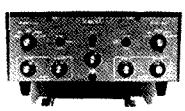

● All solid state random access memory ● Slow-to-fast and fast-to-slow conversion capability ● SSTV picture display on any standard CCTV monitor ● Frame freeze from any standard CCTV camera, broadcast video or video, tape source ● Permanent picture storage ● Automatic or manual TV frame snatch ● Internal grey scale generator adjustment standard ● Capable of real time display of digitally processed fast scan video.

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FDK BIGEAR TRANSCEIVER TYPE 1

2m FM SSB CW PLL SYNTHESIZED MOBILE BASE TRANSCEIVER

● 144-148 MHz, PLL digital synthesizer system, FM: 800 channels (5 kHz step); SSB: 400 channels (10 kHz step), plus VXO system (±7 kHz) ● AC 117/240V, DC 13.8V, two-step power supply ● Digital display system (using a large-sized LED), providing reading up to six figures ● Transmitting output: 10W/1W, shifting mechanism ● Front loudspeaker suited for base station ● Easy-reading, separate S/RF centre meter ● ON AIR/ RECEIVE/RIT position displayed by LED ● Include RIT, AGC, VOX and noise blanker circuit ● Provides repeater operation of ± 600 kHz and ±1 MHz.

$690

ATLAS 215X-HF Transceiver

All Kenwood Products in Stock

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YAESU	
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JB2000SW Wattmeter/SWR Bridge	$75
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4-BTV w/80m Resonator (10-80m vertical)	$135
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M-200E Morse, RTTY & ASCII to Video Converter	$668
M-300 Morse, RTTY & ASCII Keyboard	$564
ROBOT	
Scan Converter	$898
12 in. Video Monitor AVM-090	$289
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SX-59 RF Pre-amplifier	
DX-555D Counter Generator w/Prescaler	$225
KX-1 Coupler	$59
MX-1D Marker	$69
OSKERBLOCK	
SWR-300 Power Meter	$125
SWR-200B Power Meter	$89
Couplers 6m and 2m	$30
Couplers 0.7m	$39
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Commander FU400 Rotator	$117
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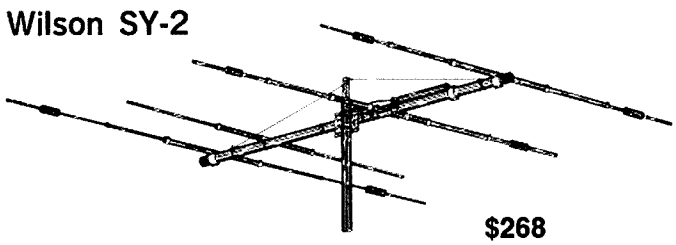
6-core Rotator Cable	$0.85m
Mast Clamps	$11 (set x 2)
Coaxial Cable RG 8/U Low Loss	$1.30m

Wilson SY-2



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Delivers outstanding performance on 20, 15 and 10 metres. Features Wilson's large diameter High-Q Traps, feeds with 52 ohms coax, a beta match method presents tapered impedance which provides most efficient 3 band matching and DC ground to eliminate precipitation static. The result is SWR less than 1.5 to 1 at resonance on all bands and maximum front-to-back. An added feature is the separate 10 metre reflector for correct monoband spacing. Add to this the rugged boom to element mounting, heavy duty taper swaged elements.

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WHAT WAR CONTINUES? Take it easy, Dicky Smith, we all accept that you are an energetic and successful young businessman, but you are still a newcomer in the business of genuine licensed amateur equipment. Don't try to take on a "BACKYARDER" with 15 years experience who has already forgotten some tricks that you or Gary may still have to learn. Try to beat MY latest HY-GAIN prices.

ARIE BLES.

HY-GAIN ANTENNAS

TH6-DXX 10-15-20M 6-el yagi	~~$295~~	$275
TH3-MK3 10-15-20M 3-el yagi	~~$249~~	$240
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204-BA 20M 4-el Tiger Array		$200
12-AVQ 10-15-20M vertical		$50
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HY-Q (USA) 50-ohm 1KW balun $15
HY-Q (USA) multiband 10-80M difole kit, wire, balun insulators, spreaders, etc..... $45

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All rotators now come with bottom brackets and control-indicator boxes wired for 28V AC operation

KEN KR-400 medium duty $110
CDR BT-1A light duty 4 position push-button programmable $90
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RG-58U coax cable, per yard 30c
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Voltage regulator 18V AC input 12V DC 3A output $23
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TS-520S 10-160M transceiver $650
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All further Trio-Kenwood accessories and transceivers at competitive prices

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PL-259-SO-239-cable joiners ea..... 75c
Right angle & T connectors, ea. $1.50
GLP right angles RG-58U to SO-239 w/lock nut & cap, ea. $2.50
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10M Sideband SE-502 USB/AM 15W PEP-240V AC 12V DC-inbuilt SWR/RF meter 28.3-28.6 mhz-clarifier tuning transmit and receive $125

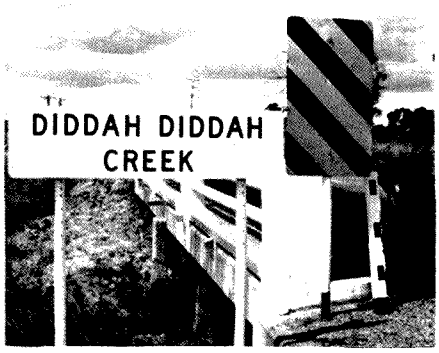
10M Universe 224-M USB/AM 15W PEP 12V DC 24-ch. 28.480 to 28.595 mhz, 5-khz steps-clarifier tuning transmit and receive $100

CONVERSION CRYSTALS for amateur licence holders —set of 8-crystals to convert 23-ch. 27-mhz CB units to 28-mhz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above — CRYSTALS and instructions $40

KYOKUTO FM-2016A 800 channel 2 meter FM transceiver with 4-channel memory & scanner $360

All Prices are NET, ex Springwood, NSW, on a pre-payment with order basis. All risk insurance is free of charge, allow for freight charges by air, road, rail or postal, excess will be refunded. Prices are subject to change without prior notice. All orders cleared on a 24-hour basis after receipt of order with payment.

Arie Bles (VK2AVA) Proprietor **Roy Lopez (VK2BRL) Manager**



"AA" creek on the Hume Highway.

Hobart City:
Workable by 1 watt hand-held transceiver with rubber-duck antenna inside the car.

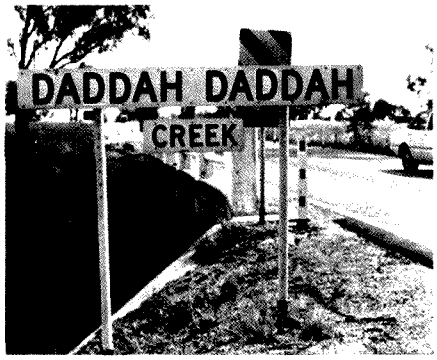
Arthur Highway:
From Sorell, good coverage up to the approaches to Eaglehawk Neck, then intermittent acess into Eaglehawk Neck. Good coverage around Eaglehawk Bay, but only intermittent access further south and to the coast.

Poor coverage in and around Port Arthur.

Tasman Highway:
From Hobart, excellent coverage to about 5 km west of Buckland, where the road curves into the mountainside. Signals were reasonable from Buckland to Triabunna. North of Triabunna, VK7RHT could only occasionally be heard weakly (e.g. at Mayfield and Bicheno).

NOTES

— From information received, no 2m FM simplex channels are monitored in VK7, all stations listening to repeater channels instead. Simplex activity is apparently by appointment and prearranged on a repeater channel.



"MM" creek, also on the Hume Highway.

— While driving through the mountains on the Tasman Highway near Scottsdale, we heard weak signals which we thought were VK7RAA but instead turned out to be VK3RGL!

— The following repeaters were not in operation during our holidays and hence no mention has been made of them: VK3RML, ch. 2, VK3RMM ch. 5, VK1RGI ch. 7, VK2RAW ch. 5.

— It appeared to be common practice in VK3 and VK7 for repeater channels to be called (e.g.) "channel 8" and not "channel 48". I had been warned before leaving Sydney that any reference to "NSW-type repeater channel numbering" in other States would result in severe earbashings from local operators — this was definitely not the case.

CONCLUSION

The four repeaters mentioned in detail all worked well and provided excellent coverage over wide areas. Credit must go to the repeater groups themselves.

It is reassuring when driving in unfamiliar territory to know that access to a repeater is possible should there be any need to call for assistance, whether it be an emergency or just simply for directions.

I hope that other amateurs travelling and using these repeaters will find these notes useful. ■

THE KULROD STORY

Jim Larsen W7DZL
President, Larsen Electronics, Inc.,
11611 N.E. 50th Ave.,
Vancouver, Washington, USA 98663.

Many of you may not be familiar with the name Kulrod, which is Larsen's trademark. I think that its origin might be interesting to you.

Kulrod had its beginnings during the early days of Larsen's experimentation with various types of loading coils, antenna rod lengths, etc., in the investigation of the best means of producing a superior gain antenna for the VHF frequency range. This was about 14 years ago. At that time there were a few gain antennas around but there was serious doubt as to whether they made any improvement over a quarter wave antenna. For that matter, there still is.

I do hope, however, that in the material which I will be presenting, to dispel that idea. Larsen's was fortunate to have a 100 watt transmitter available for testing their early prototypes, improving both their loading coils and the antenna rod. Their first loading coils became extremely hot at 100 watts — some of them actually burning up. When this difficulty was finally eliminated, they noted that at the 100 watt power level the 17-7 stainless steel rod which they were using became extremely hot at the point of maximum RF current (approximately 18 inches from the top). So hot, in fact, that keying the transmitter for approximately one minute developed so much heat that touching the rod at the point of maximum current after the removal of the transmitting power would literally burn you. They reasoned, and it was subsequently proven to be the case, that the power being used to heat the antenna rod was wasted for communication purposes and that if it could be eliminated, a noticeable improvement in antenna performance might be expected. They were aware of the phenomena as "Skin Effect", which describes the condition of radio currents travelling only on the surface or very near the surface of a conductor.

A little research into the literature revealed that the depth of penetration into the surface of a conductor a 150 MHz was in the order of .00025 inches, or two and one half ten thousands of an inch. It is interesting to note, at this point, that the primary function of the antenna rod is simply to support this extremely thin surface area which does all the work. 17-7-PH stainless steel is probably the most common material used for taper ground antenna rods. It has achieved this high usage due to its high strength, resiliency, and relatively high resistance to corrosion. It does, however, have the undesirable characteristic of extremely high electrical resistance. Its resistance is in the range of 20 to 30 times that of copper, which certainly gives it poor marks in the efficient electrical conductor category.

Armed with this information, Larsen's proceeded to have a rod silver plated. To their great joy, when the rod was placed in a good loading coil and subjected to 100

watts of power for a full minute, there was no trace of heat in either the rod or their vastly improved loading coil. To their great joy they also discovered a great improvement in performance as indicated by an approximate 1 to 1.5 dB improvement in field strength when an unplated rod was replaced by a plated rod. The demonstrable improvement of their early antennas over those which were then currently available, allowed them to penetrate what was and is an extremely competitive market.

If you're afraid I'm not going to tell you how the word Kulrod originated, just be patient for a few more minutes. For the first five or six years of Larsen's existence they silver-plated their rods to get the high performance, which they realised had become a necessity. The silver, unfortunately, had a bad tendency to corrode and produce rust spots when used in certain parts of the world; the worst areas were the tropics and those areas in North America where a great amount of salt is used on the streets and roads during winter time.

During this period, they continued to search for a coating material which would provide them with the required electrical efficiency and at the same time be resistant to the corrosion problem. It consists of a sandwich of nickel, copper, nickel, and chrome, applied over the basic rod material in that order. The first coating is known as a nickel flash and provides a base for the copper. A thick layer of copper is then applied; the copper coating is in a way the most important because it contributes to the low resistance characteristic which they need. A coating of nickel is then placed over the copper, a very thin calibrated coating, I might add. Then finally a coating of chrome over the nickel to provide a cosmetic effect. It is extremely important that the last two layers be quite thin; otherwise, the surface resistance of the rod might significantly increase, and they would wind up right where they started.

Prior to the development of this system, they spent a great deal of effort in advertising their silver-plated rods and then found it necessary to make a change.

Larsen's advertising department conceived the name Kulrod, which with its unique spelling was bound to attract attention and at the same time signify the fact that if you have a Kulrod antenna you do in fact have one which will provide you with a cool c o o l rod. From time to time they receive complaints that their present rods will turn green when exposed to winter road salting conditions. This condition in no way interferes with the electrical performance of the antenna and may be alleviated to a considerable degree by cleaning the salt encrustation off the rod from time to time and by also, at the beginning of the salt season, applying a good auto body wax to the rod. The green colouring is caused by the penetration of the outer plating layers by salt and its consequent reaction with the copper layer which produces a green coloured salt, probably copper chloride, which appears on the surface.

They could also improve this situation by making the nickel and chrome plating thicker, but this, unfortunately, has the undesirable by-product of increasing the surface resistance of the rod and bringing them right back to the point where they started. Larsen's is still working on the problem and hopes one of these days to have the perfect answer.

Their method of making field strength comparisons might be of interest, in that it is a system which anyone might use with a minimum of equipment to compare various antennas. The particular area which they had available for conducting tests was poor from a classical standpoint; in that when they investigated its use, they found that it was subject to considerable multipath even when illuminated from a standard signal generator using a corner reflector approximately 500 feet away. They reasoned that perhaps this might be a blessing, inasmuch as the situation more closely approximated actual working conditions. Larsen's procedure follows a standard quarter wave antenna. In their early experiments, a Motorola TU-316 quarter wave antenna was installed on a movable ground plane and then moved through a course covering approximately 100 feet. The antenna transmission line was connected to a calibrated receiver and field strength reading taken at 50 intervals throughout the 100 ft. course.

This procedure was repeated for each antenna to be compared. An average was taken of the 50 readings for each antenna and the result used to obtain comparative gain figures. They were pleased to discover that their results have correlated quite well with those obtained by the most elaborate systems. The key, of course, lies in taking a tremendous number of readings and obtaining an average; in this way, obvious slight errors are averaged out. One simple way this system might be used to obtain comparisons in a vehicle would be to connect a remote meter or test set to obtain a first limiter reading under unsaturated signal conditions. Obtain a signal from a repeater or some other source and, while driving down the road on a fixed course, count aloud slowly to 40; at each count an assistant will read the value of the meter reading and jot it down. The readings may either be averaged or simply totalled and the results compared to other antennas which have been tested in exactly the same way. The results may be invalidated in some cases if the signal source is subject to intermittent fading conditions due to transmission path conditions.

While we are on the subject, let's talk a bit about antenna gain. There seems to be a tendency among some antenna manufacturers to thump their chests and proclaim that "we have the best antenna in the world", and in order to amplify on this situation they feel obliged to publish gain figures that will confirm it. For example, in a recent issue of Ham Radio magazine there were two different manufacturers proclaiming 3 and 3.8 dB gain for their antennas. Based on the generally accepted criteria of comparing the gain to the quarter wave antenna, which is replaced by the gain antenna, it is difficult assuming a decent quarter wave antenna for either of the units to provide more than a measured 1.5 to 1.75 dB gain. They have never been sure whether some of these claims are due to deliberate misrepresentation or whether they stem from a different concept and philosophy of gain measurement. One of the advertisers did state, however, in extremely fine print, that the gain was compared to an isotropic antenna; the presentation was done in such a way that it would be difficult not to come to the conclusion that they were deliberately trying to confuse the reader.

What is an isotropic antenna? You may have seen many references to it in antenna advertising. Well, an isotropic antenna is essentially a point source from which radiation is equal in all directions. This, of course, does not correspond to a dipole or ¼ antenna on a ground plane, whose radiation in general may be visualised by placing a doughnut in the electrical centre of the antenna. As a consequence, the effective gain of an isotropic antenna is approximately 2.5 dB less than a ½ wave dipole or a quarter wave ground plane.

In other words, an antenna which has a rating of 3 dB over an isotropic antenna would actually have a gain of only ½ dB over a dipole or a quarter wave antenna on a ground plane. If they were to use an isotropic antenna as the basis of their gain claims, they could quite honestly state that they had a 5.5 dB antenna.

I am sure that all of you know the relationship between dB and power, but it wouldn't hurt to remind you that 3 dB improvement is equivalent to doubling the mobile transmitter power. If you were operating mobile to mobile and placed a 3 dB antenna on each of the mobile units, it would be the equivalent of obtaining a 6 dB system gain or actually increasing the effective power of each mobile unit by 4 times, which is not a bad bargain considering the relatively low cost of a good gain antenna. This is, of course, another reason why it is important for you to obtain an antenna which will give you an honest 3 dB gain in VHF and not one which gives you 3 dB over an isotropic and which would actually, when installed on two mobile units, provide only 1 or 1.5 dB actual system gain, certainly not your money's worth. Another gain antenna application would involve the installation of a gain antenna on the quarter deck instead of a ¼ installation on the roof top, in which case the gain of the gain antenna will very nearly equal that of the quarter wave on the roof and with a considerably simpler installation. ■

HAM RADIO SPECIALISTS

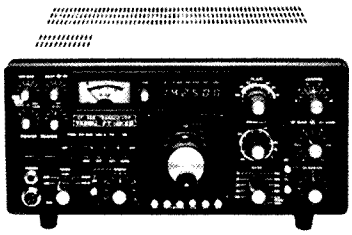
STOP

Before you invest in new amateur communications equipment or accessories, spare 60 seconds to read this advice.

"Any salesman will find a way to give you a better price — but for every dollar you save that way, you spend twice as much to find the after sales service you need. Before you buy, ask another Ham where he gets good sales assistance and concerned service attention."

At Bail Electronic Services we continue to offer first class equipment with a sure back up service.

A selection of the equipment available from Bail.



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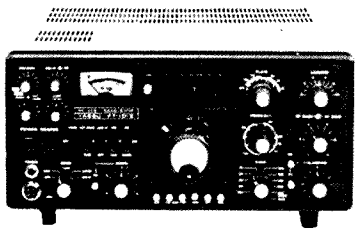
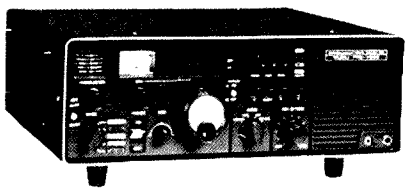
High-performance HF Transceiver with today's technology backed by a proud tradition. This rig includes variable IF bandwidth, digital plus analog frequency display, a built-in RF speech processor, and wide receiver dynamic range.

FT-901 DM De-lux SSB, CW, AM, FSK, FM, HF Transceiver.
160-10m, P.A. 2 x 6146B, Dig. readout, freq-memory, elect. keyer, rejection tuning, variable IF, audio peak filter, automatic tune-up timer, AC-DC operation etc., etc. Write to Bail for new colour leaflet on 901 DM series.



FT-101Z, Analog Model:
Top performance for the budget-minded amateur. The precision VFO gear mechanism is coupled to an easy-to-read analog display, providing resolution to greater than 1 kHz. All other features — the variable IF bandwidth, RF speech processor, superb noise blanker, VOX — are identical to the FT-101ZD. Counter and Dig. display can be added later. Set is basic and you add the extras you need.



Digital Display Communications Receiver with CPU Digital Clock and Timer — FRG-7000
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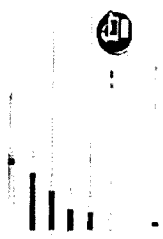
Other equipment from Bails includes Antennas, desk and hand microphones and headphone sets such as the YH-55 illustrated.



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BAIL ELECTRONIC SERVICES

HAM RADIO SPECIALISTS

NOVICE NOTES

WHAT'S YOUR REASON FOR GOING ON AIR

Radio Communication is what you make it. There is the DX specialist, the ragchewer, the technician and the "average operator" who is probably a combination of all four.

The DX specialist never works local stations unless it is to find out some snippet of information about a rare contact who may be on frequency at a later date. His prime interest is in working as many countries as possible with a view to obtaining awards, etc. You will probabiy only hear him when he is working "a rare one" . . . at other times he is constantly listening and tuning up and down the band.

The ragchewer will be found in local nets, interstate groups, or talking to his mate over in Denmark or somewhere. Don't expect him to go clear in a hurry if you would like to work the station he is speaking to . . . he won't. There are many ragchewers on the bands, particularly on 80 and 40. They are less common on ten metres as this is a DX band when it is open, although there are often nets in progress at times of low band activity.

If you are the "ragchew" type do not assume because the band is quiet there is nobody listening . . . there are probably many others doing the same thing and a CQ local call could find you propped on the one frequency for the rest of the evening.

15 metres is certainly a DX band and few nets operate in the Novice portion when the band is wide open, however you will frequently find local QSOs in progress after midnight, when the band has quietened down with stations comparing notes and information. Remember others can't call you if they do not know you are there.

You will rarely hear the technician . . . ninety per cent of the time he is in his shack constructing something and if he comes on the air at all, it is usually on two metres. Many technical minded operators do of course operate on the high frequencies, but their conversations are naturally orientated toward matters in which they are interested. Be wary of joining their groups unless you can contribute to the technical matters under discussion, and then only if you are sure you are competent to do so.

That leaves the "average operator". He has usually worked quite a lot of DX stations . . . particularly during the period after just receiving his licence. Having gained the satisfaction in knowing he can "get out" he will work DX if it is there . . . or ragchew if there is someone to talk to. He is not particularly worried whether he talks about radio, the weather or raising chickens, and he rarely bothers to QSL within Australia . . . but don't expect to find him on every night. He might be building something, playing cards with the XYL, or have gone out to the drive-in. He comes on the air when he is in the mood, and you take him as you find him. He may be a full call or a novice, and you will find him on any band. He is doing his own thing . . . as it is up to you to decide what your "own thing" will be. That is what amateur radio is all about.

AMATEUR RADIO OPERATION . . . WHAT YOU CAN'T GET AWAY WITH

Don't brag about the countries you've worked . . . the word will get around without you saying it.

Don't get involved in technical discussions unless you are sure of your facts.

Don't discuss religion or politics.

Don't make snide remarks or stir . . . what is acceptable in this country is not acceptable in others. Not all people think the way Australians do and their method and type of humour is completely different.

Never say anything about any operator that you have not already told him to his face, and even then be very careful.

Never say anything about an operator that you do not want to get back to him . . . you can bet it will.

Remember . . . the shack is the place for disagreements . . . not the airwaves.

Of prime importance to remember is that the main source of trouble comes from interference by your station to your neighbours or other amateurs. It is your responsibility to correct, and not ignore it if it is present.

Always be prepared to accept criticism or advice gracefully and to give criticism or advice tactfully.

Always check if the frequency is clear before transmitting.

Avoid transmitting too close to the edge of the bands allocated to you, about 3 kHz should be adequate.

Never purposefully transmit out of your band.

Conduct yourself with dignity on air . . . your reputation AND THE REPUTATIONS OF THOSE WITH WHOM YOU ASSOCIATE DEPENDS ON YOU. Remember many others may be listening to you.

Remain calm even when provoked by rudeness or thougthlessness. Example: "Sorry Old Man . . . this frequency is in use . . . please QSY."

(From CQDX Radio Handbook.)

Trevor Reid VK3NNK, Box 79, Heidelberg Vic. 3084. ■

★ ☆ ★

CHEAP TOWER DESIGN

Here is an idea for a cheap tower. This method gave me 25 feet of fully rotatable tower for less than $2.

The basic requirement is to have on one side of the house a flat wall going up to a peaked roof (see photo 1). The tower is then basically a 20 foot length of waterpipe, or suitable equivalent, held against the side of the house in a bracket that allows the pipe to rotate. Dropping the waterpipe over a metal spike driven into the ground stopped any lateral movement of the tower at the base while still allowing an Armstrong Rotator to be used.

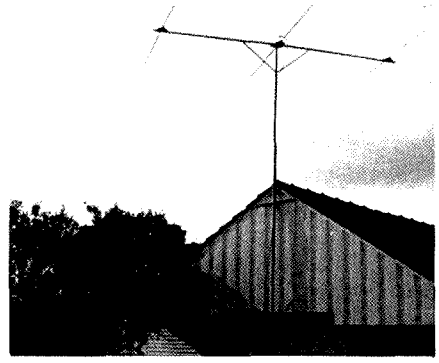


PHOTO 1

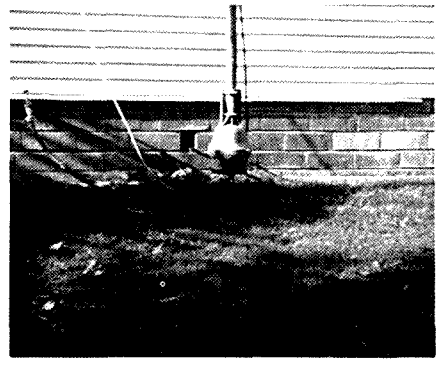


PHOTO 2

The tower in my case was secured at the end of operations by bolting another 3 foot section of steel to the pipe and poking it through a ventilation hole in the brickwork of the house. By more luck than design this left the beam pointing towards Europe and across most of Sydney.

The bracket is basically a short length of tube larger in diameter than the waterpipe. Mine was a rattling good fit with about ½ in. between pipe and bracket. Later when finances allow a rotator can easily be added by placing it at the base of the tower. In this position it will not be subject to any great lateral forces (see photo 2).

The only materials that had to be purchased were the bolts that held the bracket to the house. These had to be long enough to pass not only through the facia board on the house but also through the main supporting beams in the roof. This ensured the entire structure was fairly solid.

An extra 4 feet of height was gained by ramming a short length of 1¼ in. waterpipe down the original 1¾ in. pipe. It is important not to get greedy at this point. The length above the last support acts like a large lever when the wind blows and tries

to bend the tower at that point. After a few tests I was only brave enough to have a total of 6 feet above the roof to support my 3 element yagi for 28 MHz.

This antenna/tower combination worked very well except when beaming north towards Japan, when it pointed along the ridge of the roof, but that might have been a blessing in disguise.

Stephen Garner VK2AXM ■

★ ☆ ★

HOW I BECAME AN AMATEUR

As a boy at Technical College in the 1940s I learnt to build crystal sets and how to use them. This was the start of a lifelong interest in radio. Money was very scarce in my home so when school finished, work was the important thing. Radio was pushed into the background, but not forgotten. Marriage and the raising of a family meant radio remained in the background, but then CB radio came along.

My 20-year-old son arrived home one evening with a CB and we went to the highest vantage point possible to try out its tricks. Thirty years of smouldering interest in radio was awakened again and I found the advances in radio technology "out of this world". More importantly the realm of ham radio type communication was now within the bounds of my financial possibilities.

After a short term on CB radio I realised its shortcomings and was looking for something better and more reliable. By accident I overheard a discussion in the local electronics supply shop on a new course for novice radio amateurs at the Devonport Technical College. I enrolled, thinking to myself that even at 46 I wasn't too old to learn, or was I?

During that course 12 months ago I doubted my own ability to absorb Ohm's Law, oscillators, SSB, radio wave propagation and all the rest of it but my teacher was full of optimism. Like a nervous schoolboy I went along for the November examination last year full of fear and trepidation. Morse code was my weakness and the exam was in three parts. Firstly regulations which wasn't too difficult, then theory which gave me a glimmer of hope to pass. During waiting time in the corridor with other candidates I felt confident of passing the first two parts, but then came the morse code section.

One by one we filed into the room to send our sample of morse in a given key or one of your own choice. After some initial practice I set off and made one number mistake and was overtime by two seconds. Still the biggest hurdle was to come when I was called back into the room shortly after and sat at a long table with a set of earphones. The time had arrived for me to receive a message in morse code.

I set off after a brief practice session and, concentrating hard, almost finished the assignment before I stumbled on a letter and missed the next couple or so. Believing I had blown the whole examination I carried on and eventually my written message appeared like a Chinese conglomeration. My confidence shattered, I accepted an application form from the examiners for the next exam and drove away sure I would have to return for the next course.

A fortnight later my wife telephoned me at work to say my results had arrived and I had passed all three sections. I asked her to read it to me over the phone, not twice, but three times before I could believe her. A lifelong dream had just come true, the best Christmas present I could ever wish for. I just had to ring my course teacher and tell him. His reply was simply: "I knew you would pass, you know." Obviously he held more faith in my ability than I did.

The necessary papers were filled in and despatched to authorities and back came that coveted piece of paper informing me that I was now VK7NLH and duly authorised to indulge in my dream of 35 years or more.

The next step was a rig, the old Kraco CB set was amendable to 10 metre work if I got new cystals, and a letter was sent to a United States supplier.

In the meantime I looked at several good amateur rigs and one or two were borrowed for a practice session on air. Then I made and erected a G5RV dipole on the advice of some friends and the results were quite good. But, like amateurs everywhere else, I wanted better, so up went an elegant 2 element, 2 bander Yagi on a telescopic mast, in went a good tuner and then a TS520S transceiver miraculously appeared in the temporary radio shack of my spare bedroom. It was at this time my wife and family were considering moving house to leave me with my bits and pieces. The hint was taken and I promptly built a permanent shack in the furthest corner of my large garage. Fitted out with lights, power points, carpet, soft chair, special console to accommodate my gear and a good intercom to the kitchen (hell, I couldn't starve, could I!). I grabbed a heater for Tasmania's cold nights and shifted camp.

I am now quite settled in and keen to work for my full call. My wife, along with other amateurs' wives, is amazed at how cheap our gear is.

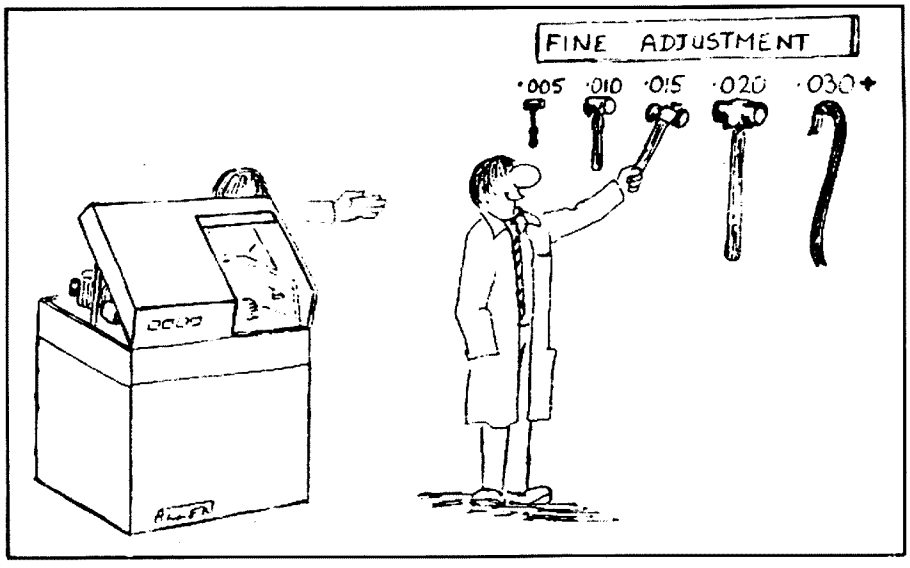
The transceiver was a bit over a hundred bucks, desk mikes go for a few dollars as do towers for antennas. The antenna was only $50, and you know as well as I that the more that goes into that little shack the cheaper it all gets. Joiners, connectors, power supplies, meters. Gosh, they are almost being given away. Ask any amateur, he'll tell you.

Seriously, though I must admit that I have gained a great deal of satisfaction from the knowledge that I worked and studied to the extent that I could obtain a novice licence. And as I mentioned earlier I will keep going for my full call to get the most possible enjoyment from the hobby. It isn't cheap, it isn't dear, it's just what you want to make it. And there are no unnecessary demands as you can pick it up or put it down when you like. It is up to you whether you operate one hour a week or 12 hours a day and the enjoyment and satisfaction is as rewarding either way.

By the way, the crystals ordered from the United States seven months ago have still not arrived and I guess they got lost somewhere. To finish, my wife wishes to know of a divorce action anywhere citing TS520S as a co-respondent.

Cheers and 73s.

Don Houston VK7NLH. ■



(Acknowledgement: from AARTG No. 12)

INTRUDER WATCH

Alf Chandler, VK3LC

TRANSMITTING MODES IDENTIFIED

For our readers information the following treatise on the modes of radio transmission are designated.

The official "Classification of Typical Emissions" are laid out below, and a brief description given.

Acknowledgement is given ITU Regulations.

A0, A1, A2, A3 and F3 are too well known to need a description of the sounds produced on air, but A4 and F4, facsimile, or the transmission of pictures by radio, which cause considerable hash on our bands are identifiable by the tick, tick, tick as the carriage returns, and either a high pitched (for white) or a low pitched (for black) squelching signal.

A7A, the multi-channel voice frequency telegraphy, sounds like a buzz saw, the pitch being consistent with the speed of transmission.

F1, frequency shift keying (FSK) in morse or teletype (RTTY), can be identified by the mark and the space on two separate frequencies, separated by 180 to 1,000 Hertz. The mark carries the intelligence and the space in morse is what we used to call the "back wave". Teletype is sometimes hard to identify because it Is not always sent at the same speed. The American speed is 45.5 bauds, while the British is 50 bauds. Some multi-channel run at as high as 192 bauds. Here we have a rather confusing issue. What is a baud? The Oxford dictionary gives a complete erroneous definition, so I'll leave it to you!! On our bands are often heard teletype blanks, reversals and RYs. Blanks sound like dots on one frequency and dashes on the other. Reversals are a series of fast dots, while RYs sound like the fast rhythmic trilling of one's tongue.

F6 — four frequency diplex telegraphy is as though two separate F1s are on adjacent frequencies, very often two kilohertz apart.

The P series have come into prominence lately, and are pulses. In the case of the Russian "woodpecker" P0, ten to the second. Recently there has been a faster one (26 to the second), which I believe is a European ionospheric sounder.

Further information on all these signals can be ascertained from your Intruder Watch Co-ordinator, and all these signals can be heard and identified by sending me a C60 cassette or reel (30 minute) tape. I can then dub my IW identification tape for your edification and educatoin.

Alf Chandler VK3LC,
Federal Intruder Watch Co-ordinator.

NOTE NEW ADDRESS:
15 Point Avenue, Beaumaris 3193. ■

TABLE OF CLASSIFICATION OF TYPICAL EMISSIONS

Type of Modulation of Main Carrier	Type of Transmission	Supplementary Characteristics	Symbol
Amplitude Modulation	With no modulation	—	A0
	Telegraphy without the use of a modulating audio frequency (by on-off keying)	—	A1
	Telegraphy by the on-off keying of an amplitude-modulating audio frequency or audio frequencies, or by the on-off keying of the modulated emission (special case: an unkeyed emission amplitude modulated)	—	A2
	Telephony	Double sideband	A3
		Single sideband, reduced carrier	A3A
		Single sideband, suppressed carrier	A3J
		Two independent sidebands	A3B
	Facsimile (with modulation of main carrier either directly or by a frequency modulated sub-carrier)	—	A4
		Single sideband, reduced carrier	A4A
	Television	Vestigial sideband	A5C
	Multichannel voice-frequency telegraphy	Single sideband, reduced carrier	A7A
	Cases not covered by the above, e.g. a combination of telephony and telegraphy	Two independent sidebands	A9B
Frequency (or Phase) Modulation	Telegraphy by frequency shift keying without the use of a modulating audio frequency: one of two frequencies being emitted at any instant	—	F1
	Telegraphy by the on-off keying of a frequency modulating audio frequency or by the on-off keying of a frequency modulated emission (special case: an unkeyed emission, frequency modulated)	—	F2
	Telephony	—	F3
	Facsimile by direct frequency modulation of the carrier	—	F4
	Television	—	F5
	Four-frequency diplex telegraphy	—	F6
	Cases not covered by the above, in which the main carrier is frequency modulated	—	F9
Pulse Modulation	A pulsed carrier without any modulation intended to carry information (e.g. radar)	—	P0
	Telegraphy by the on-off keying of a pulsed carrier without the use of a modulating audio frequency	—	P1D
	Telegraphy by the on-off keying of a modulating audio frequency or audio frequencies, or by the on-off keying of a modulated pulsed carrier (special case: an unkeyed modulated pulsed carrier)	Audio frequency or audio frequencies modulating the amplitude of the pulses	P2D

		Audio frequency or audio frequencies modulating the width (or duration) of the pulses	P2E
		Audio frequency or audio frequencies modulating the phase (or position) of the pulses	P2F
Pulse Modulation	Telephony	Amplitude modulated pulses	P3D
		Width (or duration) modulated pulses	P3E
		Phase (or position) modulated pulses	P3F
		Code modulated pulses (after sampling and quantization)	P3G
	Cases not covered by the above in which the main carrier is pulse modulated	—	P9

AMATEUR SATELLITES

Bob Arnold VK3ZBB

AMSAT AND ARRL

I am pleased to advise renewed contact with ARRL through Bernie Glassmeyer W9KDR, and I hope to have some up-to-date leaflets, etc., in the not too distant future — I will let you know the situation when further letters have crossed the Pacific.

Also, the first AMSAT newsletter for a year has turned up with airmail postage of 87c. Obviously AMSAT cannot afford to keep this cost up continuously, so we shall have to find a formula to assist. This is a problem for Life Members as the cost of sending a draft for a few dollars for additional airmail charges is about $2.50. Any ideas? Please don't suggest that I should collect the money! (It might get diverted to the ZBB benevolent fund.)

CORRESPONDENCE

I have been delighted to have rather voluminous correspondence recently with Peter VK4PJ, who is a relative newcomer to satellites. Peter is on AO8 Mode A and has made several good contacts — not too good with me!

Peter is trying hard to increase satellite interest in VK4 and is currently supplying a segment each week for the VK4WIA broadcast. He also participates in the JAMSAT Net which, due to QRM, is sometimes rather difficult to copy, not only in VK4 but VK3 as well.

Peter has been in correspondence with John VK4TL, who has sent lots of interesting information. John is one of the few morning pass operators and has concentrated on AO7 Mode B. Results are envious for we poor mortals in the south (John at Cairns is about 2,000 miles north of VK7), as he reports working some 332 QSOs with JA, plus numerous others in ZL, JA, JR6, FK8, VS6, P29, KC6, HL9, DU6, KH6, KG6 and Kure Island. At least we have a few of these plus VK0 and ZK1. Thanks, Peter and John, your information will fit in well in future notes.

OPERATIONS

The two Russian Amateur Satellies RS.1 and RS.2 now appear to be permanently out of service. The breakdown is reliably attributed to excessive radiation during launch; a most disappointing end to a great effort by our Russian colleagues. At least a few of us managed QSOs via RS.1 and 2 and we are looking for QSL cards — perhaps they will become as rare as a "penny black" in due course.

Oscar 7 still operates but there is little activity via the most general mode in use — "B". Reports indicate that complete failure is anticipated in September but maybe it will have yet another new lease of life.

Oscar 8 still performs well. Colin 9M2CR reports that stations in Asia hear VKs in the middle of the band, whereas in accordance with the official band plan they are at the higher end. I guess that operators in VK and ZL have not required resort to band planning on the Oscars due to limited activity in this part of the world. Maybe we should fall in line with convention — more on this next month.

PUBLICATIONS

I have been fortunate to have had an opportunity to review a new publication by ARRL entitled "Satellite Communications", which is edited by Bernie Glassmeyer W9KDR. This book, which is mainly made up of re-prints of articles published in QST during 1978 and 1979, is primarily devoted to Oscar 8 and particularly to Mode "J" operation.

Chapters include basic AO8 information, telemetry, antennae, filters, comprehensive mathematical and computer calculations for the location of satellites and information on the Russian series.

Words of wisdom appear throughout the book such as "Antennas cut for 432 MHz can be used for Oscar 8, Mode J, but very few exhibit any gain at 435", and "some so-called low-loss types of coax are

ORBIT PREDICTIONS — AUGUST, 1979

	OSCAR 7			OSCAR 8			RUSSIAN RS		
	Orbit No.	Eqx. GMT	Eqx. °W	Orbit No.	Eqx. GMT	Eqx. °W	Orbit No.	Eqx. GMT	Eqx. °W
1	21540	0135	88	7161	0138	71	3335	0017	303
2	21552	0034	73	7174	0000	46	3347	0022	306
3	21565	0128	67	7188	0005	48	3359	0027	309
4	21577	0028	71	7202	0010	49	3371	0031	311
5	21590	0122	85	7216	0016	50	3383	0036	314
6	21602	0021	70	7230	0021	51	3395	0041	317
7	21615	0116	83	7244	0026	53	3407	0046	320
8	21627	0015	68	7258	0031	54	3419	0050	322
9	21640	0109	82	7272	0036	55	3431	0055	325
10	21652	0009	67	7286	0041	57	3443	0100	328
11	21665	0103	80	7300	0046	58	3455	0104	331
12	21677	0002	65	7314	0052	59	3467	0109	333
13	21690	0056	69	7328	0057	61	3479	0114	336
14	21703	0151	92	7342	0102	62	3491	0118	338
15	21715	0050	77	7356	0107	63	3503	0123	341
16	21728	0144	91	7370	0112	65	3515	0128	344
18	21740	0044	75	7384	0118	66	3527	0133	347
18	21753	0138	89	7398	0123	67	3539	0137	350
19	21765	0037	74	7412	0128	68	3551	0142	352
20	21778	0132	87	7426	0133	70	3563	0147	355
21	21790	0031	72	7440	0138	71	3575	0151	358
22	21803	0125	86	7453	0000	46	3587	0156	360
23	21815	0025	70	7467	0005	48	3598	0001	333
24	21828	0119	84	7481	0010	49	3610	0005	336
25	21840	0018	69	7495	0016	50	3622	0010	338
26	21853	0112	83	7509	0021	52	3634	0015	341
27	21865	0012	68	7523	0026	53	3646	0019	344
28	21878	0106	81	7537	0031	54	3658	0024	347
29	21890	0005	66	7551	0036	56	3670	0029	349
30	21903	0100	80	7565	0041	57	3682	0033	352
31	21916	0154	94	7579	0047	58	3694	0038	355

virtually unusable for Mode J. RG 8/U is acceptable only if used for relatively short runs, and anything smaller should not be used at all".

There is a simple design for a 435 MHz QUAGI, which with the "4 x 3 x 5 MHz Filter", should enable interested operators to overcome some of the receiver desensitising problems which are peculiar to this Mode.

Your copy of "Satellite Communications" can be obtained from ARRL, 225 Main Street, Newington, CT 06111, USA, for $5.50 (US funds), post free. I suggest you add another dollar if you require airmail delivery.

Magpubs at WIA Federal Office and your Divisional Office will also probably carry stocks of this excellent book in due course.

THE FUTURE

Now is the time to get your gear in good order for the launch of Phase III in March next year. As John VK4TL says, "We shall be faced with greater distances in future which require higher power for transmitting and efficient antennae on both up and down frequencies. John is building a linear with parallel 4CX 250s to run near the legal limit of 400W PEP.

I have previously mentioned the Canadian geostationary satellite. No further information is to hand on this project but details of a new British proposal have become available and I will give details in a future issue. Known as UOSAT, this bird is expected to have SSTV facilities and a 10 GHz beacon — pass the news to the ATV fanatics.

SATELLITE NET

Several operators have mentioned their interest in forming an Australian Net to discuss matters relating to satellites on a regular basis. If you have an interest contact Peter VK4PJ on the air or write to him at 16 Bede Street, Balmoral, Queensland 4171, and give him some ideas of time and frequency you would prefer to be used. Perhaps our ZL friends will also contribute to this suggestion. ■

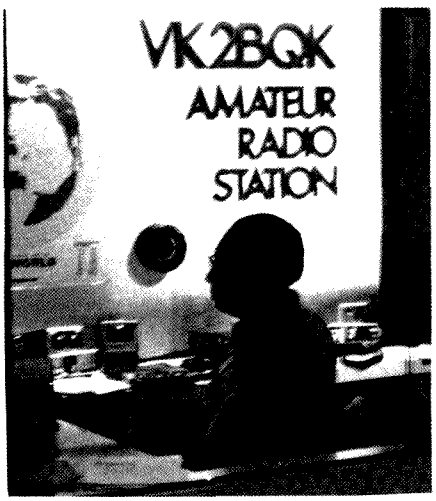
OPENING OF RADIO STATION VK2BQK

The Hon. A. Staley, Minister for Post and Telecommunications, officially opened the Radio Bay and Station at the Museum of Applied Arts and Sciences on Friday, March 23rd, at 10.30 a.m.

The newly completed Radio Bay is equipped with an Amateur Radio Station VK2BQK, generously donated by Dick Smith, of Dick Smith Electronics. The equipment is the latest in amateur radio, and is operated by novice and amateur licence holders from the Wireless Institute of Australia, who voluntarily man the station on weekends. The Radio Station has successfully transmitted to all parts of Australia, including the Science Museum in Victoria; New Zealand, Japan and the USA.

Graphic material, photographs and historical radio and communication equipment are also on display.

For further information please contact Margaret Betteridge, Public Relations Officer, or Jeff Sergei, Curator of Electronics, on 211 3911. ■



AROUND THE TRADE

1296 MHz LOOP YAGI

Spectrum International have available a Loop Yagi which gives 20 dBi gain. It is an updated version of G3JVL's design.

Spectrum International also have available UHF filters for 432 MHz and 1296 MHz.

For further details contact —
Spectrum International,
PO Box 1084,
Concord, Massachusetts,
01742, USA. ■

McKAY DYMEK RECEIVER

As recently appointed Australian Agents, Vicom International takes pride in announcing McKay Dymek's range of high quality HF synthesised and HF scanning receivers. From this range the Model DR22C is introduced as a general purpose receiver. Because the receiver tunes continuously from 50 kHz to 29.99 MHz the receiver is equally at home whether being used as a radio station monitoring receiver or by a serious SWL.

Design will allow the unit to be either installed in the standard 19 in. rack or sit contently in a living room. Modes of reception are: SSB, AM, CW, RTTY. Excellent stability make the unit a dream to use.

SPECIFICATIONS: DR22C

1. Frequency coverage: 50 kHz to 29.7 MHz continuous. Reception modes: AM Upper Sideband, Lower Sideband, CW, RTTY (with external converter). Sensitivity 10 dB (S + N)/N: 4 kHz SSB (CW), 0.75 uV typical. Frequency readout: 5 Digit Red .5 inch (1.2 cm) LED to 5 kHz.
2. Frequency selection: 10, 1, .1, .005 MHz steps — 5 kHz Fine Tune.
3. Frequency stability: Digitally synthesised phase locked loop. ± 40 Hz over 8 hours.
4. Image rejection: 70 dB.
5. RF blocking: 100 dB to 1 uV.
6. Cross modulation: 60 dB to 1 uV.
7. Intermodulation: 65 dB to 1 uV. ■

QSP

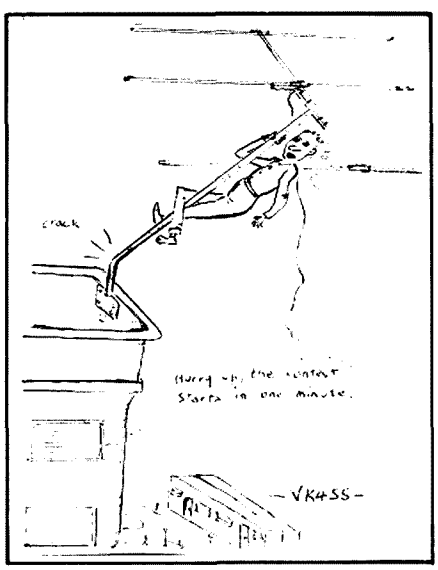
LASERS

Ever thought about gear and operation on 10 GHz (10,000 MHz)? Recent experiments with a 4 mW helium-neon laser operating at 6328A produced a successful one-way QSO over a 35 km path. This is only some 4 million GHz. ■

Beware the fate of Harry Steed,
— was warned, but wouldn't heed;
That Murphy does his nasty best,
Just before a big contest
He's out, a-spoiling bent
Sabotaging some event —
Or messing up the beam, or gear.
So have a thought and a fear
Touch naught that has no need —
Lest you wind up like Harry Steed,
Who spent he week-end on repair
But never did get back on air.

Alan Shawsmith VK4SS. Written 1-2-79. ■

MURPHY



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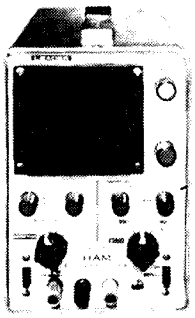
From VICOM

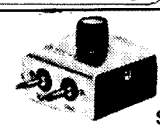
LEADER TEST INSTRUMENTS

Ham oscilloscope $310



SPECIFICATIONS	
Vertical Amplifier Sensitivity 20mVp-p/div or better. Bandwidth DC or 2Hz to 4MHz (−3dB)	Transmitter Monitoring Frequency range 1.8 – 54MHz. Impedance 50 to 75Ω.
Horizontal Amplifier Sensitivity 300mVp-p/div or better. Bandwidth DC to 250kHz (−3dB)	Measurable Output Power 2-500W Connectors, input/output Type M (UHF).
Time Base Sweep Frequency 10Hz–100kHz in four ranges. Synchronization Internal; negative polarity only.	Two-tone oscillator Frequencies 1300 and 1900Hz (approx.). Output voltage 50mVrms, max.
	Power supply 115/230V; 50/60Hz; 12VA approx. Size and Weight 180(H) x 125(W) x 300(D)mm 4.7kg.

monitorscope + cro



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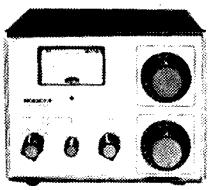
This unique accessory is designed for use with Leader's LBO-310A or any other scope with direct deflection plate connections. You can monitor waveforms and output power of single sideband and AM transmissions by using the LA-31.

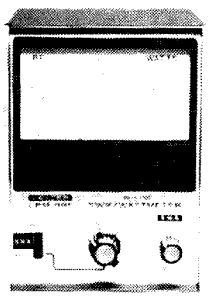
- Frequency Range 1.8 – 54 MHz.
- Measurable Output Power 5 to 500 watts.
- Impedance 50 – 75 ohms.
- Size and Weight 40(H)x50(W)x90(D)mm 110 g.



coupler

LAC 895 Antenna Coupler

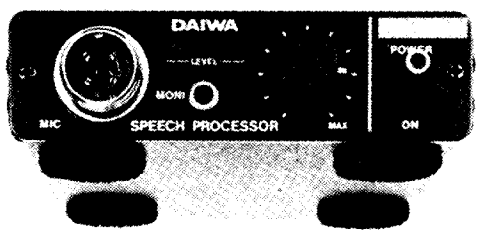
- ★ 3.5 – 28 MHz
- ★ Incl. Coax Switch
- ★ In-Line Watt Meter
- ★ Price $169



Frequency Range Impedance	1.8 – 54MHz. 50Ω.
Forward and Reverse Power	Three ranges each: 20, 200, 1000W full scale accuracy: ±10% f.s. to 40MHz, and ±15% f.s. to 54MHz.
SWR indication SWR Power Requirement	1.0–10, direct reading. Less than 10W.
Connectoss Size and Weight	Type M (UHF) (Input-output) 150(H) x 112(W) x 125(D)mm; 1.2kg. approx.

✱

VICOM has been appointed Australian distributor for LEADER



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- ★ Increases "talk power" 6dB with splatter-free operation.
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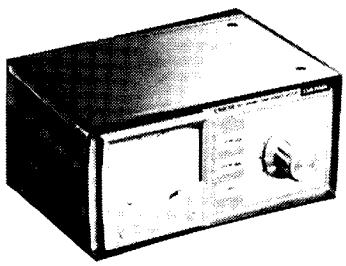

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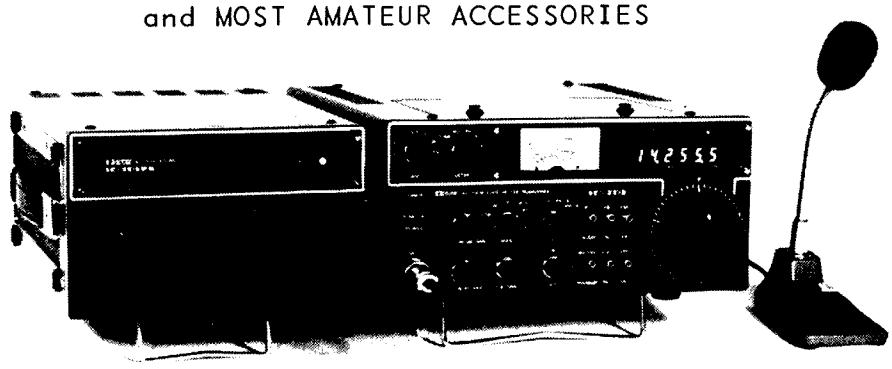

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No.	Dia Inch	Turns per Inch	L'gth Inch	B & W Equiv	Price
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2.08	⅝	8	3	No. 3006	**$1.16**
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3.16	¾	16	3	No. 3011	**$1.40**
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Special Antenna All-Band Tuner Inductance
(equivalent to B. & W. No. 3907, 7 inch)

7" length, 2" dia., 10 TPI **Price $4.36**
Reference: A.R.R.L. Handbook, 1961

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VS-33. 3el.Triband Beam 20-15-10M.Inc.Balun. .$259.
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Few only.

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2 Position COAX Slide Switches

2 80-10M. Traps for dipole. **$50.-**
Complete with balun and insulator.

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SWR-200. Large dual meter SWR. .....$75.
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LP-42. Drake Low Pass Filter.200W. .....$19.
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5D-fb. Foam filled coax double shielded 2.02 dB loss per 100 feet.....$1.20 per metre.
RG-58U. Thin coax. per metre .....50 c.
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PL-259 to suit 5D-FB. $1.50
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HI-Q Balun 1:1.....$15.95

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HI MOUND.

HK-707. On standard base with dust cover and knob. .....$25.
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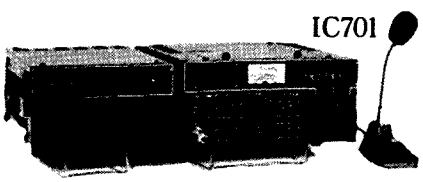
HK-706. Operators key with dust cover.....$24.
HK-708. Operators key.....$23.

IC701



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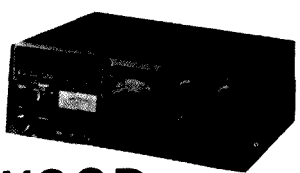
TS-120



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TS-520S 160 10 M. Transceiver AC .....$POA
VFO-520S Ext. VFO for 520 .....$163
DS-1A DC-DC for TS-520 .....$79
TS-180 160 10 M. Transceiver .....$1300.
VFO-820 Ext.VFO for 820 .....$195
TS-120 80-10 M. Transceiver.....$POA
VFO-120V Ext.VFO for 120.....$148
PS-120 Power supply for 120 .....$110
SP-120 Ext speaker TS-120 .....$40
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BS-8 Panoramic adapter for 820S.....$66
AT-200 SWR meter,antenna coupler $185
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MC-35S Hand mic. noise cancel.....$26
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YG-88C CW filter for 820 .....$59
YK-88C CW filter for TS-120 .....$38

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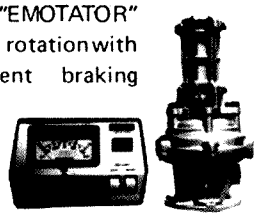

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502CXX. Heavy Duty. .....$243.
1102MXX.Extra Heavy Duty. .....$369.
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VCTF-6. 6 Core Cable.per Metre.....$1.00.

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DR-7500S. Medium Duty. .....$189.
DR-7600D. Heavy Duty.....$289.

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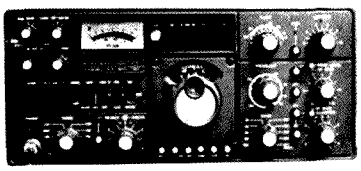
RSL base mast Inc. 2 M.....$29
80 M.Resonator.....$22
40 M.Resonator.....$21
20 M.Resonator.....$20
15 M.Resonator.....$20
10 M.Resonator.....$20

YAESU



FT-101Z 160-10 M Adj. N/B IF $765
OPTIONAL.
FAN.....$39
DC-DC for 101Z $79
FT-901DM Transceiver.....$1549
FV-901 Ext.VFO FT-901.FT-101Z.....$439
FC-901 Antenna coupler $249
YO-901 Panoramic adapter. monitor scope $499
TV-901 6M.2M.70 cm All Inc. $839
SP-901 Ext.speaker for 901-101Z.....$53
FRG-7 Communication receiver $339
FRG-7000 Communication receiver $595
LF-2A Narrow band filter FRG-7.....$20
FT-7B 80-10 M.Transceiver 100W.....$619
YC-7B Digital display for FT-7B $123
YE-7A Hand Mic for FT-101Z $21
YD-148 Desk Mic for all Yaesu $49
YP-150 150 Watt dummy load and Watt meter $112
FL-110 Solid state amp. 160-10 M.....$239
FL-2100B 1200 W. Amp. $585
QTR-24 24 hour world clock $33
YC-500 Freq. counter .....$POA
FT-227R 2M. Digital transceiver $329
FT-227RA 2M. Scanning digital transceiver.....$399
FF-50DX Low pass filter 2 kW. $40
YO-101 Monitor scope for FT-101E.....$379
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LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

35 Whynot Street,
West End, Brisbane,
Queensland 4101.
23-5-79.

The Editor,
Dear Sir,

Geoff Wilson VK3AMK and Neil Penfold VK6NE have posed some pertinent questions re our VK/ZL contest. May I comment on them.

Should we have a contest — or contests? Most definitely, yes. Only a minority of Hams participate in contests and only about one quarter of these submit logs — even so, they fill a definite psychological need. Healthy assertive males (and some YLs) need a friendly joust of some sort, every so often. Proof of this is to be found in man's "get together" activities. Most clubs or groups run competitions of some kind; even the senior citizens have their bowls, cards, or whatever.

In the case of AR contests, competition sharpens the wit, acts as an incentive to improve the rig and operating habits and provides the opportunity to test oneself alongside all-comers: a very important requirement if one is to develop confidence and to know oneself. On a more mundane level, it assists in working the rare DX and obtaining awards. AR is an entity made up of several minority groups, and AR, minus contests, sure would lose a lot of its character.

Should the contest duration be 24 or 48 hours? Most argument supports 24 hours. We are not in the "Big League", as countries or contests go, and the prefix VK is rather commonplace. It is quite enough to ask overseas contesters to work VK for 24 hours. More logs will be submitted than if the time span was doubled. A full weekend means starting Friday for some overseas countries and, in our case, finishing on Monday; this is too long, as most participants are still at the salt mines. A 24 hours period, taking in part of Saturday and Sunday, is the best compromise.

What numbers, if any, to swap? It's not sheer coincidence that the most popular "stirs" are those in which the minimum amount of information is swapped — consequently it has been suggested that we omit the number segment and simply exchange reports. Such a modus operandi raises the problem of instant identification, or simply identification at all. In the melee of contest activity, instant identification of who's in it br not is imperative; so it follows that some number system has to be used — but which one!

I submit that the two digit fixed number is the simplest and quickest and most popular: but here again, which two digits? If we use the ITU zone number, the VK/ZL becomes an ITU contest. If we decide on the CQ *zone numbering*, *our* test becomes similar to the CQ WAZ test. The Japs have tried to get around this knotty problem by adding one's age to the report. Any participant in the All Asian Test will have observed that this works very tb. However, I'd like to take this a step further by suggesting that RANDOM OR PERSONAL NUMBERING be adopted. This simply means that any participant can choose any two digit number he wishes and use it for the entire contest. This makes for much easier operating over the 001 sequences and enhances the number of logs submitted.

I realise the contest committee might well be loathe to take such a radical step. The only alternative then, as I see it, is to fall back on the "Jock White Innovation" of allowing the participant to commence with any number between 001 and 100. This prevents each from gauging the other's progress — which is the way it should be, particularly as it is likely to increase the number of logs submitted — which is the prime aim of any contest committee.

Finally — the GCR and Summary Sheet: At first glance, the GCR rule and summary sheet seem to have merit, as it would save a lot of writer's cramp and entice more log entries. However, it might also increase cheating. As only one in four contest participants submits a log, cheating, by those who know how, is always possible (I won't explain how). However, an eagle-eyed scrutineer can pick a padded contest log — and it's this possibility that keeps cheating to a minimum. So because of this log submission, in my view, is mandatory.

Alan Shawsmith VK4SS. ■

30 Luck Street, Eltham,
Victoria 3095.
28-5-79.

The Editor,
Dear Sir,

"POISON"

I wish to draw your attention to an article that appeared in the radio amateur journal QST July 1978, which warns of the extremely toxic nature of the substance beryllium oxide.

As well as those applications mentioned in the article, beryllium oxide is to be found in commonly used RF power transistors (e.g. 2N5590, 2N6084, B40-12, etc.). Some mounting kits for transistors also use beryllium oxide washers for improved conductivity. I am certain that there are many persons handling such items who are quite unaware of the dangers involved. Unfortunately, the use of beryllium oxide (BeO) seems to be widespread.

Recently I came across an item in the 1979 Dick Smith catalogue. This warned that one of their products, Heat Transfer Compound, happened to contain BeO. If this is in fact so, and if other brands of heatsink compound also contain BeO, it would appear that a very real hazard exists to any persons involved with the maintenance or construction of electronic equipment. As you are no doubt aware, heatsink compounds being in the form of a grease, is a rather messy substance to use, and even if care is taken it is difficult to keep from coming into physical contact with it. This could result in traces of it being taken internally, with possible disastrous consequences.

Up till now, I have seen four different brands of heatsink compound available on the market — one contains BeO, the others may or may not, but it is significant to note that none of these has so much as a word of warning labelled on it. I find this type of situation deplorable, especially when one considers that other products on the market, far less toxic than BeO, have warning labels on them.

I hope that you will be able to pass this information on to your readers so that they will be aware of the dangers in handling beryllium oxide. I would suggest that any project you publish which makes use of this substance in any form also contain a suitable warning.

Yours faithfully,

E. J. Smeda VK3YNM.

Copies of this letter have been sent to the editors of the following magazines: Electronics Australia, Electronics Today, Amateur Radio and Amateur Radio Action. ■

PO Box 22,
Woodend 3442.

The Editor,
Dear Sir,

I wonder whether somebody could suggest a solution for a problem with my FTDX 401 transceiver, vintage 1974.

The S-meter zero drifts, after some period of operation, up to S9 even with extreme adjustment of the setting resistor VR10. I have installed new 6BA6 (V205) and 6BZ6 (V1) valves to no effect. All resistances in the S-meter circuitry (R221, R3, VR2, R56 and VR10) *remain stable* while this happens. Plate and screen voltages of V1 and V205 remain stable at 150 and 105 volts respectively. The cathode voltages, however, drop from 1.15 to .8 (V1) and from .85 to .63 (V205). It should be noted that even the "cold" voltages are lower than the 1.5 to 1.3 volts quoted in the manual.

Can anyone suggest the cause and, therefore, the cure for this condition?

Yours sincerely,

G. H. Cranby VK3GI. ■

The Editor,
Dear Sir,

Concerning Silent Key F. G. Bail.

To everyone who kindly expressed sympathy in our recent bereavement please accept our sincere thanks.

Mrs. Gladys Bail (wife of Fred Bail) and Jim (brother of Fred Bail). ■

6 Wichman Road,
Attadale, WA 6156.
May 23rd, 1979.

The Editor,
Dear Sir,

RE SLOW MORSE TRANSMISSIONS

WA members and listeners would be extremely grateful if the eastern block of amateur transmitting stations would be good enough to keep clear of the frequency of 3555 MHz, Sunday to Friday only, around 1200Z to 1300Z. This is the prime operating time for VK6 station SM transmission and reception. Please do not forget that although ES, SM sessions have finished at least an hour before, OUR SM sessions are just starting. Winter propagation conditions from the eastern States are causing considerable jamming, particularly to our outer country areas. Other outside interference from northern fishing fleets, and, unwittingly, cargo ships approaching *Fremantle Harbour is* unbearable at times. Will all concerned please help in the interest of the WIA to make WA operations a lot more fruitful, pleasant, and a little less arduous? MNY TNX 73.

Yours in the Intrest of Ham Radio,
Cyril Rulledge VK6CR,
Slow Morse Co-ordinator for WA. ■

The Editor,
Dear Sir,

Our Historical Officer, Mr. Bill Tanner VK7TE, is endeavouring to collate a history sheet of all Tasmanian (VK7) Radio Amateurs, past and present. He would like a photo of each, colour if possible, plus a short autobiography covering life's activities, hobbies, work, etc. In particular, date qualified, call allotted, calls held and any other details considered relevant.

Details of other Radio Amateurs in or ex VK7 would be appreciated, especially on those who have passed away (Silent Keys).

As an example of the fascinating history in Tasmania we are trying to collate and preserve, as some would remember, the playing of records on the broadcast bands in the early days by Radio Amateurs Col Wright VK7LZ and the late Len Crooks VK7BQ.

If you can help, please drop us a line and, if practical, we will call on you to record the details or collect information and articles.

Yours faithfully,
L. M. Lockett VK7NSB,
Secretary, Northern Branch WIA,
PO Box 275,
Launceston 7250. ■

PO Box 622,
Hamilton 3300.
May 8, 1979.

The Editor,
Dear Sir,

Let's set the record straight on a couple of matters raised by AR contributing editors in May issue, 1979.

Bill Verrall is attempting to can the WAVKCA (VHF) Award just because he thinks it is impossible to qualify for it.

I suppose by the same reasoning we should can DXCC just because 40 or 50 countries are inactive?

Personally, if selected for ANARE 1979-80 I will be taking 6 metres to Macquarie Island, if not then another VK7 will do the same.

The WAVKCA Award never had a counterpart for VHF until 1973-75 produced the necessary VK0 and 9 contacts on 6 metres, which in turn forced the WIA Awards *Committee into acknowledging* the achievement of a minority of operators who worked all the areas.

Following the proof of contacts there was a lapse of two years before the certificates were forth-

coming so all in all, the award was very hard to come by and has a high degree of prestige for those fortunate to hold it.

We are always having rammed home to us about the first 'this" on 6 and the first 'that". Well, this is one "first" that won't be taken away in a hurry, not without a fight.

Every VHFer should be allowed to have the opportunity to qualify for the award. Making it easier, just because it is hard is not sufficient grounds for revising the rules. Remember, impossible things take just that little bit longer. Do you really think someone stuck for want of a VK0 would appreciate the Federal Awards Manager meddling in the rules just to allow "all in"? He admits himself that he could also qualify for want of a VK0.

As far as getting VK0 on HF, how long did it take for you lo get your QSL card back, Bill? And how often Is VK0PK on the air? I can tell you that it is at least three times per week for over one hour per session. Those who haven't worked him are not looking in the right place.

And this brings me to point two.

A comment in Eric Jamieson's column hits out at VK9ZNG's lack of QSLing and gives credit to VK5KK as the first VK-VK9 QSO.

Hate to tell you but VK3ZCG in Lindenow was the first station in Australia to work VK9ZNG and it was into Martin's long wire antenna.

Shortly after hearing the contact and being unable to raise 9ZNG, I went to Ballarat and purchased a 3 element yagi which I personally donated to VK9ZNG. The next set of QSOs some week or two later were those which VK5KK may have participated In.

As for OSLs, at least four VK3s, including myself, hold Martin's dark red card in our possessions, readily obtained by direct QSL to Box 409, Norfolk Island 2899.

As far as QSLs from VK9. I was, up to recently, handling VK9NI's cards and have processed over 100 VHF cards lor 6 metre QSOs. Anyone who has missed out has not been reading the QSL info, so readily available over the past three years. I recently sent out 75 cards by various routes for HL9TG's 6 metre QSOs. I'm sorry lo report that the incoming cards have not been sent at the same speed as those sent out. Gary is looking to gain his WAS VHF Award and I decided to help him in this quest.

My linal comment Is that lately there has been one-up-man-ship and oblique mud-slinging from VK5 area in matters of 6 metre operation. I believe that any column should be based upon credible news and facts which interests everyone, not just a personal soap-box for one or two one-eyed members of a "clique" who feel that the world above 50 MHz belongs to them alone!

I could of course put this in my column, but that would be abusing the privilege of writing for the VHF popuius of Australia; instead Mr. Editor I use your forum, thus giving anyone the right of redress, instead of hiding behind page final deadlines and long delays between comment and reaction.

Yours faithfully,

Steve Gregory VK3OT,
Editor, VHF News,
Amateur Radio Action. ■

141 Hyde Street,
North Rockhamtopn 4701, Qld.
18th April, 1979.

The Editor,
Dear Sir,

A couple of days ago two VK3 stations informed me I had again won the Ross Hull Contest by many hundreds of points in both the seven day and 48 hour sections. As I had not then received my copy of AR for April, I was awaiting its arrival. It came today and what a let down for a winner of the most difficult contest held annually in Australia; not even being placed at the top of the list for the winner and only a few lines devoted to those who spent many hours over the three weeks of the contest trying to make contacts. Often under adverse conditions of heat, electrical storms, poor propagation and sometimes many hours of listening without even a single signal on the VHF bands as a reward. In the tropics, there are many days and nights where operation at all is impossible at the time of the year the RH Contest is held, due to the severe electrical storms prevalent, and one is unable to operate.

Many dozens of stations operated and took part in the contest but the reason for the poor response of logs submitted has been pointed out before in AR by several correspondents. That is the continuity of numbering of QSOs, whereby all are aware of how many contacts have been made by any particular station, and if that number is well ahead, then it is considered a waste of lime to send in a log. Many participants have informed me of this, year after year.

As the member's Division is entitled to hold the trophy, I would like to know if this will be sent to Queensland, and trust that remedial measures will be taken with the rules before the next Ross Hull Contest.

Harold L. Hobler VK4DO.

Editor's Note: Yes, the trophy has been sent to VK4 Division — (VK3UV). ■

10 David Street East,
Springwood 2777.
4th May, 1979.

The Editor,
Dear Sir,

I draw attention to the following extract from "THE RISE AND FALL OF THE LUFTWAFFE" by David Irving (page 214), which, I suggest, adds weight to whatever claims the Amateur Radio movement may have for consideration by the Government.

"Goering and Milch both accepted that the German electronics industry had fallen far behind that of the enemy. A basic reason was that while Britain and America had actively encouraged amateur radio enthusiasts, in Germany the amateurs had been systematically persecuted by the Reich authorities . . ."

A footnote on the same page states:—

"In March 1943 Goering stated, 'The main blame belongs to Ohnesorge (Minister of Posts) — he never wanted to relax his grip on anything. We smashed up the amateur radio ham clubs and wiped them out . . . And now we need them.' "

Yours faithfully,

R. C. Black VK2YA. ■

INTERNATIONAL NEWS

WARC 79

On special assignment, WA6IDN, IARU Assistant Secretary Bruce Johnson, is travelling in Africa for WARC preparation, meeting amateurs and talking with Government officials of many countries. His travels are being written up in QST and make interesting reading for anyone wanting to know what is being done for the amateurs and the amateur service in the less developed countries. He attended the CCIR Seminar in Nairobi during February, the Region 2 counterpart of the Sydney CCIR Seminar in early April for Region 3. He took with him for demonstrations an IARU Project Goodwill receiver kit similar to the sample recently seen in Australia.

Here Is a direct quote from the editorial in QST February 1979, commenting on the USA latest FCC proposals for WARC 79 —

"The last major disappointment Is that the Commission appears lo have ignored the comments It solicited on Its original proposal to make no changes to Article 41. It has proposed removing the "requirement" of Morse code proficiency, replacing it with a "recommendation". That may seem harmless enough to some. Unfortunately, administrations often lose control of such proposals after they are made at International conferences; subsequent discussion may so change the proposal that the original intent is subverted. For that reason, amateur societies throughout the world have urged their administrations to propose no changes in Article 41. Canada earlier made a similar proposal which was withdrawn; now the US has fallen into the same trap." ■

PROJECT ASERT

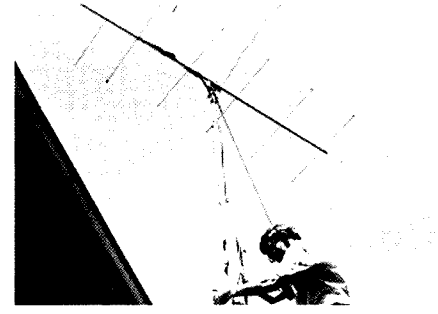
COMMITTEE PROGRESS NOTES — 17 MAY 1979

R. C. ARNOLD VK3ZBB

Although no formal meeting of the Project ASERT Committee has been held there has been considerable liaison between members of the Committee on matters of detail which continue to arise. It was also opportune for me to have a discussion with Col VK5HI during his attendance at the Federal Convention.

1. Chart records for March and April have been received from Col VK3HI and Brian VK7ZBY. Where appropriate these were sent to Ken in the USA, but since his move to Asia they have been directed to his Sydney office and will await his return.
2. A brief note from Ken when he was at the University of Utah indicates that he is well, enjoying his stay in the USA, and had received the correspondence forwarded earlier. Ken has agreed that John VK2ZXU, at Broken Hill, should monitor Japan on 50 MHz, and that Selwyn ZL2BJO, in Palmerston North should monitor Japan on 50 MHz and Sydney on 44 MHz.
3. An offer of co-operation has been received from the WIA Central Queensland Branch in Rockhampton, and we shall have to decide which, if any, paths they should monitor.
4. A new location has been found for the VK3 station; this will be on premises at Port Melbourne under the supervision of Alan VK3AL. Alan is also anxious to monitor a 432 beacon but this will probably have to be deferred until the beacons regularly audible in Melbourne have improved frequency stability. Would Brian take this matter up with VK7 Beacon Committee.
5. The most vital matter which is retarding the development of further receiving stations Is the provision of recorders. An advertisement appeared in the May edition of AR seeking recorders from members or others; to date I am not aware of any response. Meanwhile, four new recorders have been ordered from the USA on three months delivery. This significant purchase has been approved via Federal Executive.
6. Due to business and leave commitments there has been a lull In dealing with correspondence; this should improve in the near future.

Les VK3BKF and Bruce VK3ZMR check chart recordings for "Project Asert".



Les VK3BKF makes adjustment to 2 Mx Antenna.

Photos: VK3ZPA

1979 FEDERAL CONVENTION

This Convention, held in Melbourne over the weekend 28th-30th April, was attended by the Federal Councillor and Alternate Federal Councillor from each Division and all members of the Executive. Chairmen of various Federal Committees and Co-ordinators were also present, as shown in last month's WIANEWS, which provided an initial report on the proceedings.

In his opening address the Federal President said he was pleased to welcome the first Novice operator to attend a Convention as a delegate — Fred Parker VK2NFF, the VK2 President. In his response, Tim Mills VK2ZTM expressed thanks to the Federal President for the enormous amount of time expended on WARC 79 matters and said prior organisation this time was the best ever by amateurs and especially the WIA for such a Conference.

In discussions arising from annual reports the Federal President said he had attended 13 full day, 4 half day and 33 days overseas on Australian WARC 79 and other work during the year. Delegates were brought up to date on IARU and WARC 79 affairs. The IARU kit receiver, developed for use mainly in "Third World" countries, was produced and examined. Under Intruder Watch matters it was hoped that WARC 79 might produce some useful results concerning "the woodpecker", but any policy to attempt combating pollution with pollution in this case was a negative approach. It was noted that tittle had been done to date on local intruders and pirates. Mr. Michael Owen VK3KI was nominated as an additional amateur service delegate in the WARC 79 Australian delegation as it was absolutely clear that one delegate alone would not be able to attend all meetings where amateur radio matters came up and in the event of sickness during this long Conference there would be no AR representation.

The acquisition of historical material, including a very early radio film, during the year was reported. The existing videocassettes produced by John Ingham VK5KG were viewed. Some time was taken up discussing Federal Contests and Awards, and it was hoped members' reactions to AR publicity on these would provide guidelines for proposed changes; more participation in contests, especially the Ross Hull and VK/ZL contests, was required. Increased liaison and publicity by the Federal RTTY Committee appeared desirable.

EDUCATION

Under Agenda Items not covered in May AR WIANEWS it was decided to incorporate the Dick Smith $3,500 donation into an Education Resources Development Fund.

It was resolved that the Institute makes further approaches to the Department for more frequent morse (two monthly intervals) and theory/regulation (quarterly) exams and also that additional exams be conducted outside normal working hours where the need exists. The Federal Education Co-ordinator was asked to inaugurate the production of a set of educational/promotional videotape masters.

WICEN

WICEN as a trade name is to be researched. The pursuance of a policy was adopted to negotiate with the Department for State emergency authorities to authorise WICEN exercises. A review of the present membership application forms is to be carried out before the next reprint.

CHANNEL NUMBERING

Channel numbering for the 2m and 70 cm FM sections of the bands were debated in a working parly and on report back to the Convention it was resolved that a four digit number based on frequency (repeaters to be identified by output channel) be adopted.

Agenda items on matters which are policies from previous Conventions were withdrawn. It was resolved to request the IARU R1 beacon project to reserve 28.260, 28.265 and 28.270 MHz for VK beacons. Work is proceeding in the VHFAC on higher frequency band plans (e.g. 23 cm, etc.).

Proposals to create machinery for affiliation to the Federal body by Australia-wide groups/clubs by regulation were referred back to Executive for further review. Much the same occurred in relation to discussion on various proposals to update the Federal Constitution. In discussions about publicity material it was agreed a need existed for state of the art distribution/promotional leaflets. A discussion was held about the "temporarily lost" 11m band. An item to introduce an annual membership card/certificate lapsed.

It was resolved to initiate with IARU the feasibility (even long term) of seeking the introduction of an international amateur licence/certificate similar in principle to the International Driver's Licence.

Pressure is to be maintained on the Department for higher speed morse endorsements so as to qualify amateurs for overseas licences where morse speeds higher than our 10 w.p.m. are a requirement. A motion to request higher power for Novices failed: Comment was made that there was lack of sufficient background and other data. Pressure is to be applied for customs duty by-law on amateur transceivers and equipment for use on frequency bands above 2m.

GENERAL

Under general business items, a number were withdrawn at the time of debate, including one proposing that representations be made to increase the AOCP morse exam speed to 12 w.p.m. A motion proposing higher Tx powers be sought for AOCP and AOLCP operators was not supported. The 1980 Convention was set down for Melbourne on 25th-27th April.

The audited statement of Income and Expenditure for the year ended 31st December, 1978, and the audited Balance Sheet as at the same date, together with the auditor's notes forming part of the accounts are reproduced hereunder for general information, together with a copy of the Federal President's annual report.

STATEMENT OF INCOME AND EXPENDITURE FOR YEAR ENDED 31st DECEMBER, 1978

	1978	1977
Income:		
Members' Subscriptions	$81,938	$82,841
Interest Received	5,074	2,697
Surplus — Log Books	—	53
Call Books	—	3,038
Magpubs	8,426	4,230
	95,436	72,859
Expenditure:		
Amateur Radio (Note 1)	33,445	20,455
Audit Fees	489	492
Bank Charges	685	658
Convention Expenses	2,492	2,438
Catering and Entertainment	122	251
Committee Expenses	524	95
Depreciation	340	600
EDP Expenses	4,734	2,090
Electricity and Power	370	267
General Expenses	542	643
Insurances	540	495
Membership Recruiting	2,568	1,249
Postage and Freight	3,382	2,025
Provision for Amateur Satellites and Special Projects	3,000	1,000
Rent and Rates	2,230	2,137
Repairs and Maintenance	167	464
Superannuation	1,000	1,000
Stationery and Printing	4,545	1,778
Salaries and Secretarial	26,448	21,647
Telephone	884	608
Travelling Expenses	128	1,610
	$88,615	$62,002
Net Surplus	6,821	10,857
Accumulated Funds Brought Forward	26,279	14,795
Add Transfer from Reserve Fund	—	627
Accumulated Funds Carried Forward	$33,100	$26,279

BALANCE SHEET AS AT 31st DECEMBER, 1978

	1978	1977
Members' Funds:		
Accumulated Funds	$33,100	$26,279
Special Funds — ITU (Note 2)	3,062	9,521
WARC (Note 3)	10,894	9,604
WARC (Public Donations)	781	—
IARU (Note 4)	390	4,663
RWAA (Note 5)	1,153	1,100
	$49,380	$51,167
Represented by:		
Current Assets:		
Commonwealth Bank — General Account	$41,260	—
Commonwealth Savings Investment Account	25,223	22,685
Australian Savings Bonds	23,100	23,100
Australian Development Bank	2,200	2,200
Sundry Debtors — Less Provision for Doubtful Debts	14,572	26,364
	(2,000)	(2,000)
Stock on Hand — at Cost	4,278	8,254
	108,631	78,603
Non-Current Assets:		
Furniture and Fittings —at Cost	1,955	1,697
Less Provision for Depreciation	(340)	—
	110,586	80,300
Deduct:		
Current Liabilities:		
Commonwealth Bank — General Account	—	5,182
Sundry Creditors	2,468	4,526
Subscriptions in Advance	42,437	11,325
Provision for Superannuation	4,652	3,424
Provision for Amateur Satellites and Special Projects	4,349	1,613
Provision for Holiday and Long Service Leave	3,500	2,763
Deposit VK4	300	300
Dick Smith Education Donation	3,500	—
	61,206	29,133
	$49,380	$51,167

NOTES TO AND FORMING PART OF THE ACCOUNTS

AMATEUR RADIO (Note 1)

		1978	1977
Income:			
Advertising		$37,756	$25,860
Subscriptions		1,175	2,274
AR Sales		1,567	1,139
Inserts and Sundries		4,346	1,257
		44,844	30,530
Expenditure:			
Awards	$90		$90
Bad Debts	—		280
Honorariums	4,540		3,810
Postage	10,099		6,827
Publishing, Printing and Distribution Costs	54,919		35,287
Salaries	7,778		3,666
Travelling Expenses	863		1,025
		78,289	50,985

Excess Expenditure Transferred to General Account Representing Cost of AR to Members	$33,445	$20,455
ITU FUND (Note 2)		
Balance at 1st January, 1978		$9,521
Add Interest Received		982
		10,503
Less Payments		7,441
		$3,062
WARC FUND (Note 3)		
Balance at 1st January, 1978 (Levied on Divisions 1977)		$9,604
Add Interest Received		717
Members' Donations		573
		$10,894
IARU FUND (Note 4)		
Balance at 1st January, 1978		$4,663
Add Members' Contributions		1,338
		6,001
Less Payments		5,611
		$390
RON WILKINSON ACHIEVEMENT AWARD (Note 5)		
Balance at 1st January, 1978		$1,100
Add Interest		103
		1,203
Less Award Payment		50
		$1,153
FUND PAYMENT SUMMARIES		
IARU Fund:		
Share IWG		$1,666
Dues		804
Bangkok		2,188
New Zealand		953
		$5,611
ITU Fund:		
Publications		$104
Share IWG		1,665
CCIR/SPM Geneva 1		4,582
Circular Appeal		1,090
		$7,441

AUDITORS' REPORT TO THE MEMBERS OF THE WIRELESS INSTITUTE OF AUSTRALIA

1. In our opinion the attached accounts give a true and fair view of the state of the Institute's affairs at 31st December, 1978, and of its surplus for the year ended on that date.

2. As required by the Companies Act 1961, we report as follows:
In our opinion:

(a) The attached accounts are properly drawn up
  (1) so as to give a true and fair view of the matters required by Section 162 to be dealt with in the accounts; and
  (2) in accordance with provisions of that Act.

(b) The accounting records and other records, and the registers required by the Act to be kept by the Company have been properly kept in accordance with the provisions of that Act.

HEBARD & GUNNING, Chartered Accountants.

Melbourne (Sgd.) P. W. HEBARD
3rd April, 1979. Partner

WIRELESS INSTITUTE OF AUSTRALIA EXECUTIVE — ANNUAL REPORT 1978-79

1. Throughout the year, as in the past, we have tried to keep you informed on Federal WIA matters by means of WIANEWS and the Federal tapes.

2. The Executive for the year 1978-79 was elected as follows:
David Wardlaw VK3ADW, President and Chairman.
Peter Wolfenden VK3ZPA, Executive Vice-Chairman and Chairman VHF/UHF Advisory Committee.
Keith Rogel VK3YQ, Hon. Treasurer and Chairman Finance Sub-Committee.
Ken Seddon VK3ACS, Chairman, Federal Repeater Sub-Committee.
Graeme Scott VK3ZR, Federal Education Co-ordinator.
John Bennett VK3ZA, Nominal Editor.

3. During the year, Keith Roget VK3YQ was transferred overseas on business. This left us with a vacancy which we are still having great difficulty in filling, although Mr. Roper agreed to act for a time as shown below.

4. Keith is one of those dedicated members whose hard work has had much to do with the success of the WIA over many years. It is pleasing to report he has been made an Honorary Life Member of the Victorian Division in recognition of his many years of service.

5. To the date of writing we have not secured a permanent replacement for Keith despite discussions with and appeals to many members.

6. At the present Bill Roper has been co-opted into Keith's place on Executive.

7. Luckily, the Executive office has, with the aid of some outside accounting help, been able to see the year out successfully on the bookkeeping side.

8. Bruce Bathols VK3UV, as Managing Editor of "Amateur Radio" and Chairman of the Publications Committee, has maintained close liaison with the Executive by attending as many meetings as possible.

9. No report on the personnel of the Executive would be complete without mention of our hard-working Secretary/Manager, Peter Dodd VK3CIF, for his loyal and tireless efforts throughout the year.

10. Fourteen (14) meetings of the Executive were held since the 1978 Federal Convention. Attendances were as follows:

Dr. D. Wardlaw	14
Mr. P. Wolfenden	13
Mr. K. C. Seddon	12
Mr. G. F. Scott	10
Lt.-Col. J. Bennett	6
Mr. K. V. Roget	4
Mr. W. E. J. Roper	2
Mr. G. Scott	1
The following also attended:	
Mr. B. Bathols	13
VK2ZZC	1
VK3FJ	1
VK3YJK	1
VK3TR	1
VK3YII	1
VK3AED	1
VK3ZVG	1
P. B. Dodd	14

GROWTH

12. It is very pleasing to report that there has been a 23 per cent increase in membership during the 1978 financial year. Naturally this increase has an impact on the office and at present a number of aspects of the office are being reviewed. This is being done in conjunction with a review of matters concerning Amateur Radio magazine.

IARU

13. The fourth IARU Region 3 Association Conference was held in Bangkok from 7th to 9th October. Nine Regional Societies were present. The WIA was represented by David Wardlaw VK3ADW and Peter Wolfenden VK3ZPA. Michael Owen VK3KI, the overseas Liaison Officer, was also there in his capacity as a Director of the Region 3 Association.

14. Considerable time was devoted to discussions on many aspects of WARC matters, including preparation and representation. A policy not to seek a change in Article 41 of the ITU Radio Regulations was confirmed.

15. Considerable interest was shown in WIA Project Asert. The WIA, as authorised, pledged an additional $1,000 to help meet the expenses of the members of the IARU observer team — JA1NET and 9V1RH — at WARC 79. JARL and PARA also pledged additional funds. Michael Owen VK3KI was re-elected as a Director, David Rankin 9V1RH was re-appointed Secretary. There is still no position of Chairman of the Region.

16. The next Conference of the Region 3 Association will be held in Manila in 1982.

17. The WIA donated $250 through the Region 3 Association to the Training Project on Electronics and Amateur Radio held in Colombo. This IARU/DARC Project was also sponsored by the Governments of Sri Lanka and the Federal Republic of Germany.

18. Throughout the year the WARC Newsletters from IARU HO have kept us informed of WARC preparations in many countries.

WARC

19. As Chairman of Committee 2 (Amateur, Amateur Satellite) the President of the Institute is extensively involved in Australia's preparations for WARC 79. During 1978 there were two main streams of preparation.

20. Firstly, those involved with the Special Preparatory Meeting of the International Radio Consultative Committee (CCIR) of the ITU. At the last Federal Convention the offer by the Australian Administration to include an amateur in their delegation to the SPM was accepted. Due to constraints of available time it was proposed that David Wardlaw VK3ADW would be able to attend the first half of the Conference and Michael Owen the second half. This in turn was acceptable to the Administration. The Convention budgetted accordingly.

21. At this stage the draft new question "Preferred Frequency Bands in the Amateur Service" before Study Group 8 was adopted. It was suggested that Australia should present a paper on this subject at the SPM. This meant a lot of hard work by a number of members, particularly Jack O'Shannassy VK3SP and Earle Russell VK3BER, co-ordinated by Michael Owen VK3KI. When the results are looked at I think the effort was well worthwhile.

22. The report of the CCIR will be used as a technical basis for WARC 79.

23. In Sydney there was an ITU Regional Seminar to discuss the results of the SPM at which the WIA represented the IARU.

24. Secondly, those involved in the preparation of Australia's submissions for the work of the Conference, particularly with relation to the frequency Table Article 5. As WARC approaches, the meetings are becoming more frequent, particularly as other Administrations' firm proposals are received.

25. Australia has supported the new HF bands for the Amateur Service and also additional bands for the Amateur Satellite Service.

VISIT TO NEW ZEALAND

26. The Federal President, David Wardlaw VK3ADW, and Overseas Liaison Officer, Michael Owen VK3KI, on the invitation of the NZART, attended their Annual Conference in June 1978.

27. This allowed some frank discussion on WARC and IARU matters, particularly with respect to the future of IARU after WARC 79. It was obvious that many of our problems are the same as those across the Tasman. It was also interesting to observe the method of operation of the Conference.

28. The Managing Editor of Amateur Radio, Bruce Bathols, attended the 1978 Tasmanian Amateur Radio Convention in Hobart in November 1978.

29. During the year the Federal President has had the opportunity to meet the Minister for Post and Telecommunications on a number of occasions, one meeting being specifically to discuss TV Channel 5A.

30. Since the last Convention a Joint Committee of personnel from the Central Office of the Radio Frequency Management Division of the P. and T. Department and members of the Executive of the WIA has been set up. This Committee has met on a number of occasions and covered a wide range of topics. Brief notes of the proceedings of each meeting were circulated to Federal Councillors.

TV CHANNEL 5A

31. The thorny problem of Channel 5A again raised its ugly head during the year. For many years the WIA has been campaigning against this Channel (non-standard internationally). When the suggestion was made in the Melbourne Press that 5A could be used for ethnic TV, the President immediately wrote to the Minister for Post and

Telecommunications, the Hon. A. A. Staley, and followed this up with a personal interview. At this meeting the problem of a TV Channel adjacent to an amateur band was explained and some documentation of tests carried out on TV receivers was handed over.

32. At the same time all amateurs were urged to put the case to their Member of Parliament. Follow-up contact was made with the Minister.

33. At the Queensland Division Convention the Federal Member for Bowman, Mr. David Jull, said "The decision for Channel 5A to be used in metropolitan areas has been completely shelved and won't happen — furthermore, an investigation is now under way by the Department to eliminate those areas that are using Channel 5A for translator facilities in some country TV areas."

34. On 20th September the Minister announced special broadcasting services for the ethnic community would be on UHF.

35. A technical submission on the problems of the use of Channel 5A has been presented to the Minister.

36. It is interesting to note that in the Australian proposals for the work of WARC 79 it is proposed to modify Footnote 279A to read:

> "In Australia the band 137 — 144 MHz is also allocated to the Broadcasting Service for Television UNTIL THAT SERVICE CAN BE ACCOMMODATED WITHIN THE REGIONAL BROADCASTING ALLOCATION."

TABLE 1 (Previous year in brackets) at 31-12-78

	Total Licences		WIA Licensees		% members to total licensees	Other WIA members		Total WIA members	
VK1	229	(187)	123	(103)	53	53	(37)	176	(140)
VK2	3633	(2935)	1530	(1199)	42	243	(241)	1773	(1440)
VK3	2941	(2407)	1417	(1200)	48	442	(414)	1859	(1614)
VK4	1334	(1018)	757	(606)	56	209	(150)	966	(756)
VK5/8	1296	(999)	690	(560)	53	265	(213)	955	(773)
VK6	807	(642)	409	(342)	50	111	(94)	520	(436)
VK7	328	(275)	212	(161)	64	75	(67)	287	(228)
Other	19	(20)	—	—	—	—	—	—	—
Totals	10587	(8483)	5138	(4171)	48	1398	(1216)	6536	(5387)

TABLE 2. Total Licences — by Grades

	Full	Limited	Novice	Total
VK1	157	43	29	229
VK2	2006	897	730	3633
VK3	1506	980	455	2941
VK4	639	391	304	1334
VK5/8	667	321	308	1296
VK6	452	207	148	807
VK7	184	94	50	328
Others				19
Totals	5611	2933	2024	10587

TABLE 3. WIA Members by Grades

	F	A	C	T	S	G	L	X	Total
VK1	119	53	2	—	—	—	2	—	176
VK2	1072	188	302	28	48	116	11	8	1773
VK3	968	326	318	41	63	115	15	13	1859
VK4	361	100	329	92	9	47	4	24	966
VK5$/	441	201	184	23	27	52	4	23	955
VK6	302	65	70	35	9	32	4	3	520
VK7	177	61	20	7	6	9	5	2	287
	3440	994	1225	226	162	371	45	73	6536

EDUCATION

37. An Educational Co-ordinator's Sub-Committee has held two meetings in Melbourne during the year. These were both attended by interstate representatives. Also, the Co-ordinator, Graeme Scott, has been in constant contact with the Examination Section of the Department. A Bank of 600 Novice questions was presented to the Department. This Bank was the combined work of a number of members. But thanks must go to John Kolm VK3YJK, for the work he did in preparing the cards. The Novice Morse exam seems to be able to generate endless comment with differing opinions from all corners of the Commonwealth.

38. The main subject of concern to the Education Co-ordinator is the AOCP Syllabus, particularly with the intention to go to multiple choice type questions to speed up marking. Distinct progress is being made and the Department has been very co-operative.

39. Dick Smith has donated $3,500, the proceeds of the auction of equipment, to the Federal body of the WIA for educational purposes. At the moment no disbursements have been made as the path of most effective use has not been finalised.

HANDBOOK FOR OPERATORS OF RADIO STATIONS IN THE AMATEUR SERVICE

40. At the Joint Meeting with the Department on 22nd August, in answer to a WIA question, it was stated that there was no staff available to proceed with any work on the Handbook. No comment was forthcoming on the matters concerning the Handbook amongst other things in our early August 1977 letter (page 20 AR, September 1977). During October we were informed that a person had become available in the Department and that he was drafting a revision of the Handobok.

41. A draft was shown to the Federal President and Secretary two days before the President left for the SPM in Geneva.

42. There were a number of aspects that it was considered the WIA could not agree with. As it was stated that it was hoped to have a final draft in December, we felt that this gave the Institute insufficient time, particularly in view of the statement made at the August meeting with the Department. A letter calling for a three month hold was dispatched immediately. Also urgent comments were called for from the Federal Councillors.

43. The Federal Secretary, in view of the pressure put on the WIA, produced comment on the Departmental draft based on existing Institute policies. WIA also produced its own draft based on the old Handbook and Departmental draft (Novice area, etc.). This was discussed at the November 22 meeting with the Department.

44. A further draft marked "Not for Publication" was shown to us, some of the aspects that were objected to by the WIA having been removed.

45. At the February Joint Meeting with the Department it was stated that now only minor edits could be done. It was explained that this new edition will obviously need to be revised after the new Act and associated regulations and WARC 79.

46. One worrying aspect is that much of the WIA submissions on the Handbook forwarded to the Department over a number of years appears to have been overlooked or mislaid.

WARC FINANCE

47. As instructed by the Federal Council, a letter was sent to all non-member amateurs soliciting their contributions to WARC funds. The response barely covered the cost involved although we have gained some new members.

48. Contributions were also sought from the commercial advertisers in Amateur Radio with quite a satisfactory result. Also many Radio Clubs are making substantial donations and these are also very greatly appreciated.

PUBLICITY AND RECRUITING

49. We have maintained our advertising in ARA and CBA throughout the year at a not insignificant cost. However there seems to be a constant stream of replies to these advertisements. In order to help with displays, a number of sets of coloured posters depicting amateur radio have been prepared. Unfortunately due to their cost they are not disposable.

VIDEOTAPES

50. Due to the importance of Videotape as a visual publicity and educational media, it was decided to appoint John Ingham VK5KG as Federal Videotape Co-ordinator to handle our growing library of videotapes.

STANDARDS ASSOCIATION OF AUSTRALIA COMMITTEE 14/4. SITING OF RADIO COMMUNICATIONS EQUIPMENT

51. The WIA was represented at the inaugural meeting by Ken Seddon VK3ACS, who reported the standard is not intended to apply to radio amateurs and the general opinion was it could not be applied to amateurs. The WIA will continue to be represented.

PROJECT ASERT (Amateur Service Experiment In Radio Transmission).

52. Following a proposal by Ken McCracken VK2CAX that amateurs should become involved in a systematic investigation of VHF/UHF propagation modes, the Executive, on the advice of the VHF/UHF Advisory Committee, decided to sponsor the project.

SCIENTIFIC GOALS

53. It is proposed that the Amateur Service should conduct an experiment with the following goals:

(1) To provide a set of unbiased statistics and a definition of the morphology of VHF/UHF transmissions over the Australian continent and to conjugate with other points in the Northern Hemisphere.

(2) To distinguish between the several propagation modes and to relate them to other observable parameters.

AMATEUR RADIO

54. The current high standard is being maintained by the Publications Committee under the able leadership of Bruce Bathols VK3UV. Bruce has indicated his intention of giving up his present position at the end of the year. As a consequence, a number of possibilities have been investigated by the Executive. At the forthcoming Convention it is hoped to be able to support the discussions on the various alternatives with as much as possible

that can be obtained in the way of factual figures. Of course, any discussion on the future of Amateur Radio is very much tied to discussions on the future role of the office.

AMATEUR ADVISORY COMMITTEE SYSTEM

55. At the February Joint Meeting with the Department it was agreed that the aims and objects should be re-stated and that the P. and T. Department would re-draft the necessary memorandum for mutual discussion.

56. The Federal Repeater Sub-Committee Chairman reports that, although he had all but reached agreement with the Department in November, the Repeater conditions as proposed in the Draft Amateur Operator's Handbook generally appear to have ignored the discussions between the Department and the Executive over the past couple of years.

WICEN

57. At the same time as there was a change in the Federal WICEN Co-ordinator, there was also a change in the Director-General of NDO. However, the new Director-General, Rear-Admiral R. C. Swan, has been briefed on WICEN matters by Ron Henderson VK1RN, the new Federal WICEN Co-ordinator.

58. Further DX records on VHF and UHF were recorded during the year.

EDP

59. No opportunity has arisen to re-examine the accounting package in our computer programmes.

MAILING SERVICE

60. A disastrous fire at Automail in late July destroyed our stocks of envelopes on hand as well as causing problems with current papers awaiting August AR.

CALL BOOK 1979

61. Work is proceeding on this. Input of non-members' data from P. and T. Department records has been accelerated thanks to great co-operation by the official involved.

MEMBERSHIP STATISTICS

62. These are compiled on the same basis as for previous years. It should be noted, however, that the Departmental totals means licences issued, whereas the Institute's statistics refer to number of members. With many people now holding both a limited and a novice call there will obviously be more licences than actual people.

63. In conclusion, I would like to thank all those Federal officers and Committee members who have worked so hard for the Institute, and it is heartening to see the growth in membership, particularly as WARC 79 approaches.

DAVID WARDLAW, Federal President ■

DIVISIONAL NOTES

VK2

The VK2 Division has approval pending for the operation of Australia's first 10m beacon. While this has been listed for some time as operational, there have been delays in licensing. It is some years since the concept of 10m beacons in Australia was developed, there is now some lessening of the need with the increasing activity in this band. It is now likely that three 10m beacons will be developed for Australia. The first will be located at VK2WI Dural and the others could be in North Queensland and Western Australia. The frequency block will be 28.260, 28.265 and 26.270 MHz.

VK2 Division Council has approved the establishment of 70 and 23 cm beacons at Dural. The equipment will also serve as broadcast programme outlets.

In order to encourage 70 cm development Council has approved the establishment of a second repeater on this band, which will be located at Dural. The first is located at Paddington, which is still to change frequency to the band plan. Both repeaters will use the 5 MHz separation system.

ATV broadcasts will be re-commenced after a couple of years break. Signals will originate from Paddington on ATV Ch. 2 (442 MHz) and relayed by the Central Coast repeater on ATV Ch. 1 (426 MHz). In the near future it is expected that the Division's ATV repeater, to be located in the eastern Blue Mountains, will be operational for both experimental and broadcast use. Frequency is 50 cm which is ch. 33 on a UHF TV set.

Mt. Bindo channel 1 repeater VK2RDX of St. George ARS was vandalised some time about 8th June.

VK3

On Sunday, 25th February, 12 members of the THUGS Radio Club tackled the job of sorting the Vic. Division's library, which has been stored in tea chests for some five years.

After about 10 hours work library shelves were stacked with books and magazines dating from 1928 to 1978.

On behalf of the Council and members of the WIA Vic. Division, Mike VK3WW, the Divisional librarian, would like to thank all the willing workers who gave so generously of their time and effort to complete this difficult task.

Mike VK3WW and Ann VK3YOF survey the results of the day's work.

The N suffix call signs having been allocated the new Novice series for Victoria with V suffixes are being issued.

VK6 — OFFICE-BEARERS 1979

President, Mr. Ross Greenaway VK5DA; Secretary, Mr. Peter Savage VK6NCP; Treasurer, Mr. Bruce Jacobs VK6ZAT; Federal Councillor, Mr. Neil Penfold VK6NE; Alternate Federal Councillor, Mr. Peter Savage VK6NCP; Assistant Secretary, Mr. Bruce Hedland Thomas VK6OO; Councillor, Mr. Alyn Maschette VK6ZGA.

Officers appointed: VK6RP, Membership; VK6UN, Enquiries; VK6DV, Publications; VK6NK, Contest Manager; VK6NAG, Awards Manager; VK6ZAT, AR Sub-Editor; VK6WT, Intruder Watch; VK6JK and VK6HA, Auditors; VK6LQ, Programme Organiser; VK6IF, Broadcast Co-ordinator; VK6RU, QSL Manager; VK6CR, Slow Morse Co-ordinator; VK6OO, Education Officer, assisted by VK6UI and VK6DA.

Positions of Technical Officer and Social Organiser still vacant.

Our thanks to the retiring officers VK6AN, VK6CU, VK6JY.

Information via Bruce Jacobs VK6ZAT. ■

QSP

EMERGENCY TRAFFIC RE-BROADCASTS

The FCC, according to Ham Radio, April 1979, decided that amateur transmissions of emergency information cannot be re-broadcast by commercial broadcast stations.

RTTY IDENT.

The FCC turned down a petition that stations operating on RTTY be permitted to identify by RTTY instead of CW as now required.—Ham Radio, April 1979. ■

SUPPORT OUR ADVERTISERS

VHF-UHF

An expanding world

Eric Jamieson,
VK5LP

AMATEUR BAND BEACONS

Freq.	Call Sign	Location
50.001	WA6MHZ	San Diego
50.004	PY1RO	Brazil
50.010	HL9TG	Seoul *
50.023	HH2PR	Haiti
50.025	6Y5RC	Jamaica
50.030	KL7CDG	Alaska
50.030	ZS6PW	South Africa *
50.035	ZB2VHF	Gibraltar
50.050	WA1ENX	Maine *
50.050	ZS6LN	South Africa *
50.075	HK3/4	Columbia **
50.080	TI2NA	Costa Rica
50.088	VE1SIX	New Brunswick
50.091	WA6JRA	Los Angeles *
50.093	WA8FTA	Michigan *
50.092	W7KMA	Oregon*
50.098	K7IHZ	Arizona *
50.100	ZS6HVB	South Africa *
50.101	FO8DR	Tahiti *
50.104	KH6EQI	Pearl Harbour
50.110	KG6JIH	Guam *
50.110	JD1YAA	Marcus Island *
50.110	KH6HK	Marshall Islands *
50.110	KG6RO	Saipan *
50.110	AL7C	Alaska *
50.500	5B4CY	Cyprus
51.999	YJ8PV	New Caledonia
52.100	VK0BC	Casey Base †
52.200	VK8VF	Darwin
52.300	VK6RTV	Perth
52.350	VK6RTU	Kalgoorlie
52.400	VK7RNT	Launceston
52.450	VK2WI	Sydney
52.500	3D2AA	Fiji ***
52.500	JA2IGY	Nagoya
52.500	ZL2VHM	Palmerston North
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
52.900	VK6RTT	Carnarvon
53.000	VK5VF	Mt. Lofty
53.100	VK0MA	Mawson ***
144.010	VK2WI	Sydney
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144.700	VK3RTG	Vermont
144.800	VK5VF	Mt. Lofty
144 900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
145.100	ZL1VHF	Auckland
145.150	ZL1VHW	Waikato
145.200	ZL2VHF	Wellington
145.250	ZL2VHP	Palmerston North
145.300	ZL3VHF	Christchurch
145.400	ZL4VHF	Dunedin
432.400	VK4RBB	Brisbane
432.450	VK3RPX	Ballarat
432.475	VK7RTW	Ulverstone

* Denotes these beacons operate on an attended basis, i.e. operator in shack.

** Repeater station, output on 50.075, input 50.125 FM.

*** 3D2AA and VK0MA are doubtful. Awaiting some confirmation or will be removed from August list.

† No receiver available yet at this base.

A number of new attended operation beacons have been added this time, but there are probably plenty of other such stations too.

VHF FROM EUROPE

A copy of a letter has come to me from a source unknown which gives some interesting background to the VHF scene in Europe and nearby areas, and is generally relevant to 6 metre operation, so you may be interested.

"The England Ch. F2 sound frequency is 41.25 MHz and is commonly received over vast distances now with increasing MUF, it's quite common in South Africa and of late has been noted in Australia. There are four main transmitters on Ch. F2 and the ERP of the sound transmitter is quoted: Troyes 62 kW, zero offset; Limoges 50 kW zero; Caen 12.5 kW zero; Bastia (Corsica) 2.5 kW —20 kHz.

"BBC-1 Ch. B1 has a sound frequency of 41.5 MHz, video 45 MHz. There are 7 higher powered transmitters, video ERP is quoted (sound being 25 per cent of this figure) and details of the sound offset is given as either zero, + or — Crystal Palace 200 kW zero; Ashkirk 18 kW +16.8 kHz; Divis (NI) 12 kW zero; Redruth 10kW —20 kHz; Thrumster 7 kW zero; Llanddona 5.7 kW —16.8 kHz; Llandrindod Wells 1.3 kW +16.8 kHz.

"The next main frequency of note is Ch. E2 video carrier and Ch. B2 sound carrier at 48.25 MHz. Holme Moss 10 kW zero; Fosemarkie 20 kW —20 kHz; North Hessory Tor 14 kW —20 kHz. These are video ERP, sound 25 per cent. On the same frequency is RTVE Spain 250 kW; Portugal 40 kW —6 kHz; BBC-1 Ch. B2 video on 51.75. Italian Ch. 1A video 53.750 with three transmitters to 35 kW. Ch. E3 video 55.25 MHz carries a vast number of transmitters, the most probable one being Canary Islands operated by RTVE in Spain live via Intelsat 4a satellite, running 350 kW. On 53.750 there is a Ch. B in Eire with 80 kW +6 kHz. Eastern Europe use video carriers on 49.750 MHz.

"China has a sound carrier on 56.250, Africa uses E2 on 48.25 with 20 kW from Rhodesia; Nigeria E3 on 55.25. French video carrier is on 52.400 MHz! In the Middle East E2 is used by Dubai and Iran. There are no police or similar transmissions in Europe between 30 and 50 MHz. South Africa uses various frequencies around 40 to 43 MHz for mobiles, while the Rhodesian Army uses 45 MHz for communications."

So there is some fresh information to put on your check list for possible areas to hear. With Europe in general not having a 50 MHz allocation you won't be able to do much about working stations there, except perhaps Gibraltar. But good luck, you never know what you might hear. But please, no wildcat reports about unconfirmed hearings now you have these frequencies to go by, video will be virtually impossible to identify, remember, England uses 405 lines, France and Russia 819 lines and Western and Eastern Europe 625 lines. If you hear unidentified sound carriers, put the information on tape for future identifications, together with the date and time and frequency.

THE SIX METRE SCENE

David VK5KK has filled in the period 24-4 to 22-5 as follows, with later information at the end.

"We are now seeing the tail end of the equinoxial DX season but still a few surprises in store for those who keep operating. 24-4: 2320Z onwards KH6NS 5 x 7, KG6JDX to S9 till 0100Z to VK2, 3, and 5. KH6EQI repeaking from 0245Z till 0330Z to VK5. Best S6. 25-4: JA opening to VK2 and 5, etc., predominantly JA8 areas but others except 4 and 6. Time 0530 to 0630Z. From 0830Z auroral propagation evident in VK3 and 7 but very little to VK2 and 5. All signals from VK5 disapepared by 1100Z. Nowhere near as good as the September 1978 opening to 34 degree mark. 26-4: Saw one of the best all round DX days in April. KH6IAA KH6NS from 2230Z. KH6EOI gone by 0330Z. HL9TG from 0100 to 0900Z almost continuously to all States, peaking to S9++ at times! KG6JKS from 0200 to 0230Z to VK5 at least. Enormous backscatter (F layer and not E) between VK2, 5 and 6, resulting in a transcontinental backscatter contact between VK6WD and VK2BQJ with VK5KK in the middle with 5 x 9 in each direction. Also VK3 stations evident but at a lower level. When contact transpired (0300 to 0330Z) no VK3s could be heard otherwise it could have been a very interesting four State hookup! This must surely rank as one of the best backscatter distances in VK on six to date. All beam headings seemed to point to an area around east P29. Heard amongst the backscatter were VK6WD, VK6BV, VK6OX, VK5ZBU, VK5ARZ, VK5KK, VK2BQJ, VK2ASZ and VK8GF, plus others. And of course JA at the same time! They were in from 0000 to 1410Z with signals dropping to S2 around 0830 to 1200Z to VK2 and 5, etc. With signals to VK3 and 7 as well but on a slightly more restricted time basis but still 5 x 9. VK2BQJ for one worked over 200 JAs, with like totals in VK3, 5, 6 and 7. It's no wonder the band hasn't recovered since! Also heard on 26-4 was FO8DR in VK2, 3, 4 and 5 on about 50.105 running a beacon to S9 around 2230Z. JAs working KX6BU Marshall Islands from 0300Z on 52.055 MHz! Later JAs worked ZK1AA and FO8DR on 50 MHz. To top it off, Es opening to VK2 and 4 from VK3 and 5, with VK2BQJ, etc., from 1100 to 1200Z.

"Es (or not Es), no question about it on 27-4 yet another in a series of Es openings, this time to VK2 from 0200 to 0400Z. Also VK4RO around 0200Z. JAs on 52 around 0330Z but not strong to VK5. 28-4: JA lower areas 5 x 7 from 0500 to 0600Z on 52 MHz to VK5. From 1130 to 1400Z Es to VK2 and 4 with 5 x 9 signals to VK5. One interesting contact was with VK2ZDI/P on 52.045. Jack (ex WA9AHZ) was running an IC502 inside a hotel room on the 22nd storey! Signals 5 x 2, not bad for April. Although unrelated, at around 1430Z VK5LP and VK5KK worked VK3ATN on 432.1 MHz SSB with signals to S9. Interesting tropo signals as VK5SV also worked VK3ATN on 144.090. No other stations heard although it was nearly 2 a.m. before everybody signed! Also tropo conditions to VK3ATN on 52 MHz. 29-4: W6XJ worked crossband to VK5KK, 50.025 to 28 MHz (no signals above 50 MHz although signals steady 519 from 0135 to 0158Z. Closest since W4NVV crossband on 12-4 (50 to 52 MHz). JAs around 0500Z but not strong.

INDONESIA WORKED ON SIX

"On 30-4 more DX. Several meteor extended "pings" on 52.055 from W6XJ, 2350Z. KG6DX 5 x 9 around 0030Z also to about 0110Z. At 0156 on 52.050 MHz YBOX (portable DXpedition to Indonesia) worked by VK5KK 519 on CW. Also at 0204Z SSB contact at 5 x 2. Signals from YBOX substantially stronger on 50.110 at this time. Heard by VK5LP at 0200Z 419 CW and on SSB at 0204Z but too weak for contact. It was also heard on the bands the following day that VK3OT had worked YBOX prior to the VK5KK contact, but we are unable to confirm this at present, although awaiting information from overseas. However, these contacts would be amongst the first made during the first 24 hours of operation of YBOX, who later worked VK8GB and VK4RO at least, probably others.

BAND NEVER CLOSES IN VK8

"Next few days saw a reduction in openings to the southern States from JA, etc. However in VK4 and VK8 (doesn't the band ever close there?) things still going strong. JA to VK5 on 2-5 and 35- around 0500 to 0600Z. 9N1BMK to VK4GB, VK8VV and VK8DI on 2-5. More on 9N1BMK exploits later. 3-5: Two K5s heard in QSO on 50.125 SSB at 0031Z, signals lasted 150 seconds peaking to S5. At 0230Z VK8GB hearing W5 for quite some time. 4-5: VK8GB heard W6 on 50 MHz from 0300Z while VK8VV heard a W0 on 50.105 at 0345Z. Very good Es in USA at the time. JA to VK5, etc., around the magical 0500 to 0600Z on 6-5 and 7-5. And more. VK8VV worked KA5CEB on 52.005 at 0050Z on 5-5. Also W6XJ worked VK8GB, VK8VV and VK8DI around 0156Z on 52 MHz. And more SSB heard on 50.109 peaking 75 degrees at 2345Z, about 5 x 1. Call sign only partly copied (WA6T?). Would you believe it seems these little blurts were more common in early May than during the early parts of April, to here. 6-5: Es to VK2 from 2300 to 2330Z.

"Since then odd patchy JA and VK DX. Best days 6-5 (lower areas 5 x 5 for one hour), 20-5 and 22-5 for JA DX, no later than 0630Z on 52 MHz. Es on 20-5 with VK4ZAZ/M, VK4ZWH, etc., to VK5ZZZ, VK5KK and VK5LP. It seems also that JAs have quietened in most parts of VK4 as well. Band open from 0330 to 0500Z with Ch. 0 from 0000Z. Also VK2WI beacon appears quite regularly for a period between 2200 and 2300Z between S1 and S5. So far for one third of May the beacon has been audible for good periods outside the usual meteor scatter position. Also to hand is that VK4RO and at least one other VK4 have been successful in working KX6BU and 52 MHz but no details.

WHAT GOES ON AROUND US

"YBOX DXpedition was an outstanding success with something like 2000 QSOs logged. Most were with JAs to say the least! Also HL9TG, H44PT and H44DX, KH6IAA at least worked also. YBOX heard W6 on 5-5 around 0800Z (also open W6 to VK8). Many openings between VK8/H44/YBOX. Three active H44s during this period . . . H44DX, H44PT and VK4ZZI/H44. 5-5: KG6 to W6, also YJ8PV strong in W6 at 0400Z.

"9N1BMK was worked by VK8GB, VK8VV and VK8DI also by JAs on 3-5 (JA4, JA6, plus Okinawa) around 1500Z. Only weak scatter signals in JA4. Conditions Es from JA to 9N1. H44PT to 9N1BMK on 3-5 (night time). KA6HF to 9N1MBK, K9PNT/DU2 also to 9N1BMK. CR9AJ is still active but only at odd times and very hard to catch. VQ9KK (pirate JA!) worked on one very early morning, in JA1. Pity it wasn't the real thing!

"Marshall Islands has two sources of activity now. Firstly KX6BU . . . take your pick, Andy, Ed or Roger . . . runs a Swan 250 to a dipole. A beam is on the way. WA5CXE/KH6 runs 10 watts into a dipole. Best DX (numbers) is JA. And how about tropo on 432 MHz? KH6HME runs a beacon on 432.075 MHz 24 hours a day, mostly beaming on W6! Elevation 8000 feet a.s.l. Back to six metres. A W6 heard JA7s at 0200Z on 4-5 by some form of propagation (Es?). And on 9-5 ZS6LN worked 5B4AZ on 6 metres, a real north-south path.

"VU2RM, from the Eastern Coast of India, is active on six metres. At the moment it seems he has a spot allocation on 50.150 MHz, although mention has been made of a segment between 52.5 and 52.75 MHz being available. Working to JA from 8-5 between 0800 and 0930Z. Mode is CW. Also unconfirmed report that VU2RM has been heard in VK8. Location is about halfway up the eastern coast. So far this station seems to be OK, not one of those JA pirates. While on that, VK3OT said he heard VO9KK around 1100Z one night in April, so those pirates get about!

THE 50 MHz DEAL

"Finally, like to know how VK and ZL are about the only places of any consequence really left who don't have a temporary or otherwise allocation on 50 MHz for the present cycle 21. Really, in some places like VK5, 6 and 8, we hardly see much of Ch. 0 for 10 months of the year. In VK6 especially that might apply for 355 days out of 365, going on last year's Es. Even on those days the band probably wasn't open anywhere else so the need wouldn't be there for 50 MHz on those days. The greatest resistance to a 50 MHz allocation is apparently in the Broadcasting Service itself.

"Also, from SMIRK comes a useful reminder. For the purpose of awards, QSL cards marked without specific frequencies (i.e. 6 metres) will not be accepted. And those specific frequencies should be 52 . . ., etc., otherwise don't worry about trying. It is just a simple interpretation of SMIRK rules . . . basically contacts must be made within the restrictions of one's licence and proof thereof must be established. And that applies to both ends of the 50 to 54 MHz band too, so the US and other areas won't be any better off. It's one way of getting a more obvious little problem squelched!" Thanks, David, for your supply of information.

A WARNING FROM SMIRK

Whilst we are on the subject raised in the last paragraph of David VK5KK's news above, perhaps it is relevant to include what the SMIRK Newsletter No. 20, dated 5-5-79, has to say on the matter, and I quote:

"On the subject of DX, there is a practice that is getting out of hand. I (K5ZMS) would like to remind all operators, world-wide, that to my knowledge there has been NO changes to VK frequency allocations yet. Their band is 52 to 54 MHz. There should be NO contacts occurring with VKs operating below 52 MHz or ZLs operating below 51 MHz. Any contact made outside their authorised band limitations cannot be considered a valid contact or be accepted toward an SMIRK seal or award, like DXDC. I have notified WA1KYH not to accept any VK/ZL cards for DXDC that do not reflect the 52 MHz frequency for VKs or 51-52 MHz frequency for ZLs. It is not good amateur practice to operate out of one's band and may get both parties cited by their respective enforcement agencies. The US is a signatory to an international agreement stating that US amateur radio operators will not contact stations known to be working outside their bands. About a dozen operators have been cited recently by the FCC for doing just that. You put yourself in jeopardy if you answer the call of a station working out of their limits. Not only that, such practices give us a black eye at a time when many VKs are seriously working to get their frequency allocations changed to include 50 to 54 MHz as their TV Ch. 0s vacate the band. It might seriously hinder their efforts, not to mention the fact that WARC is almost upon us. Let's clean the situation up. Contacts are already being made at 52 MHz, so just wait it out."

I couldn't agree more. I have worked pretty hard so far in efforts to try and get some form of allocation between 50 and 52 MHz, and so have some others. I don't want the efforts so far to be undermined by the selfish operators, who must grab everything wherever it appears, perhaps the SMIRK viewpoint might steady things somewhat. Recently I heard FO8DR on 50.105 at S9, I could easily have fired up and grabbed him, but didn't, even though I have not worked that prefix. I don't look for any pats on the back for being a good boy, but put simply, I don't approve of out of band operation by anyone.

It is unfortunate, of course, that we are continuing to miss out on overseas contacts due to our 2 MHz isolation from the other areas of the Pacific in particular. There are plenty of documented occasions when the MUF doesn't go up to 52 MHz, but hovers around 50 MHz, often with weak to marginal signals, but strong enough to work if we could go down there. And I repeat again, the attitude of P. and T. is hard to understand in not granting some form of concession for the sunspot peak, even if we were allowed to go down and invite a 50 MHz station to come up to 52 MHz if the conditions would allow such a contact or, better still, if we were allowed to have DX contacts with stations outside Australia on the same basis that YBOX worked from Indonesia, simply the exchange of RST reports, name, and that's it. Such an arrangement wouldn't hurt any television viewer, and would make a lot of amateur operators in both Australia and overseas much happier. Is it too much to ask? Such special contacts would not last longer than two minutes, probably much less than that.

LETTERS OF INTEREST

In a letter which got missed somehow in March from John VK2ZBD (sorry) was some further information on the fantastic opening to WA4TNV/KL7 on 13-3 at 0245Z, and for two hours signals varied from S1 to S9+. At one stage Clay called CQ Australia for 5 mins. and no answer! But he did work VK1, 2, 3, 4 and 5, which must have thrilled many operators. Clay will be in the Aleutians until the end of July 1979, and his OSL address is Box 444, APO Seattle 98736. Thanks also for the PRC10 circuits, John.

Phil VK2BYX has now worked 13 countries on six metres, on 7-3 0031Z KG6DX and KG6JIP for No. 10. 13-3: 0157Z WA4TNV/KL7 5 x 9 both ways for country 11. 18-3: 0936Z HL9TG for No. 12. 6-4: 2345Z W6XJ for number 13. On 3-4 heard XE1GE but didn't last long enough for a QSO. JAs have been in most of the time, plus KH6 and KG6 again. Phil has received the SMIRK DXDC Award No. 55, despite living 100 feet only from Dave VK2ZDY!

Roger VK2ZTB has sent along some interesting information on VHF propagation, for which I thank him. Additionally, he advises Joe Burke WA8OGS, from Cincinnatti, Ohio, is seeking correspondence from stations in Australia and surrounding regions interested in conducting skeds on six metres. Joe has trans-Pacific F-layer DX and moonbounce in mind. He runs 2 kW PEP of SSB to four six-element yagis in an H frame configuration. Joe has heard his own EME echoes from the setting moon, and is currently working on an elevation system for his antenna. He intends installing either larger antennae on the existing mount or eight six-element arrays later this year. His address is 6381 Mullen Road, Cincinnatti, Ohio 45239, USA. Phone (US) 513 385 419 after 1930 US time. Sounds like Joe means business with the equipment in use. It's over to you, the readers.

Roger advises me he is back on six metres, sharing a shack with Phil VK2ZZQ and Mike VK2AM. Running an FT620 to 8-element coaxial collinear, horizontal polarity.

On the Melbourne scene a letter has come from Gil VK3AUI which shows that on 16-4 1300Z KG6DX was heard weakly before fading out. On 18-4 1026 to 1150Z JA1, 3, 4 and 5. 23-4: KG6 heard, JA1CZV at 0300, HL9TG 0310 to 0330Z, and KH6EQI beacon 0230Z, and again at 2300Z. KH6NS worked 2325. VK3AUQ and VK3NM also worked KH6NS. 24-4: HL9TG heard. 25-5: W6TFS heard VK3AUI, VK3AQR and VK3AUQ, but they couldn't hear him due to crud from Ch. 0. Time 0045Z. At 0525Z JH8BLJ. 2359Z KH6IAA. 26-4: 0000 to 0015Z KH6IAA, then VK2 and 4 on backscatter, then JA1 to JA9 inclusive, HL9TG. Most signals were 5 x 9 from 0030 to 0600Z. It looks like the big signals are needed to work over the top of Ch. 0.

Hal VK4DO sent a letter in March which never arrived, so have just received another outlining his contacts during the big opening on 2-3 on 52.050 when four W stations were worked over a period of 1½ hours, being N6CT, whom he worked several times with 30 watts, and also using his IC502 and 4 element yagi, and still received 5 x 2! Hal also heard WA4TNV/KL7 on 12-3 at 5 x 9 for a few minutes. HL9 and KG6 worked a number of times. JAs started coming through on 7-2 and up to 10-5 had worked 890 compared with 930 last year for the same period. The band is at present quiet like everywhere else.

Paul VK1BX writes to say that since 24th April, 1979, the Canberra Radio Society has had in operation their UHF repeater VK1RUC operating 436/440 MHz. Power output is 10 watts, antenna 15 half waves in phase, and the mobile range about 40 miles, with the antenna height at 56 ft.

Letter from Tony VK6BV shows six metres has had plenty of life in the West, it seems an extra 1100+ miles for stations emanating in the Pacific doesn't matter, e.g. 23-4 KH6EQI and KH6IAA both heard around 0230Z. Again on 24-4. Same day worked HL9TG at 0324Z. JAs from 0330Z. 25-4: KH6EQI reported by Wayne VK6WD 0507, JA 0515Z. 26-4: KH6EQI 0000 to 0135 to S7. KH6IAA heard on 52.010 at 0007 5 x 3 for 15 secs. KH6IAA worked by VK8GF and VK5KK. JA2IGY beacon heard in Northam at 20 dB over 9. VK5VF on backscatter. HL9TG and JAs worked. 27-4: KH6EQI heard by VK6OX. 29-4: KG6JIP worked by VK6BV and VK6ZKO. So it looks as though as at the end of April anyway KH6 had proved elusive for working two way to VK6 southern areas.

50 MHz AND EUROPE

"Radio Communications" for April 1979 gives some interesting information on what has been happening from England and other European stations bridging the Atlantic and African continent working crossband 28 to 50 MHz. Here are a few of the more choice happenings.

The first 50 MHz opening to America for 21 years occurred on 10-2-79, G3COJ contacted WB2RLK/VE1 at 1300Z on 50.110 MHz. The band had been open on 8-2 and 9-2. On 11-2 G3FXB worked WB8IWI/4 in South Carolina, also WA1DZJ and WB2RLK/VE1. These contacts were near 50.005 and on CW, to 28 MHz at the European end.

The Gibraltar beacon ZB2VHF on 50.035 and beaming west (to USA) with 100 watts ERP from a 5 element yagi was heard in America on at least 12 days in February. The Cyprus beacon on 50.498, which is still beaming south, was heard on 9-2 by VE1ASJ and WA1DZJ. DK2ZF reports hearing strong signals from the South African beacon ZS6PW on 50.030 on 19-2 at both 1100 and 1655Z.

Activity peaked on the west to east path on 50 MHz around 15-2, when as many as 40 crossband contacts were made. The first Germany and Canada contacts took place on 15-2 between DJ2RE and WB2RLK/VE1 at 1413Z. ZB1BL is reported to have worked as far as W0 on two-way 50 MHz on 18-2, and many crossband contacts have been taking place between Greece and South Africa. Most of the England to America contacts have been taking place on 26.450 MHz and if on CW on 50.010 and SSB 50.110.

EI2W in Dublin is stil licensed to operate 50 MHz, and during the autumn and winter of 1957-58 had nearly 300 contacts with W. EI2W will be the only station north of Gibraltar to be able to work 50 MHz unless other stations are given special permits.

NEW TRANS-EQUATORIAL RECORD ON 144 MHz

Also included in the "Radio Communication" article was that SViDH in Greece worked ZS6DN in South

Africa at 1810Z on 13-2, at a world record distance of 7,117 km. This record stood for three days, until SV1AB also worked ZS6DN over a distance of 7,127 km! SV1AB also heard ZS5C in Durban, a further 400 km.

LATE NEWS FROM EUROPE
The 50 MHz band stayed open to South Africa during the first two weeks of March with G3COJ and G3FXB working crossband to ZS6XJ, ZS6ASO, ZS6AUB and ZS6BGQ. The African stations listened around 28.333 MHz. The English stations were full of praise for the strong signals being heard from the Canadian beacon VE1SIX on 50.088, which helped with west-east contacts.

SMIRK NEWSLETTER No. 20
What an incredible amount of six metre information. Ray Clark K4ZMS is to be congratulated on putting it all together. Three closely packed foolscap pages of information covering the world-wide contacts being made on 50 to 54 MHz. Most contacts of course are taking place on 50 MHz, being the international segment, so we miss out on much as usual. The news in the SMIRK Newsletter is so vast one just cannot start to take information from it, it's just an incredible news sheet, to put it mildly!

SOMETHING TO LISTEN FOR
Apparently there is a beacon in Alaska signing KL7CDG on 50.040, which could be useful. Also there is that communications station in Darwin VL5SA on 48.450 MHz, and three USA television video carriers are to be found on 55.240, 55.250 and 55.260 MHz. Being of considerable ERP these last three would be worth taking a look at from time to time. Bill W3XO of QST World Above 50 MHz mentions a beacon on 50.030 signing K4ERO/HC1 in Quito, Ecuador; also CHOTS on 50.100 from Easter Island.

EME REPORT
Further to the brief note last issue, Chris VK5MC has written confirming his success on 432 MHz EME as follows: 21-4: 0840Z VE7BBG M/M reports. 1020Z JA6CZD O/O reports. 22-4: 1705Z ZE5JJ O/M. 1810Z I5MSH O/M. 0915Z K3NSS O/O and 0930Z K2UYH M/M. His signals were also heard by Ray VK3ATN using a 16 foot dish, and a few odd letters were heard by VK3BKF using a single loop yagi on a 17 to 20 foot boom. Chris reports all the stations worked have larger antennae than he did, and have been on for some time. He has a few more improvements to make, particularly to his receiving system.

PRC10 ARMY TRANSCEIVERS
Mark VK5AVQ has offered the following information in an attempt to help anyone having difficulties in getting to grips with the PRC10 transceiver which is being used quite extensively for monitoring 38 to 55 MHz. 1. Circuit diagram, plus basic alignment data and other notes for $1 to cover envelope, copying and postage. 2. Additional details, up to about 30 pages, including the above for $2.50.

I have seen the information made available by Mark and it is good value for the money asked. Address your enquirels to Mark Spooner, 30 Milne Street, Vale Park, S.A. 5081.

SMIRK 100 AWARD
Congratulations to David VK5KK who has juet received his SMIRK 100 Award, No. 265, for confirmed contacts with 100 other SMIRK members. Current SMIRK membership extends to 50 US States and 43 countries, with 3,140 members, 265 now hold the 100 Seal, 110 the 250 Seal, 38 the 500 Seal and 3 the 1,000 Certificate. 50 also hold the DXDC Award, which is for 10 countries confirmed on 6 metres.

INDONESIA ON SIX METRES
The news is not quite that good, but six metre operation by a special station, call sign YB0X, has been permitted lor three operating periods.

The station has been authorised by the Indonesian government to carry out propagation tests on six metres. The station will be operated by members of the Indonesian Amateur Radio Organisation, ORARI, together with a goodwill group of Japanese operators.

Details of the station operation are as follows:—
Call sign: YB0X.
Operating Periods: Initially 29th April until 7th May, 1979, followed by follow-on tests in August and October, 1979.
Location of Station: Jakarta.
Frequencies: 50.110 MHz and 52.050 MHz.
Beacon Cycle: 30 seconds transmitted followed by 10 seconds listening period.
Modes: CW and SSB.
Rigs: FT625D, FTV901 and FT901DM.
Break ins for exchange of signal reports and SWL reports are welcomed. QSLs will be handled by JA1UT. The station will also work Oscar and the HF bands.
This information was supplied by Sawonde YB0AT on behalf of ORARI.

2m OX TO JAPAN
Following last month's announcement of the VK8 to JA 2m FM contact, Albert VK8HW and Lynn VK8EW have provided us with a little more information on their contact.

The *rig used* was a Trio TS700 modified for full coverage from 144-148 MHz, all modes.

The antenna is a home brew eleven element beam with gamma match at approximately 25 ft.

Weather conditions: temperature 28°C, humid, no wind or cloud, the sun had just set.

Lynn VK8EW and Albert VK8HW.

BALLARAT BEACON
A brief message has come through that the Ballarat beacon has been delicensed. At this stage no further information is available.

Perhaps that is not a good note to close on, but close we must. Thought for the month: "There are three ways to get something done; do it yourself, hire someone or forbid your kids to do it!"

73. The Voice in the Hills. ■

QSP

LONG-RANGE PLANNING
April 1979 QST editorial deals with the future for ARRL. The League's Board directed ARRL President to appoint a long-range planning committee for the purpose of reviewing and making recommendations to the Board concerning the programmes which the League is and should be providing to its members and to the amateur radio service. Comments were that many people were concerned that the ARRL has been inclined to react rather than proact, that membership services have become a patchwork quilt affair without any overall plan of co-ordination and that the League tended for years to react to rule-making proposals emanating from the FCC rather than setting a course for the future regulatory development and guiding the FCC into fulfilling it.

2m OX
On 16th February SV1AB in Athens worked ZS6DN in Pretoria, to set a new 2m DX record of 7127 km. Three days earlier SV1DM had worked ZS6DN on a 7117 km path. KP4ES, KP4Q and KP4AAN all worked into Argentina on 2m FM on 19th February. —Ham Radio, April 1979. ■

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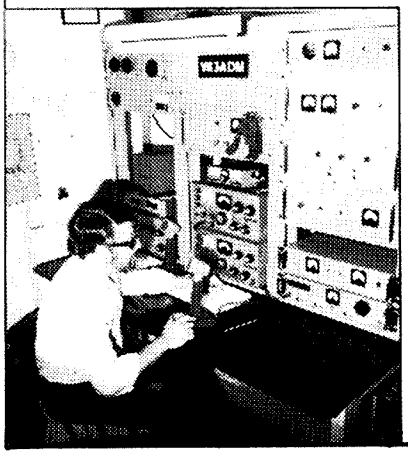

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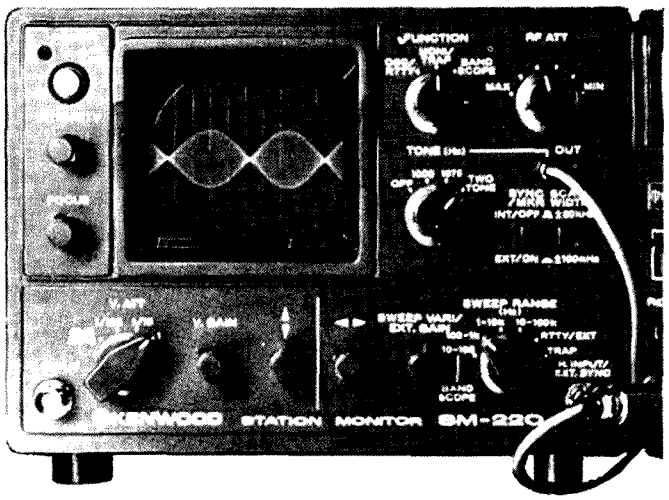

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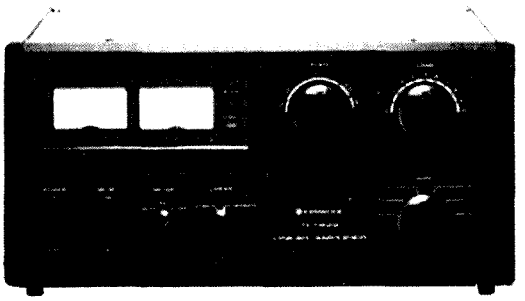

Due to production delays overseas, the TS-180S Transceiver previously advertised will not be available until the end of July.

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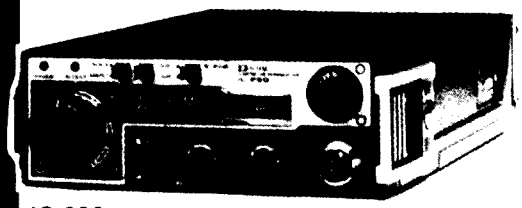

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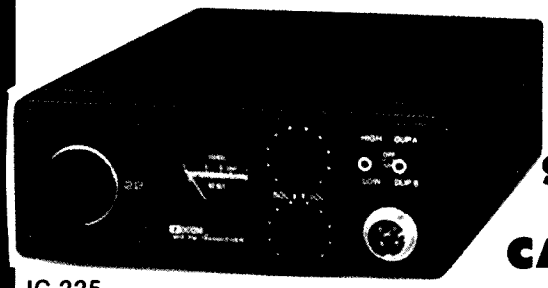

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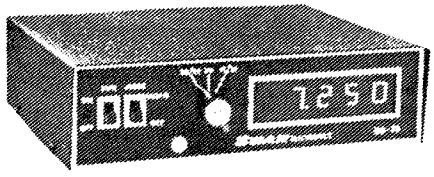

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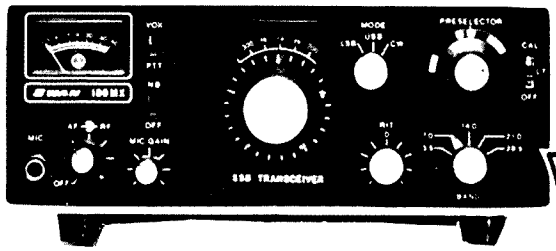

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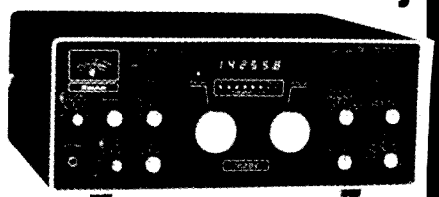
SWAN ELECTRONICS Microprocessor Technology Swan's Success Story

Swan's high technology engineering department is challenging the best in the world. In keeping with the master plan of establishing Swan as number 1 in its areas of expertise, two more state-of-the-art transceivers will be announced at the Dayton Hamvention the last week in April.

The first is the microprocessor controlled, digital synthesized ASTRO 150 amateur HF Transceiver. With powerful 235 watt PEP and CW input on all bands, and extended frequency coverage in the 2-30 MHz spectrum, it is bound for instant success. The all electronic tuning VRS (variable rate scanning) and associated microphone remote tuning gives the operator complete and precise control.

ASTRO 150

Standard features include, full or semi break-in selectable in CW mode, narrow band CW filter, USB/LSB, memory, VOX/PTT, and WWV reception. NASA (National Aeronautics and Space Administration) has already ordered the ASTRO-150 and 1500Z linear amplifier combination.



102 BX

A second state-of-the-art HF amateur transceiver, the 102-BX, is to be announced at the Dayton Hamvention. This unit offers complete base station capability in one chassis. Features include all the standard functions provided by top line equipment plus dual PTO's for true crossband operation —full/semi break-in, variable RF bandpass, —IF gain—, RF gain and audio passband display.

TRANSMITTER SPECIFICATIONS

Power Output Rating
Minimum 100 W PEP single sideband and CW, ALL Bands @ 13.8 VDC nominal to 50 ohm resistive load

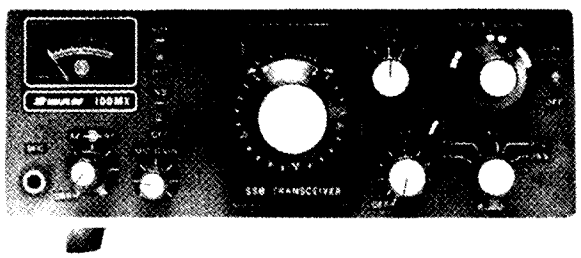
Unwanted Sideband Suppression
Greater than 60 dB

Carrier Suppression
Greater than 50 db

STANDARD FEATURES:

- State of the art design
- State of the art styling
- Completely solid state
- 10-80 meters
- USB, LSB, CW
- Filter shape factor 1.7:1
- CW monitor with adjustable pitch and level control
- Amplifier relay keying
- Noise blanker
- 25 Kc calibrator, built in
- Made in the USA by Swan craftsmanship
- Operates from 11 to 15 VDC source negative ground
- Current drain 130 Ma receives, 20 amps maximum in transmit at 13.0 VDC with dial and meter light on current drain is approximately 100 Ma more
- Internal speaker
- Semi CW Break in
- Mobile mount bracket (gimbie)

100 WATTS SOLID STATE MOBILE



AVAILABLE NOW FOR ONLY $630.00

SPECIFICATIONS

Frequency Range — Standard
80 meters (3.5 — 4.0 MHz)
40 meters (7.0 — 7.5 MHz)
20 meters (14.0 — 14.5 MHz)
15 meters (21.0 — 21.5 MHz)
10 meters (28.5 — 29.0 MHz)

Extended Frequency Coverage
500 KHz segments of 10 meter band 28.0-28.5 29.0-29.5 29.5-30.0 By replacing standard crystal with optional crystal for desired segment. No realignment required

Modes of Operation
USB, LSB, CW

I.F. Filter
9 mHz quartz crystal filter, 2.7 KHz bandwidth, 1.7:1 shape factor

Calibrator
Built-in 25 KHz calibrator

VOX
Built-in standard

Noise Blanker
Built-in standard

Mobile Mount
Included standard

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DEALER ENQUIRIES WELCOME

REMEMBRANCE DAY CONTEST 1979 — RULES

11-12 AUGUST 1979

A perpetual trophy is awarded annually for competition between Divisions of the Wireless Institute of Australia. It is inscribed with the names of those who made the supreme sacrifice and so perpetuates their memory throughout Amateur Radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and, in addition, the winning Division will receive a suitably inscribed certificate.

OBJECTS

Amateurs in each VK call area will endeavour to contact other amateurs:—

1. In other VK call areas, P29, and ZL on all bands 1.8 through 30 MHz.
2. In any VK call area (including their own), P29, and ZL on authorised bands above 52 MHz and as is indicated in rule 5.

CONTEST DATE

0800Z 11 August 1979 to 0759Z 12 August 1979.

All amateur stations are requested to observe 15 minutes silence before the commencement of the contest on Saturday afternoon. An appropriate broadcast will be relayed from all Divisional stations during this period.

RULES

1. There shall be 3 sections —
   (a) Transmitting Phone.
   (b) Transmitting CW.
   (c) Receiving.

   However separate logs may be submitted for sections (a) and (b).
2. All Australian Amateurs (VK call signs) may enter the Contest whether their stations are fixed, portable or mobile. Members and non-members of the Wireless Institute of Australia are eligible for awards.
3. Amateurs may use the following modes:—
   Section (a) — AM, FM, SSB, TV.
   Section (b) — CW, RTTY.

   However separate logs may be submitted for sections (a) and (b).
4. Cross mode operation is permitted but both stations may only claim points as for a phone/phone contact. Cross band operation is not permitted excepting via a satellite repeater.
5. SCORING Contacts:
   (a) On the 3.5, 7 and 14 MHz bands a station in another call area may be contacted once on each band using each mode. That is, you may work the same station on each of these bands on Phone, CW, SSTV and RTTY.
   (b) On the 1.8, 21 and 28 MHz bands, a station in another call area may be contacted twice on each band, using each mode provided that not less than 12 hours has elapsed since the previous contact on that band using that mode.
   (c) Between 1600 hours GMT and 2100 hours GMT on Saturday, intra-call area contacts may be made on the 1.8, 7, 21 and 28 MHz band once for each mode on each band.
   (d) Between 0300 hours GMT and 0759 hours GMT on Saturday, intra-call area contacts may be made on 1.8, 21 and 28 MHz bands, once for each mode on each band.
   (e) On the bands 52 MHz and above, the same station in any call area may be worked using any of the modes listed in rule 3 at intervals of not less than two hours since the previous same band/mode contact. However, the same station may be contacted repeatedly via satellite not more than once by each mode on each orbit.
   (f) All CW/CW, SSTV/SSTV and RTTY/RTTY contacts count double. Note rule 4 re cross mode contacts.
6. Multi-operator stations are not permitted (except as in rule 7), although log keepers are allowed. Only the licensed operator is allowed to make a contact under his/her own call sign. Should two or more licensed operators wish to operate any particular station, each will be considered as a contestant and must submit a log under his own call sign.
7. Club stations may be operated by more than one operator, but only one operator may operate at any one time, i.e. no multi-transmissions. All operators must sign the declaration.
8. Entrants must operate within the terms of their licences.
9. CYPHERS:
   The serial number will consist of three figures that will be incremented by one for each successive contact. A contestant may start with any number between 001 and 999 but when 999 is reached he will start again at 001. If separate logs are being entered for sections (a) and (b) then separate cyphers are to be used.
10. ENTRIES must be set out as shown in the example using one side of the paper only. Envelopes must be marked "Remembrance Day Contest", postmarked no later than 3 September 1979 and posted to FCM, Box 1065, Orange 2800.
11. TERRESTRIAL REPEATERS: Contacts via terrestrial repeaters are not permitted for scoring purposes. However, contacts may be arranged through the repeater and if successful on another frequency, that contact counts for scoring purposes.
12. PORTABLE OPERATION: Log scores of operators located outside their own call area will be credited to that call area in which operation takes place, e.g. VK5XY/2. His score is added to the VK2 scores.
13. All logs shall be set out as in the example shown and in addition MUST carry a front sheet showing the following information in this order:

    Section, Score, Call Sign, Modes, Name, Address.
    Declaration: "I hereby certify that I have operated in accordance with the rules and spirit of the contest."
    Signed
    Date.
14. The Federal Contest Manager has the right to disqualify any entrant who, during the contest, has not observed the regulations, or has consistently departed from the accepted code of operating ethics. The Federal Contest Manager also has the right to disallow any illegible, incomplete or incorrectly set out logs.
15. The ruling of the Federal Contest Manager of the WIA is final and no disputes will be entered into.

AWARDS (Sections (a) and (b))

Certificates will be awarded to the top scorer in each section for each call area and will include the top Limited and Novice station. There will be no outright individual winner. Further certificates may be issued by the FCM at his discretion.

The Division to which the Remembrance Day Trophy will be awarded shall be determined by the following formula:—

Total call area score from sections (a)-(c) of rule 1 multiplied by the number of full call logs received from that area and divided by the number of full licences in that call area.

EXAMPLE OF TRANSMITTING LOG

Date/time GMT	Band	Mode	Callsign worked	NR sent	NR rec'd	Points

EXAMPLE OF RECEIVING LOG, VICTORIAN SWL

Date/time GMT 12/8/78	Band MHz	Mode	Callsign heard	NR sent	Station called	Points
0612	7	P	VK5PS	58002	VK6RU	2
0615	7	CW	ZL2AZ	559004	VK4KI	6
0618	14	P	VK0ZZ	57006	VK6FI	6
1620	28	P	VK3NAA	59077	VK3NZZ	1

SCORING TABLE FOR PHONE CONTACTS — ALL CW/CW, SSTV and RTTY CONTACTS COUNT DOUBLE

From (VK)	To 0	1	2	3	4	5	6	7	8	9	P29	ZL
VK0	—	6	6	6	6	6	6	6	6	6	6	6
VK1	6	—	2	3	3	3	4	3	4	5	5	3
VK2	6	2	—	2	2	3	4	3	4	5	5	3
VK3	6	3	2	—	3	2	4	2	5	5	5	3
VK4	6	3	2	3	—	3	5	5	2	4	2	4
VK5	6	3	3	2	3	—	2	3	3	5	5	4
VK6	6	4	4	4	5	2	—	3	2	5	5	5
VK7	6	3	3	2	5	3	3	—	5	5	5	3
VK8	6	4	4	5	2	3	2	5	—	2	2	4
VK9	6	5	5	5	4	5	5	5	2	—	5	4
P29	6	5	5	5	2	5	5	5	2	5	—	4
ZL	6	3	3	3	4	4	5	3	4	4	4	—

All intra-call area contacts on 52 MHz and above, or as indicated in Rules 5 (c), (d) and (e), are worth one point.

VK0 scores are added to VK7 and VK8 to VK5. Scores by VK9 stations are added to the mainland call area geographically nearest. Scores claimed by ZL and P29 stations are not included in the scores of any VK call area.

Acceptable logs for all sections shall show at least 10 valid contacts. The Trophy shall be forwarded to the winning Division in its container and will be held by that Division for the specified period.

RECEIVING SECTION

1. This section is open to all Short Wave Listeners in Australia, Papua, New Guinea and New Zealand, but no active transmitting station may enter.
2. Contest times and logging of stations on each band are as for transmitting.
3. All logs shall be set out as in the example. It is not permissible to log a station calling "CQ". The detail shown in the example must be recorded.
4. Note the times and conditions set out in rule 5 (transmitting).
5. Club stations may enter this section. All operators must sign the declaration.

AWARDS

Certificates will be awarded to the highest scorers in each call area. Further certificates may be awarded at the discretion of the Federal Contest Manager. ■

YOU and DX

Mike Bazley VK6HD
6 James Road, Kalamunda W.A. 6076

CHAIN LETTER

Have you recently been the lucky recipient of a chain letter that originated from the USA? This writer to date has received three, all from other amateurs who have never been contacted before on the air. Why send them to me? The letter states that if I continue the chain (which is reserved for amateurs only) then I will be receiving upwards of several thousand dollars in the future. There is only one way to deal with these sort of letters — file them in the WPB after removing the stamps of course if you are a philatelist like me! The old proverb always holds true: You don't get something for nothing.

QSLs

What is a QSO? Well, if you chase DX and submit your QSLs to ARRL, did you know that they note whether the cards have your call sign on plus date, time and mode, the report is unimportant. This was confirmed by the ARRL to 6HD way back in the late 50s when a QSL was submitted with a 3 and 1 report on it. Previously I had always thought that the minimum report required was 3 and 3 or 339. If you get your call put on a list and the MC passes the list to the DX station, have you made a QSO? The DX station now has all the necessary information so why repeat it!!

The Warrington and District ARS will be operating under the call GT4CDA (special IOM prefix) from 1st to 4th July on all HF bands. They ask that all QSLs be accompanied by at least 1 IRC and *proceeds from the DXpedition* will go to charity. The QSL QTH is PO 59, Isle of Man.

10 METRES WAS NET

Pat VK3OV passes on information that will be of value to anyone chasing WAS on 10 metres. A WAS net meets every Sunday on 28525 kHz plus/minus QRM at 2000 GMT.

SV NET

For those VKs who originally hail from SV land there is a Greek International net operating on 14285 kHz at 0500, 1300 and 2000 GMT with an alternative frequency at 0500 of 14105 kHz, plus or minus QRM.

QSL MANAGER

Ken VK3AH mentions that Mary Anne Crider WA3HUP, of RD2, Box 5A York Haven, PA 17370, is QSL manager for CE0AE, CN8AK, CN8CW, CT1BY, CT1KO, CT1OF, JY1, KP4KK, M1B, OY5J, TA2SC, ZP5YW, 3A2CP and VE3BWK/4X. This writer can confirm, from personal experience, that Mary Anne does a fine job in handling the QSL problems for the above stations.

PACIFIC OX NET

A reminder to readers that the Pacific DX Net (one of the better run nets) is still going strong Tuesdays and Fridays 14265 kHz at 0600 GMT; VK, ZL and Pacific Stations always welcome.

Unfortunately, the time of the net prevents most VK8s from participating (1400 local), unless one is on holiday or retired.

"SURE QSL"

During a recent QSO on 10 metres, AP2KS told this writer, who had requested QSL information, that he did not QSL, so please do not send a card. I do collect QSLs myself but to be honest I was pleased that I got a truthful response. There is no requirement on any amateur to QSL if this part of the hobby does not interest him. My main grumble is against those amateurs who say "sure QSL" when asked and never do.

NEW PREFIXES

Evan VK3ANI has supplied me with the information on those new prefixes emanating from the USA and their possessions. To quote from VK3ANI's letter:—

Call signs that were issued before the new system can be retained hence KG6 and KH2 are both from the same area.

(H) Pacific Ocean based US territory:
AH1, KH1, NH1, WH1: Baker, Canton, Enderbury and Howland Is.
AH2, KH, NH2, WH2: Guam.
AH3, KH3, NH3, WH3: Johnston Is.
AH4, KH4, NH4, WH4: Midway Is.
*AH5, KH5, NH5, WH5: Palmyra and Jarvis Is.
AH6, KH6, NH6, WH6: Hawaii.
AH7, KH7, NH7, WH7: Kure Is.
AH8, KH8, NH8, WH8: American Samoa.
AH9, KH9, NH9, WH9: Wake, Wilkes and Peale Is.
AH0, KH0, NH0, WH0: Northern Marianas.

* If the suffix begins with a K then it is the Kingman Reef, i.e. AH5K, KH5K, NH5K and WH5K.

AL7, KL7, NL7, WL7: Alaska.

(P) Caribbean Ocean locations note that AP is not allocated as it belongs to Pakistan.
KP1, NP1, WP1: Navassa Is.
KP2, NP2, WP2: Virgin Is.
KP3, NP3, WP3: Rancador Key, Quita, Sueno Bank and Seranilla Bank.
KP4, NP4, WP4: Puerto Rico.

Other US possessions, such as the Marshall Islands, are not under FCC control so they retain their old call sign prefixes.

All the mainland prefixes remain the same but more have been added from the block AAA-ALZ, which is allocated to the USA, i.e. AA, AB, AC, AD, AE, AF, AG, AI, AJ and AK are all mainland USA prefixes.

ITU allocations for USA are: AAA to ALZ, KAA to KZZ, NAA to NZZ, WAA to WZZ.

The exception to the rule (?) is KA2 to KA9, US Military people in Japan.

VR8

I trust that all have managed to get VR6 in the log. The operation by VR6HI and VR6DX should have helped many, myself included.

Does anyone have QSL information on FG0DYM/FS7 recently QSOd on 3.5 and 14 MHz CW?

SPRATLEY

Congratulations are due to the Spratly Island operation — at least as far as VK was concerned. Harry VK2BJL made the effort to work as many VKs and ZLs as possible — thanks. There were criticisms of this DXpedition from the States and Europe because it was thought that too much attention was paid to working JAs and the Pacific Area. We do know that the DXpedition had real problems in landing on one of the Spratly group. We don't know what propagation conditions were like for them, but it should always be remembered that operating conditions are always better from a comfortable shack than from a tent being invaded by bugs, mosquitoes, etc.

BITS AND PIECES

9N1BMK has been very active lately, being heard/worked on 14-28 MHz. Says QSL via JARL or JA8BMK. Seems genuine.

Remember how easy it used to be to work into CR6 (Angola)? Well it appears that once again there is activity from this location. OK3TAB/D2A has been heard on 20 SSB. QSL via OK bureau.

YI4SC showed on 20 SSB in early April (QTH in list). This writer was one of the lucky ones, getting a QSO on 14245 at 2242 BMT. If you need this one it might be worthwhile checking with one of the Arabian stations active at the moment or checking into the Arabian Knights net, which meets on a Friday night 1400 GMT, often around 14190 kHz.

With winter approaching it should be worthwhile checking 40 and 80 metres at sunset for some of those South American countries. This time of the year the darkness path is at its optimum.

Rumours have it that there may be some activity, during the northern summer months, from Abu Ail in the Red Sea. The rumour has it that J28AZ may be active from there.

A further thought on the European summer. Remember during their summer months, June/August, a lot of amateurs make their way to such spots as 3A2, LX, SV, MI, OH0, HB0, etc., for their summer holidays. If you need any of these it is worth looking on the usual DX frequencies, e.g. 14195, 21295, 28600 and 14025, 21025 and 28025, as these sort of semi-DXpeditions are not usually publicised in advance.

FROM THE WEST GULF DX BULLETIN

Ex EP2LI should be moving to A7X Qatar shortly. HB9APN/BY has been heard on 21155 from 1400Z. The station is located at the Swiss Embassy in Peking. It is rumoured that a Swedish group may put the call ZA5T on the air from Albania. (Watch those DX frequencies.) CE9AT, South Shetlands, is active on 20 SSB, QSL via CE2BIO. W9GW should be QRV from FW8 during the month of June, mostly on CW.

Well, that's the lot for this month; many thanks to VK3AH, VK3ANI, VK3OV, VK4KX, VK6AJ, VK6LK and the West Gulf DX Bulletin. My deadline for the August issue is Tuesday, June 26th.

SWLs

When one reads a column on DX and DX happenings, I suppose most people tend to think that it only applies to transmitting amateurs. This I think is a pity. Once upon a time the natural progression to a "ticket" was by becoming interested in the hobby through being a SWL. What has happened to the SWL fraternity? Contrary to the thinking of some, I believe the SWL has an important part to play in the amateur DX scene. For myself I welcome receiving a useful SWL report, particularly when it tells me something I didn't know — for example being heard in a particular part of the world when I thought my signals were not getting out.

The Australian SWL is in a unique position, in that a large number of DX chasers are keen to work VK, particularly on the LF bands. SWL reports could and should be able to provide useful information and for the sender there is the satisfaction of a QSL received in return. (Yes I do QSL all SWL reports received.) By the way, SWLs could also provide another service by letting this writer know what you've been hearing. It could be of interest to us all.

Whilst on the subject of SWLs, readers may be interested to know that the "G. Watts News Sheet", which used to be published by Geoff before his recent illness, is being distributed by the RSGB. Geoff still writes the copy but has given up the onerous chore of printing and distributing the weekly news sheet. Anyone interested in receiving further information could write to RSGB, 35 Doughty Street, London, WC1N 2AE, enclosing return postage. For those for whom the name does not ring a bell, suffice to say that Geoff Watts has been a life long SWL and at one time his news sheet was the most widely quoted DX information source of amateur radio magazines.

NEWS, NOTES AND RUMOURS

WB8QGG/KH7, Kure Island, 14310 or 14345 kHz list operation scheduled to be active from Kure for 12 months.

Prefixes: J6 is St. Lucia (ex VP2L), J7 is Dominica (ex VP2D), 6T1 and 6U1 are Sudan (ST). Argentinian stations LU-ZA, ZG, ZM are South Orkneys, ZY South Sandwich, ZT South Shetlands, other LU-Z stations are on Antarctica.

For those working 4U1UN, this writer had a QSL back within 14 days by OSLing via W2MZV.

If you have not worked Seychelles, S79, it is suggested that you make the effort as no new licences are being issued. S79WHW is quite active on 14 MHz SSB.

Rumour has it that Mount Athos, SY, is on the cards during the Northern Summer (June/August). Groups from DL, SM and SV are known to be interested.

CE0AE Father Dave Reddy should be a powerful signal on the bands as the North Californian DX foundation has shipped him a linear. Pity Dave doesn't do a little bit more CW operating as he is usually found on SSB. On the very few occasions that he has been heard (worked here on CW, always on SO) he has shown that he has an excellent fist.

OE6XG/A was putting a good signal into VK6 on 10 metres during their recent DXpedition. QSLs go to WA3HUP. (Full QTH in last month's AR.)

VR6HI rattled up 33,115 QSOs from Pitcairn made up of 170 on 160m, 760 on 80m, 2,095 on 40m, 9,810 on 20m, 9,395 on 15m and 10,885 on 10m. It is reported that the slack of QSLs received is now nearly 15 feet tall!!

The new operator at ZS2MI is ZS6BEE, who asks for OSLs via ZS6APO. He has been worked on 14 SSB and CW.

ZD7HH was heard the other day on the P29JS net on 14220 kHz. Quite good signals into VK6.

UK1PAA Franz Joseph land is reported active again on 20 and 40 CW. It is hoped that SSB gear can be shipped there before the Northern Winter sets in.

Rumour has it that Sable Island (VX) will be activated by a group of VEs some time in July or August.

If you QSOd WA6EWI/T19 recently, very QRV into VK on 15m SSB, QSLs go via W6WX, Box 717, Oakland, California 94604.

Burundi is once again on the DX map. 9U5AN has been heard on 20 CW asking for QSLs via OZ9DX.

SV1JI is scheduled to open up from Crete any time now as SV9JI. The lucky ones will be able to QSL him via Box 502, Iraklion, Crete.

Those looking for Tunisia would be advised to check the low end of 20 around 0800Z when 3V8AA often shows. Has been heard/worked on 14003 listening 5 up. QSLs via IS0LYN.

The new operator at LU3ZY has been heard in the States on 7007 kHz at 0000Z. He asks for QSLs via LU2CN.

If you hear TH8JM don't think you have heard a pirate. This call has been issued to John Montague, who is the communications officer in Bangui, Central African Republic.

There is still no news of anyone receiving a QSL from the recent Desecheo, KP4AM/D operation. The rumour mongers are saying that this operation is not now acceptable for DXCC. Time will tell!

Did you work D2AZB between 11-11-75 and 15-12-76? A QSL can be obtained from PY5WD, PO Box 63, 80,000 Curitiba Pr., Brazil.

Dont' pass VR1BE by if you need British Phoenix Islands. Apparently the previous method of allocating calls in the VR1P series has been discontinued. QSL to Box 1337, Canton Island, 96736, via Hawaii.

6T1YP heard on 28600 at 0750 working into JA this is Sudan.

T2AAA, a YL operator, QRV on 14190 kHz at 11102.

U0CR is part of a skiing expedition to the North Pole. Often QRV on 14193/14195 kHz. SSB last reports put them more than 80 degrees N. SV5JH QRV from Rhodes often on 15 SSB. QSL via DJ9ZB.

Thanks go to VK4KX, VK4SS, VK6AJ, VK6LY, on air reports, "West Gulf DX Bulletin" and G. Watts News Sheet. Happy Hunting. 73. Mike VK6HD.

My deadline for September issue is July 26th.

"GHAN" RAILWAY-MOBILE DXPEDITION

A railway-mobile DXpedition is planned from Maree, SA, to Alice Springs, NT. The event, which should take place before the end of September, is to celebrate the Golden Jubilee of the first rail link to Alice Springs. Frequencies in use will be around 3600, 7100, 14270, 21150 and 28400 kHz. Special QSLs will be printed for the occasion.

The station will operate from the famous "Ghan", which departs from Maree at 1470Z Monday night local time, arrives at Alice Springs 2130Z. It departs Alice Springs 1030Z Wednesday night and arrives back at Maree 1945Z (0515 SAT).

Zone 29 Boundary Award hunters will be interested in this event. Unfortunately confirmation of approval from the Commonwealth Railways for the venture is not yet at hand and so firm dates cannot yet be given. Details will be given in WIA broadcasts when available.

(Information supplied by Dick VK5DQ.)

73 es DX de Mike VK6HD. ■

OTHs YOU MAY HAVE MISSED

CP5GK — Box 2659, Cochabamba.
FH8CL — PO Box 20, Matotte, via Reunion Island.
H7Z — Box 5540, Magnagua.
KH3AA — Box 69, San Francisco, U.S.A.
KZ5BU — Via W0PAH.
OA4UI — Box 538, Lima.
OD5LX — Via SM0GMG.
OH2BP/OH0 — PO Box 928, 00101, Helsinki 10.
VP2DD — Via W2OB.
VP2MOC — Via K2YY.
VR6DX — Via W0PAH.
VR6HI — Via ZL1ADI.
VS500 — Via N200.
XE1FR — Via W5QK.
YI4SC — Via PO Box 5846, Baghdad.
YN1FMQ — Box 4272, Managua.
ZF2CL — Via DK7PZ.
1S1DX — VK2BJL, Box 85, Round Corner, NSW 2158.
5H3GK — Via SM5AWO.
9N1BMK — Via JA8BMK.
9X5PM — PO Box 663, Kigali, Rwanda.

A9CS — via K4CG.
AP5HQ — via N0RR.
CM2HB — via ON5YL.
FK8CR — via W7OK.
FP8HL — PO Box 89, Saint Pierre et Michelon, North America.
GU5CIA — via N6MA.
HM5AP — via JH4NPP.
HZ1HZ — PO Box 1999, Jeddah.
J6LD — via K4MZE.
J7DD — via W2OB.
JR1ERE/JD1 — via JR1FYS.
N5RM/KC6E — via N5RM.
KX6BQ — via W5IL.
OD5NR — PO Box 7188, Beirut.
WA7JRL/SU — via W8LZV.
SU1DP — PO Box 138, Ismalia, Egypt.
SV0AA5 — via K5VT.
TF5TP — via DL7MQ.
TK2ITU — via F6DCQ.
TK3ITU — via F8OP.
TK6ITU — via F6KFH.
TK9ITU — via F9RM.
VS500 — via N200.
VU2LHO — via American Embassy, New Delhi.
YB0ADT — PO Box 2634, Jakarta.
F6EKE/3B8 — via F6EKB.
5W1BX — via W0PAH.
9N1BM — PO Box 131, Kathmandu. ■

QSP

OVERSEAS LICENCE STATISTICS

As at 31st December each year the UK total licence ligures for 1978 was 24,711, for 1968 it was 17,338, for 1958 the total was 9,116. The 1976 figure was 29,062, which included 4,636 mobile licences — the present licence combines both fixed and mobile licences into one licence. Radio Communications May 1979.

MAGAZINE INDEX

Syd Clark, VK3ASC

BREAK-IN March 1979
3.5 MHz Direct Conversion Transceiver; Modification of Pye Cambridge AM100 for 144 MHz; Speech Processing; Yaesu FT227R Memoriser; Pye Cambridge AM100 Circuit.

BREAK-IN April 1979
Piessey SL600 Transceiver Linear Amplifier and RF Preselector; 1 MHz Time Base Oscillator and Power Supply; 2 Metre Yaesu FT227R Memoriser.

QST February 1979
Introducing the INCONS; Upgrading Your SB-220 Linear Amplifier; A First-Class Touch Tone Encoder; A 24-Hour Clock Bonus from the Accu-Memory; A Noise Blanker for the Collins S-Line; A 40 Metre Midget; Digitized Speech, Part 2; Circular Orbits with Simple Computing Systems; Antenna Accessories for the Beginner; Why QSK?; QRN Communication — Myth or History.

QST March 1979
The Code Speedometer; A CMOS Control Circuit for Repealers; JFET "Soup" for Tired Receivers; A Simple 10 and 15 Metre Converter; A Graphical Look at the L Network; Matching-Network Design; Zip-Cord Antennas — Do They Work? Toward Cleaner Local-Oscillator Chains — Spectral Purity; ARES and You; Saturday Morning Follows; 1978 CAN-AM Contest Results; April CD Parly — All ARRL Members; FMT Results; RFI — Let Your Voice be Heard; Hams can Influence FCC's FRI Inquiry; ITU Lays Technical Foundation for WARC 79.

QST April 1979
A Low-Cost PC-Board Duplexer; The SHARC Audible Current Meter; The Whys and Hows of Bifilar Filament Chokes; Save Money — Build Your Own RF Choke; A Big Signal from a Small Lot; Some Commonly Asked Technical Questions and their Answers; A Simple CW Audio Filter; Putting the Boots to Your HW-8 QRP Transceiver; Amateur Radio at the Bottom of the Earth; Public Service Before Disaster Strikes.

RADIO COMMUNICATION May 1979
A Frequency Counter for a 144 MHz Transmitter; An Inexpensive High-Z Accurate Transistor Voltmeter; A Modification to the G3ZSS Digital Morse Code Generator; The 'Miracle" Sky Hook. ■

CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

July:
14/15 IARU RADIOSPORT CHAMPIONSHIPS

August:
11/12 REMEMBRANCE DAY CONTEST
11 ZL QLF PARTY

October:
6/7 VK/ZL/OCEANIA DX CONTEST PHONE
13/14 VK/ZL/OCEANIA DX CONTEST CW

Contestants are reminded to read the rules for the "RD" contest carefully this year as certain changes have been made. Logs without a front-sheet will be automatically disqualified, as will unscored logs. ■

EXPIRY OF LICENCE

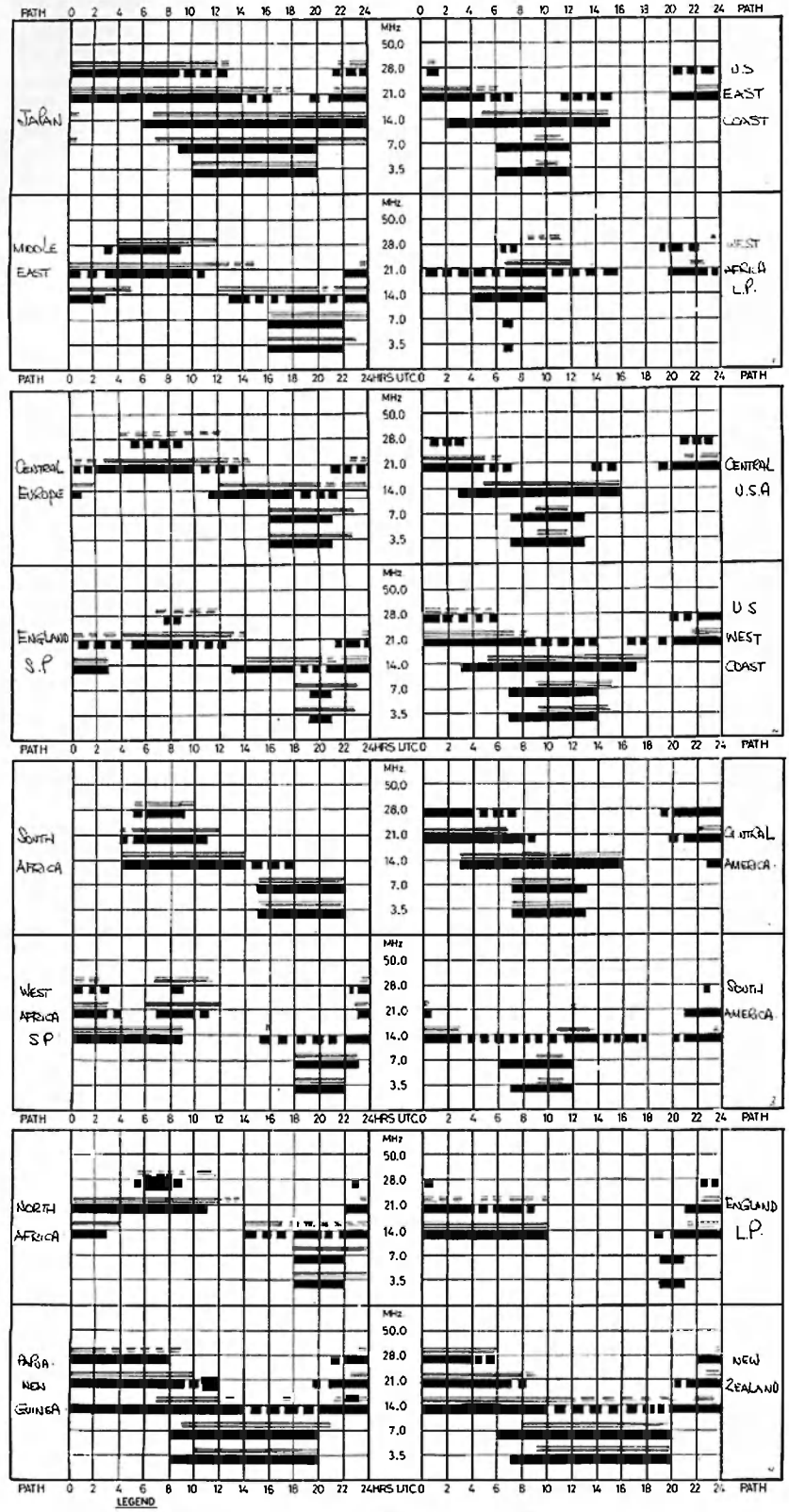
Ham Radio April 1979 quotes the FCC as now allowing amateurs whose operators' licences expire live years instead of one year in which to renew them without taking the examinations.

US LICENCE FIGURES

April 1979 QST quotes the FCC as having 356,336 amateur licences issued by the end of 1978, representing an 8 per cent increase over the end of 1977 figures. Novices represented 62,856 of the total. ■

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



AWARDS COLUMN

Bill Verrall VK5WV

7 Lilac Ave., Flinders Park, SA

NEW AUSTRALIAN AWARD

I have received details of a new award available in VK and issued by the Royal Naval Amateur Radio Society. The Society already sponsors two awards, the "Mercury Award" for contacting members of the Society, and the "Hampshire Award" for contacting amateurs in the English County of Hampshire.

The Society has announced a third award called the "Endeavour Award" for contacting Society members residing in Australia. The title of the award links the Royal Navy with Australia.

RULES OF THE "ENDEAVOUR AWARD"

1. The name of the award shall be the "Endeavour Award" and shall be open to all radio amateurs.

2. Applicants must establish two-way amateur communications with RNARS members residing in Australia. Points will be awarded on the basis of one point per VK RNARS member worked per band after the commencement date of January 1st, 1979.

To qualify, the following is required —

For amateurs residing in Australia: 15 points.
For amateurs residing inside Oceania: 10 points.
For amateurs residing outside Oceania: 5 points.

In addition, for amateurs residing outside Oceania, contacts with VK RNARS members on the 3.5 MHz band will count double points. For the purposes of this award, any RNARS maritime mobile member when located inside Australian waters may be counted as a VK member.

3. The award will be endorsed only on the request of the applicant and the following endorsements are available: "ALL CW", "ALL SSB", "ALL 3.5 MHz", "ALL 28 MHz", "ALL NOVICE", "FIVE BY FIVE". The last endorsement is for gaining at least five points on each of the five high frequency bands.

4. To claim the award, no QSLs are required. However, full log details showing the VK member (OR/MM plus QTH) worked, their RNARS number, date, time, frequency, mode, plus an application fee of $1.50 Aust. or 7 IRCs are to be sent to the Endeavour Award custodian, Mr. R. Baty, 43 HMAS Australia Road, Henley Beach South, SA 5022. Australia. Please ensure all cheques are in Australian currency and are made payable to "R. BATY". Clearly state what endorsements are claimed. Certificates to successful applicants will be forwarded by airmail as soon as possible after the claim has been checked.

The certificate measures 250 x 195 mm, printed in three colours on high quality parchment. Society name and logo in royal blue, title in deep red, remainder black.

VK RNARS lists are available from the custodian or the Australian organiser, or use the general RNARS list from G3HZL-QTHR.

NEW EUROPEAN AWARD

"Brussels Millennium Award."

The Brussels Millennium Award committee has announced that this award will be issued on the occasion of the Brussels Millennium Celebration (979-1979), which commenced on 1st January, 1979, and continues to 31st December, 1979.

Contacts must be made with amateur stations from Brussels with the special prefix OS (1, 4, 5, 6, 7, 8). Contacts can be on any authorised mode in the bands 3.5 to 29.7 MHz. Operators from VK are required to work 10 stations from Brussels. The award is also available to SWLs, who must submit reports of 10 QSOs between stations from Brussels and outside Brussels. Contacts during contests are not valid.

To obtain the award, forward a log extract and 3 IRCs to Brussels Millennium Award, PB 1000, B1040, Brussels 4, prior to 15th February, 1980.

INTERNATIONAL AMATEUR RADIO SOCIETY

Allen Smith VK2AIR, the secretary of CHC Chapter 66, Australia, has advised that the founder and executive general manager of IARS, Cliff Evans K6BX, passed away on Friday morning, 30th March, 1979. All condolences may be addressed to Mrs. Evans as follows:—M. Jolly Evans, 3212 Mesa Verde Road, Bonita, Ca., 92002, USA.

Allen will advise all Chapter 66 members when a replacement appointment has been made to the position. Any enquiries concerning IARS matters should continue to be directed to Allen at 111 Northcote Road, Seven Hills 2147, NSW.

Good hunting.

LU3ZY

I have previously accepted a few QSLs from this station for DXCC credit for the South Sandwich Islands. I have now rescinded credits given for LU3ZY and will not accept any further QSLs for this operation for the following reasons:—

(a) The QSL does not strictly comply with paragraph 4.3 of our DXCC rules in that it does not show "the location or address of the station at the time of contact", and

(b) Advice contained in the February 1979 issue of the RSGB "Radio Communications" is that LU3ZY was operating from Thule Island, which is a dependency of Falkland Island, which is a crown colony. The unlicensed amateur radio station on Thule Island using the call sign LU3ZY is therefore illegal. (Presumably he should have had a VP8 call! Sorry fellas.)

VE1MTA — SABLE ISLAND

It is now confirmed that the ARRL will not accept QSLs from this operation for DXCC credit. All credits previously given have therefore been rescinded. See my notes in June AR. ■

BOOK REVIEW

TELEVISION INTERFERENCE MANUAL — SECOND EDITION
By B. Priestley.

Published by Radio Society of Great Britain.

The Television Interference Manual provides a comprehensive coverage of this problem which all amateurs have at one time or another.

Chapters cover the causes, cures and social aspects of this problem. The causes and cures are useful but the social side or how to deal diplomatically with neighbours is most important.

The usual causes are dealt with, although in some places the book of necessity uses the UK TV channels which are arranged a little differently to ours.

Similarly, there is little treatment of 300 ohm ribbon feeder. This is only a slight disadvantage as newer systems are using coax increasingly and the cures used for 300 ohm line are similar to those used with coax.

Another minor grouch is with the treatment of receiver radiation causing TVI. The RSO is now a rather old receiver and the newer FRG7, Barlow-Wadley, SSR1, and standard receivers are all good candidates to cause TVI due to the first oscillator in the Triple Mix Scheme used.

The book, however, provides a very good coverage of a most difficult and wide ranging subject. A definite must on the bookshelf of any ham shack. Available from Magpubs.

VK3AUI.

LEARNING MORSE CODE
By Rax C. Black VK2YA.

This booklet is designed to accompany a set of morse practice cassettes produced by the Wireless Institute of Australia, NSW Division, Education Service.

The booklet is useful in that it explains many points on learning the code and helps the beginner to avoid the pitfalls.

The book is aimed at helping students to attain novice standard. All morse code students must go through this standard even if aiming for higher speeds. The booklet points out the essentials of receiving and sending good morse.

Simple procedural signals are covered, along with the alphabet and the numbers. These are important to a beginner as they are in constant use but are often left out of many simple books.

An easy to follow booklet which would complement a set of practice tapes.

Available from the WIA VK2 Division Education Service, together with the morse practice tapes on C60 cassettes.

VK3AUI.

Sorry the wrong price got in for the right book, "Radio Frequency Interference How to Identify It and Cure It" by ARRL. Page 24, May AR. Price should read $3.70 plus post (150g), instead of $2.60. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

TS500 Transceiver c/w power supply, $350; 14 AVQ vert. ant., $55; X beam, $40. VK2AGS, QTHR. Ph. (02) 438 9299 Bus., (02) 638 4191 A.H.

ICOM IC502 6m SSB Transceiver, excellent cond., with home brew 40W valve linear, $200. VK2BHH. Ph. (02) 476 2818.

CMOS Keyer, built in paddle, dark green heavy case, variable speed, perfectly formed and spaced morse, inbuilt switchable sidetone, hardly used, just plug into Tx; built from kit but find I prefer old brass key, $25 or offer, including circuit, battery and postage. VK2BTM, QTHR.

TS520, AC-DC, 1977 model, good cond., $530, ONO; FT7 with car transmission hump mount, 2 months old, $400, ONO. VK2AZT, Cootamundra. Ph. (069) 42 1392.

Heathkit SB610 Monitorscope, $200; Drake R4C Rx with noise blanker and extra xtals for 160, 31, 25 and CB, $600. VK3AIF, QTHR. Ph. (03) 857 5401.

Yaesu 101B Transceiver with CW filter; will exchange for FT7 or FT7B, or sell $600, ONO; Icom 22 FM transceiver, sell with Ch. 40, 50, repeaters 42, 44, 46, 48, 74, $150. VK4PM, QTHR. Ph. (074) 62 1021.

Icom IC 280 2m FM Transceiver, power output about 15W, exc. cond., $400. One condition — proof of a licence or operator's certificate or NO SALE. Graham VK3ZPR, Laverton. Ph. (03) 399 1937.

Two Vinten VHF FM Lo-band MTR 19 Transceivers in states of disrepair, good for ratting or maybe getting one going on 50 MHz, $15 each. Graham VK3ZPR, Laverton. Ph. (03) 399 1937.

Urgent Shack Cleanout, Drake T4X SSB/CW 200W DC input Tx and AC power supply, Drake R4A Rx with Drake noise blanker and Drake filters, matching Drake MS-4 spkr, Drake MN-4 ant. matching network, wattmeter, SWR bridge, Dynamic desk mic., complete owner's manuals, mint cond., any inspection welcome, complete with new ATV-4 Cushcraft HF vert. ant. and cable, $875; Cushcraft ATB-34 4-el. 10-15-20m trapped yagi, best available, 18 ft. boom, 31 ft. elements, new in box, $225. James VK2JO. Ph. (02) 389 0428 Bus., or (02) 36 7756 A.H.

Mobile Antennas: RSE-2A stub for 144 MHz, RSL3-5 for 80m, RSL-21 for 15m, and RSE-2 gutter mount, good cond., not used much, were $85 the lot, sell for $60. John Brereton VK5NHB, 27 Kent Ave., Brahma Lodge, 5109, South Aust.

Rx National (HRO type), with coil boxes covering 1.7 to 30 MHz, separate power supply included, $150 or ONO. VK2VIL. Ph. (049) 97 6146.

Galaxy V Mk. 2 Transceiver, excellent cond., Includes remote VFO, x cal., VOX PCB, box spare transistors and valves, some used, hand book and circuitry, $400, ONO, to licensed amateur only. VK3QY, QTHR. Ph. (03) 93 5577.

Heath HW-8 Transceiver, 80-15m, transmits CW, receives CW/SSB, VFO control, carefully built July 1978, 12V power, suit Novice, $180. Send s.a.s.e. for specs. and log extract, B. Wills, VK4NJB, Hunt St., Forest Hill, Q., 4342.

Collins S Line, selling out home and beach stns., 75S3B/32S3/516F2, 240V, 200 Hz CW filter, DX processor, $1500; 75S1/32S1/516F2, 117V, $1200; standby 75S1/32S1/local 240V PS, $1000; all clean, proven reliability. VK3SK, QTHR. Ph. (03) 527 1861.

HW32A 20m SSB Transceiver, complete with power supply, manuals, speaker, mic., spare set of matched finals, covers 14.100 MHz to 14.350 MHz in two steps, $200. Mike VK4DM. Ph. (07) 281 0032.

FT200 with Yaesu AC supply/speaker and home brew external VFO, $350; SL-55 audio active notch filter, $100. VK4QK, QTHR. Ph. (07) 261 1626.

Quad 4-el. 10 and 15m Fibreglass Spreaders, $200; FT7 Yaesu mobile, 3 weeks old, $360; 50 ft. telescopic tower (Hills), $80. VK4NML, Lot 226 Roderick St., Loganholme 4129. Ph. (07) 209 8575.

Uniden 2020 Transceiver, 80m to 10m, very little use, incl. spare finals, $475; Osker-Block SWR/power meter, $45. VK3ZVB, QTHR. Ph. (03) 703 1335.

Heath SB300/SB400 matched Rx/Tx, spare valves, plus manuals, excel. cond., all leads, $325, ONO; Icom IC22 R1 to R10, Simplex 40, 50, 51, plus odds, new cond., $145. VK2HZ, QTHR. Ph. (047) 51 1724.

SE502 22 Channel Conv. CB Rig, 28.300 to 28.600, only 30 contacts, new, $150, selling $100; includes mic., AC and DC cords. VK4NGG, 378 Pease St., Edge Hill, Cairns, Qld. 4870. Ph. (070) 53 1445.

Kyokuto 2m FM Transceiver, 800 channels synthesied, all accessories, manual, as new, $255; free delivery Sydney. VK2BHE, QTHR. Ph. (06) 24 1447 A.H., (06) 21 2211 Bus.

Icom IC 701, as new, still in original carton, incl. mic. and inst. book, etc., $1,100. Cliff VK2VK. Ph. (065) 52 4477 Bus., or (065) 59 1508 A.H.

Icom IC245 with SSB adaptor fitted, excellent cond., in original packaging, $490, ONO. VK2ZXR. Ph. (02) 869 2695.

Yaesu FRG7 Comm. Rx, as new, 12 months old, $250, ONO; Stromberg-Calston short wave and BC band Rx type 5V15, WWII vintage, complete but not working, any offers. Write VK2VLK, 61 Arthur Street, Forestville, NSW 2087, or ph. (02) 452 4302.

Trio RX 9R-59D, $90; Tech tradiper GDO TE15, $25; Leader sig. gen. LSG11, $25; Ferrocart VTVM (1500V), $25; power transformers 500V, 660V, 800V and 1500V, each side of CT 300 mls., $9 ea. VK2YZ, QTHR. Ph. (02) 661 3622.

Novice to Full Call Technical, 500 questions, new book, just what you need for the next exam, $2.50 posted, the latest from K. Wilson, WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

TH6 DXX Beam, $150. VK3SK, QTHR. Ph. (03) 527 1861.

Autec Audio Active Filter QF1, selectivity, notch, and band pass ranges, $70. B. Bathols VK3UV, QTHR. Ph. (03) 90 6424.

FTDX401, new spare finals, Shure mic., good order, $400. VK5QT, QTHR. Ph. (08) 261 5051.

Microprocessor Course and Hands-on Trainer, sure way to learn machine language programming and interfacing, mint cond., Heathkit EE3401 course, ET3400 trainer, $350, ONO; Kyokuto FM144-10SXRII Handbook, mic., mobile and shack mounts, ¼ wave whip, little used, $200; Akai 4000DS Mk. II stereo reel recorder, little used, inc. couple tapes, $200, ONO; all items must go! VK2BXF, QTHR. Ph. (02) 888 2981 A.H.

Kenwood TS820, with factory installed digital readout, CW filter, DC/DC conv., mic., ext. VFO (VFO 820), a fine unmarked rig for a discerning amateur, in original carton, reluctant forced sale, $1,000. B. Bathols VK3UV, QTHR. Ph. (03) 90 6424 A.H.

The Famous Novice Kit, contains morse and theory, texts, tapes and 1,000 typical exam questions, only $15 posted. K. Wilson, WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

Yaesu FT101B 80-10m, $500; FV101B, $100. VK4TT, 1724 Mt. Cotton Rd., Burbank, Old. Ph. (07) 390 2810.

Trio TS500 80-10m HF Transceiver, ex. cond., rarely used, with manual, $400, ONO. VK2ZSC. Ph. (02) 674 2104, Steve, after 1730 EAST.

Learning Morse? Need a Set Spaed Tape? You nominate any speed between 4-20 w.p.m., we will send you a C60 lape for $2. Fred Santos, VK2 Education Service, 8 Cooper Street, Blacktown 2148.

FR-101 Digital Yaesu Rx, mint cond., all modes, SSB, FM, AM, RTTY, CW, all xtals, built-in 6 and 2m convertors, coverage 160-2m, plus major S/W bands; Yaesu's top line Rx, $900; will take FT7, FT620B or Barlow-Wadley XCR-30 Rx as part payment. VK4UX, QTHR. Ph. (074) 62 2596.

Ext. VFO (VFO 820), suit Kenwood TS820/820S, pert. cond., $130. B. Bathols VK3UV, QTHR. Ph. (03) 90 6424.

Edison Home Phonograph and 42 Cylinders, will not separate, can arrange inspection in Melbourne, what offers? H. Clill VK3HC, QTHR. Ph. (052) 52 1608.

Argonaut 509 HF Tcvr., new cond., operates well, $350; Drake comms Rx, SSR-1, $200. Will deliver articles within Melbourne area, upon discussion, free of charge. VK3CAQ, Box 326, Laverton 3028.

Kenwood TS120S, new HF solid state Ttansceiver, with cooling fan, built-in protection lor linal transistor and English manual, $680. VK3SB, QTHR. Ph. (03) 550 3521.

Atlas 21SX/NB 160-15m, all solid state, C/W Atlas frequency display, crystal lock adaptor, mobile bracket and AC power supply, $550; Trio-Kenwood TS-820S with CW filter and DC supply, $850; Icom IC-215 C/W nicad batteries and charger, $170. A. Nutley VK2BNA. Ph. (02) 230 5122 Bus.

FT101, good working cond., bands 80, 40, 20, 15, 11, 10, 240V AC or 12V DC operation, complete with both sets of cords, mic. and manual, $450, ONO. VK5JY, QTHR.

Learning Morse Code? New commercially printed book, excellent value, $6.50 posted, with two C60 morse cassettes. K. Wilson, WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

Yaasu FR100B-FL200B, matched Rx-Tx, 250W PEP, just overhauled and re-valved, ex. cond., $320; as new FL2100B linear, $425, ONO; as new YO100 monitorscope, ex. cond., $260, ONO; Oskerbloc SWR 200 power/SWR meter, 20/200/2,000, still In box, priced to sell, $65; all with manuals. VK8BG, Box 40318, Casuarina 5792, NT. Ph. (089) 27 1895 A.H.

Yaesu FTV650 6m Transverter, as new, matches FT401 series equip., $150. VK5XX, QTHR. Ph. (08) 71 9566.

Unwanted Gift, location limits usage, one Multi-Palm II complete, plus xtals, repeaters 4, 5, 7, 8, plus AC/DC charger, offers. VK2YN, QTHR. Ph. (046) 77 1842.

IC22S with mobile mounting bracket and 2m 5/8 whip, $300; Barlow Wadley XCR-30 Rx, $200. R. Hollis, 69 Spence St., Pt. Vernon 4655. Ph. (071) 28 2785.

Swan 500C Tcvr, 500W PEP Input, 230 XC PS spkr., 508 external VFO VX-2 Vox, $750. W. Bixler VK4UY, 19 Simla St., Toowoomba 4350. Ph. (076) 32 9192.

Belcom Liner 10 Transceiver, 28.480-28.710 VXO, 10 kHz shift, continuous coverage, new, 2 mths. old. $210; Shure 401A hand mic., new, $32; HC250 antenna coupler, new, $75. VK7NAB. Ph. (003) 31 7914.

Johnson Kilowatt Matchbox, as new, includes SWR meter, $200. VK1BH, QTHR. Ph. (062) 88 6062, (062) 65 5385 Bus.

Beam Mosley TA33JR Tri-band, buyer collecl, $100; speech processor, COX ampress audio type, $30. VK3WW, QTHR. Ph. (03) 465 2991.

Ten Tec 544 Transceiver with external power supply, as new cond., $1,000. Ralph VK5NRD, C/o PO, 2 Hardy Street, Croydon Park 5008, SA, or Ph. (08) 46 6260.

TS520S, mint cond., 12 months old, $600, ONO; Gemtronics 3325, converted to 10m, 20 kHz shift on clarifier, excellent mobile rig, $115, ONO. VK3NEX. Ph. (03) 44 2601.

Kenwood TS520S, absolutely new, never used and in original package, selling because of Illness, still in warranty, $650. 17 William St., Henley, via Gladesville 2111. Ph. (02) 89 2530.

WANTED

Mast Clamp for Daiwa DR 7500S Rotator, must be in v.g. cond. Peter Gingell VK3NVJ. Ph. (053) 39 2520.

.005 pF or similar high voltage mica RF block condensers. VK3ACA, QTHR. Ph. (03) 306 2069 A.H.

Copy of Instruction Manual for Tech TE-15 GDO, will pay. Nick Lock VK4NCY, 250 Flanagan St., North Rockhampton 4701.

Remote VFO, external speaker, Yaesu antenna toner, all for FT101E, and manual for FTDX 400. VK4QZ, 14 Alice St., Townsville, Q. 4814. Ph. (077) 79 9645.

Any information or specifications for an AWA VHF Comm. Rx type C55917; DCA type R-30, covering the aircraft band. VK1NAM, 21 Foxall St., Holder, ACT 2611.

Galaxy Five, working or not, VK2NJW, 69 Edward St., Tamworth. Ph. (067) 65 5539 A.H.

High Voltage HF Block Mica Capacitors, .001 to .005 microF, also one six ft. standard PMG rack with base. VK3ACA, QTHR. Ph. (03) 306 2069.

Reasonably priced new or secondhand microprocessor controlled CW/RTTY/ASCII generating keyboard, with AFSK, for training members of "The Northern Territory Blind Assoc." to novice and AOCP. Send details to VK8BG. Box 40318, Casuarina 5792, NT. Ph. (089) 27 1895 A.H.

Donations of no longer required surplus equipment, to aid, train and possibly equip, future blind operators from "The Northern Territory Blind Assoc.". Write to VK8BG, Darwin DX Working Group (NTBA), Box 40318, Casuarina 5792, NT, or Ph. (089) 27 1895 A.H.

1 (one) Toyomura KP-12A RF Speech Processor, will pay top price for one, must be 100 par cent cond. VK7NOW. Ph. (004) 26 1520.

Valves, type 6BE6, 6AG5, 955, RL18, 2C40, 2C43, 2C39, 446B, old VHF UHF Rx/Tx, old radar equipment. VK2ZHS, QTHR. Ph. (02) 59 5390.

Keen Radio Amateurs to attend NQ Convention, must be in good working order. Contact VK4WIT, QTHR.

Hallicralters HT33B or HT41 Linear Amplifier. John Wallace VK3VV, QTHR. Ph. (054) 43 2803.

TRADE HAMADS

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Hard to Find Parts! Air variable capacitors 40-310 pF, 7.5 kV, $55 ea.; 60-800 pF, 4.5 kV, $59 ea.; six position rotary switches, 13 kV flashover, 20A contact rating, $49 ea.; all items brand new, limited quantity surplus purchase and offer cannot be repeated. Orders to ECS, PO Box 164, Gymea 2227. Ph. (02) 525 8203. P & P $5, excess refunded.

QSL Cards, Log Books, Contest Sheets — send 20c stamp for samples and prices to Linda Luther VK4VV, PO Box 498, Nambour, Old. 4560.

Are you on frequency? Be on frequency with DSI, full range of top quality counters to 1300 MHz, 0.1 part per million accuracy; Quick-Kit 50 Hz to 550 MHz counter kit, 95 per cent assembled, 100 per cent tested, 12 months part warranty, AC or DC operation, 8 digit ½ LEOS, accuracy 1 part per million; Introductory price, $135, incl. postage. Write for further Info or check ads in American QST, Ham Radio, etc.; Australian distributor ATN Antennas, Box 80, Birchip, Vic. 3483. Ph. (054) 92 3211, ask for Z64.

Rates: $10 for 4 lines, plus $2 per line or part of line if exceeding 4 tines — prepayable.

TRADE HAMADS

For a very long time commercial advertising haa not been accepted in AR Hamads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be $10 for 4 lines plus $2 per line (or part thereof), minimum charge $10, prepayable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes. ■

ADVERTISERS' INDEX

OBITUARY

ARTHUR INGHAM BERRY VK3CZ

It is with deep regret that we record the passing of Arthur, who died on 11th May after suffering a stroke on Easter Saturday. We wish to express sincere sympathy to his wife, Margaret, and their family.

Arthur received his licence in 1930, and was a very active "ham", mainly on CW. In latter years he concentrated on DX on the 160m band — and earned the ARRL's DX CC.

In addition to "ham" radio he had a vast general knowledge and was vitally interested in music — he was a fine violinist. He was educated at Scotch College and Melbourne University, where he was one of the first to receive a Degree in Architecture. He was an expert in reinforced concrete and construction.

For many years he has lived at East Warburton, farming part-time and also working as a Consultant for the Melbourne City Council in connection with Uniform Building Regulations — another field in which he was expert.

Arthur was a man of great integrity, he had a wonderful personality, and was a true friend who will be sadly missed.

Contributed by Athol Pritchard VK3CP (a close friend for 50 years). ■

FREDERICK GEORGE BAIL VK3YS

Although Fred began his days in the workforce as a carpenter, another interest, wireless, had captivated him. By 1938, at age 20, he had obtained an amateur licence and when war broke out it was his knowledge of radio communications rather than his trade that was needed. Initially he was an instructor at the Ballarat Radio School with the rank of Warrant Officer. Later he was transferred to 82 Fighter Squadron and served with this unit until the war ended.

Fred and his brother, Jim VK3ABA, returned to the building industry but the lure of electronics was strong and Fred was soon installing and servicing Hi-Fi and radio sets. After graduating at the Marconi School of Wireless, Fred turned his attention to TV when it arrived in 1956.

Although active on all HF bands, VHF had a special fascination for Frad, particularly 166 MHz and later 144 MHz. Many happy hours were had operating portable on these and other frequencies. Mobile operation in his diesel engined cars became another feature of his activities.

In 1954 he became Federal Councillor for the Victorian Division of the WIA and served in many other capacities in the following years — Secretary 1955-56, President 1957-56, and Vice-President 1959 to 1962. For a number of years he relayed the Sunday Broadcast on 144 MHz and conducted a slow morse practice on Sunday evenings on 3.55 MHz. During his term as President, the Division and VK3WI were established in Victoria Parade.

In 1961 Fred visited Japan and made contact with several electronic manufacturers. He brought back with him a 20W SSB transceiver made by Yaasu. A 100W version became available very shortly after and Fred and Jim launched a small enterprise that developed into one of Australia's largest suppliers of amateur equipment — Bail Electronic Services.

Fred has been a frequent visitor to country and interstate areas, firstly as a member of the Victorian Division and later with trade displays.

In spite of an obviously busy life he found time to encourage youngsters who showed interest in the hobby that had given him so much pleasure. Quite a few amateurs have gained their licence because of "Uncle" Fred's interest and assistance.

Fred died suddenly on 26th May. To his wife, Gladys, and his brother, Jim, we extend our sincere sympathy.

(VK3AFW) ■

VALE

MARY CLARA WILLIAMS BLACK

With the sad passing of Mary Black at Springwood, NSW, on 13th May, amateur radio lost a supporter of long standing.

A lady of much charm and many talents, the Minister delivering the eulogy at her cremation, amongst other facts, described her as the mother of the WIA's Youth Radio Scheme.

Her husband, Rex VK2YA, for over two decades had worked unceasingly to ensure his "brain child", the YRS, was firmly established and later was to play a prominent part in the ultimate granting of the Novice licence.

During this time Mary not only supplied moral support but assisted directly with the multitude of duties, letter writing, certificate issuing, entertainment, etc. She could clearly appreciate Rex's aims and often provided a guiding hand, needed during the difficult periods in the establishment of any scheme.

Amateurs throughout Australia extend their deepest sympathy to Rex on the loss of a wife and to his family on the loss of a mother.

By Bill Moore VK2HZ. ■

JOHN R. MOYLE VK2OZ

John, well known in many States, died on April 5, 1979, quite suddenly.

In the early 30s he first operated from Laurel Hill, near Ballow, as VK2EZ. No power was available so 135V of "B" batteries provided the HT, and quite a potent signal.

His career was varied — he joined the RAAF, became VK3EZ, returned to civilian life, and rejoined the RAAF early in WWII, to be discharged as a Squadron Leader, Signals.

Having obtained a commercial ticket, he flew with Qantas as a wireless operator in DH86s and Flying Boats.

Around 1950 he moved to WA and as VK6EZ was very active on the HF bands. He served with the Department of Air and B/C stations for many years.

On his retirement, just over six years ago, he returned to NSW to operate as VK2OZ. An unassuming man, willing to help anyone with a problem, he will be remembered for his generosity in providing the elusive component from a "junk" box of incredible proportions. An ardent supporter of the WIA and OCWA, John enjoyed nothing better than to yarn to his fellow amateurs at the monthly informal "forums" at Palm Beach.

To his twin daughters, Louise and Shirley, both in WA, amateurs extend their sympathy.

Unfortunately his wife predeceased him some years ago.

By Bill Moore VK2HZ ■

MERVYN LAURENCE CONWAY VK7CL

Mervyn Conway died on April 2nd, 1979, after a long illness, being active on the air until a month before his death. First licensed in March 1936 as VK7CL, Merv was an active amateur through the last 40 years of advances in radio technology. An early experimenter and home brewer, Merv took particular delight in working up a circuit from first principles and making it work as a consequence of the theory rather than in spite of it. Amateurs in many parts of the world will miss his exemplary operating technique and the friendly help he gave to operators whose mother tongue was not English.

Unmarried and a teacher for 40 years, his influence on several generations of students was great not only in the classroom but also because of the time he gave his students in such extra-curricular activities as swimming, bush-walking and hobby interests; many amateurs owe their initial spark to him.

One aspect not widely known about Merv was his quiet but practical generosity to the disadvantaged and the underprivileged. His friendship and caring concern will be remembered not only by those who knew him well, but also by many in New Guinea and the Pacific who partook of his unselfish hospitality.

From S. Giudici VK7SG. ■

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. J. C. BATCHLER	VK7JB
Mr. F. G. BAIL	VK3YS
Mr. M. BARRY-COTTER	VK2SX
Mr. M. J. MacGAVIN	L30810
Mr. A. I. BERRY	VK3CZ
Dr. R. M. IRWIN	VK4FI
Mr. M. L. CONWAY	VK7CL
Mr. H. J. W. HALL	VK3EK

CLIFF EVANS K6BX-SK

HAM EXTRAORDINARY

Almost everyone who has any interest in DX or International Awards Programmes will have heard, by now, of the death on 30-3-79 of Cliff Evans K6BX — the Old Man as he was known to Hams in almost every corner of the world. This outstanding and controversial character was a Ham for 65 years and, at one time or another, held calls from some two dozen countries spread around the globe. In all, he used over 40 different prefixes.

After retiring from the Navy with the rank of Commander, where he was for twenty-three years a naval aviator, he finally settled in Bonita in South California. Here, amongst many other activities, he proceeded to create the biggest Awards Programme that Hamdom has ever seen and is likely to see. His CHC (Certificate Hunters' Club) has Chapters in over one hundred countries. He also established a large FHC (Flying Hams' Club), the IARJS (International AR Journalistic Society), etc. On the journalistic and editorial side, he produced quarterly the BIG "D" (a directory of awards) and the EXTRA NL. He also wrote countless articles on every subject pertaining to AR.

Besides the CHC and FHC Awards Programmes, he adopted the role of one of AR's most vocal critics. He voiced his opinions of any one, body or group, via his newsletter THE EXTRA, in a blunt and forceful journalistic style — naturally, these public comments and exposures were received unfavourably by many. However, his fan mail never diminished and the various Chapters of CHC, in most countries, yearly increased in membership.

Your scribe here corresponded with the Old Man for over fifteen years, mostly on matters pertaining to awards. It is impossible to know anyone this long, even through correspondence, and not begin to know the real Cliff Evans. Like all of us, he had his "warts", but under that rather blunt assertive exterior there were several soft spots — one being his concern about the charitable attitude to AR's "limping men". It was part of his programme that any blind, handicapped, or permanently ill Ham could participate in the Awards Programme with no monetary costs whatsoever; and he saw to it that as many as possible received free magazines and call books, etc.

Together with AR and a distinguished naval career, he found time to take degrees in Political Science, Radio Engineering, Psychology and was a member of the USA Journalistic Society, viz., Sigma Delta Chi.

He was a man of outstanding ability and had a driving force that enabled him to achieve the work of three men in his lifetime. As long as AR remains as it is, the call Cliff Evans K6BX will be permanently part of it.

A. Shawsmith VK4SS.

Sideband Electronics Sales

TRIO KENWOOD COMMUNICATION CENTRE

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Trio-Kenwood Test Instruments
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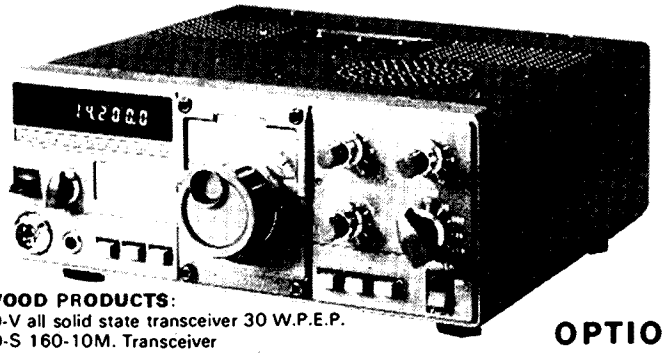
KENWOOD



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TS-600-A All mode transceiver
TS-7000-A 2.M FM. 25W. Transceiver
TR-7500 2.M. FM. 10.W transceiver
TR-7600 2.M. FM digital transceiver 800 CH.
TR-8300 70. CM. FM. Transceiver
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VFO. 520-S External VFO for 520-S
VFO. 820 - External VFO for 820-S
VFO. 700-S External VFO for TS-700-SP
SM-220 Station monitor
BS-8 and BS-5 PAN adaptor
SP-820 Deluxe Speaker consul
SP-520 Speaker consul
SP-70 Speaker consul for TS-700 & 600
VOX-3 Vox unit for TS-700 & TS-600
DS-1-A DC converter for 520-S & 820-S
DG-5 External digital display TS-520-S
AT-200 Antenna coupler
MC-30-S Microphone 500 OHM
MC-35-S Microphone 50. K. OHM
MC-10 Microphone 50. K. OHM.
MC-50 Deluxe desk Microphone dual imp
HC-2 Deluxe Ham clock
YG-68 CW. filter for TS-820
YC-3395 CW filter for TS-520
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SKY 20 six feet long 14.150	$26
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CRYSTAL FILTER, 9 MHz, similar to FT-200 ones. With carrier crystals. $39

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At GFS, Australia's Atlas agents, we are proud to introduce a real breakthrough in HIGH POWER, LOW COST, amateur transceivers.

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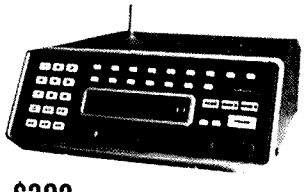

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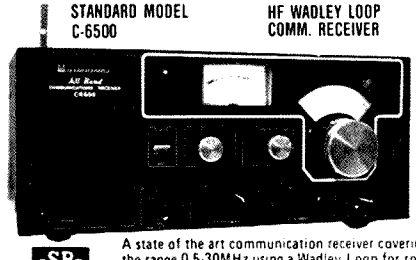

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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 8 AUGUST 1979

FEATURED IN THIS ISSUE:

- ★ 40 CHANNEL DIGITAL SYNTHESISER FOR 2m FM
- ★ UHF TECHNIQUES
- ★ WEATHER RTTY
- ★ EARLY DAYS IN RADIO
- ★ REPEATERS AND 2m FM — NEW CHANNEL NUMBERING PLAN

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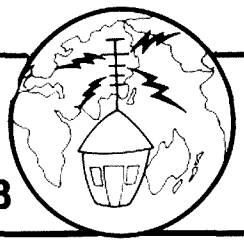

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"JULY and AUGUST SPECIALS"

Published monthly as its official journal by the Wireless Institute of Australia, founded 1910.

amateur radio

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CONTENTS

TECHNICAL

GENERAL

DEPARTMENTS

Cover Photo

The Rt. Hon. A. A. Staley, Minister of the Postal and Telecommunications Department, addresses WIA Councillors and Delegates at the 1979 WIA Federal Convention held in April this year in Melbourne.

Also shown at the Official Table are David Wardlaw VK3ADW, WIA Federal President (left), Michael Owen VK3KI (right), and First Assistant Secretary of the P. and T. Dept., Mr. Jim Wilkinson (extreme right).

Mr. Staley gave a spirited and humorous lecture which was much appreciated by all present. Refer to last month's AR for details.

Note also the new WIA banner displayed on the rear wall (partly obscured). The banner is now available to Divisions for display at major amateur events.

(Photo by VK3UV)

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QSP

DR. KILDARE'S SECRET?

We know that Dr. Kildare can cope with almost any ailment but wonder how he does it. Could his secret be a Renulite Violet Ray High Frequency Generator? This wonderful instrument was advertised in the March 1919 issue of the "Electrical Experimenter". It transformed "electricity from your light socket" into "painless" electricity, the violet ray. It was claimed to treat successfully a great list of many ailments, given in alphabetical order, commencing with abscesses, anaemia, included baldness ,colds, dandruff, lameness, obesity, etc., etc., and concluded with weak eyes, wrinkles, warts and moles. It is easy to smile with seventy years hindsight, but are we any less gullible?

QSL POLLUTION

Writing in March 1979 Break-In, John Sainsbury, well known as an activator of rare DX under call signs such as VQ1HE, VS9AHE, 5ZHE and many more (licensed as ZL1WJ and now believed to be a VR1 in Tarawa), asks how often are you actually asked to QSL. In analysing his log books during the past 25 years of operating in several African and Middle East countries a 100 per cent QSL is not indicated. Only 40 per cent who said they would QSL actually did so, whereas he QSLed for just over 60 per cent of his contacts. Inwards, about 4 per cent (the realty keen ones) sent cards direct to him, 51 per cent took not less than one year to arrive, 17 per cent exceeded two years and 18 per cent came in via QSL bureaux between 7 and 12 months; 5 per cent took over 5 years to arrive. His comments on the general QSL "mess" is an urgent need for discrimination. (P.S. 7Q7PBD goes along with the comments in his article — consigning well over 10,000 pieces of printed pasteboard to the rubbish dump when changing QTH half-way round the world must have some meaning, somewhere.) ■

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These are entitled to the use of the WIA emblem and the words: "WARC Amateur Supporter" in their advertising displays.

WIANEWS

EXAMINATIONS

The following is the text of letter 53.2.6 of 12th June addressed to the Institute by the Assistant Secretary, Licensing Policy and Operations, P. and T. Department:—

"Following recent negotiations between representatives of the Institute and Departmental officers, I have pleasure in forwarding several copies of the AOCP/AOLCP examination syllabus in its final format. I would also like to confirm that commencing with the August 1979 examination, a 50 question, 1½ hour, multi-choice paper is to be introduced for Section 'M' (Theory). Several copies of a sample paper are enclosed and quantities of both documents will be available for general distribution in the near future.

"It is intended that all future AOCP/AOLCP section 'M' (Theory) examinations will be multi-choice. However, for the August 1979 examination, papers in both old and new formats will be available so that candidates who have prepared for the usual seven question written essay type paper will not be disadvantaged by too little notice. All candidates will be advised of this arrangement by letter and will have the opportunity to choose either paper on the day of the examination.

"It would be appreciated if you could arrange for the above matters to be publicised through the Institute's normal channels as soon as practicable.

"Finally, I would like to thank those members of the Institute who gave assistance in the preparation of the AOCP/AOLCP syllabus and in particular your Federal Education Co-ordinator, Mr. G. Scott."

AMATEUR ADVISORY COMMITTEE

Another letter from the Department (51/1/1 of 11th June) sent forward a proposed draft constitution and rules of operation of Amateur Advisory Committees for Institute comments. This is designed to replace the original terms of reference dating back to the late 40s/early 50s.

Amateur Advisory Committees seem to have been originally seen as a buffer between the individual amateur and the Department in respect of minor infringements. The financial and staffing situation in the Department, following the disbandment of the old PMGs Department, has meant the discontinuance of the Amateur Advisory Committees in some States. In some others this particular service fell into disrepute amongst some amateurs by reason of individual misconceptions.

The Executive must now give thought to the whole situation because this Committee service, or something for this purpose, is an essential part of the "self-regulation" of the amateur service. "Private" self-regulation by amateurs is preferred by most people instead of official citations, and that is the key to success, given responsible behaviour by those who are charged with operating whatever scheme is devised: and also, given acceptance by the amateur concerned, that he does need to re-examine his own equipment or procedures.

As mentioned in July WIANEWS, work is still proceeding on the revision of the Handbook.

Input for the 1979 Call Book closed off at the end of June. This proved possible by reason of a small extra edit and up-date of the EDP programme. If everything proceeds smoothly, distribution by mid-August comes closer to a reality.

WARC 79 DONATIONS LIST No. 4

The Executive wishes to acknowledge with grateful thanks the receipt of the following donations from members for WARC 79:—

VK2BYO	*$10.00*
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VK7 Division (per VK7PF)	*250.00*
VK6 Division (sale profit on maps)	*100.00*
VK6WZ	*52.00*
Anon. — VK6	*10.00*
(VK7DG $3.16 instead of $5.00)	

An enormous amount of time and effort is going on behind the scenes in readiness for WARC 79 — the conference of prime importance to all spectrum users, particularly ourselves, due to begin next month.

Equally, much thought is going into what must be expected to happen after WARC 79 is at an end. Never before has so much effort been devoted to the amateur cause for such a vitally important international conference and its aftermath. ■

QSP — GET WITH THE STRENGTH

I make no apologies for the title, but I believe that we, as concerned amateurs and members of the WIA, must do all we can to increase the percentage membership of "our Institute".

The simplest, and most effective method is to "tell a friend" and the best way to start is to seek out local amateurs (or prospective amateurs) who live in your area. The 1979 WIA Call Book will assist in this.

As we gain strength in the Institute our combined voice will then be heard by more in the various spheres which concern us. Also the greater our strength the greater the number of talents we can call upon, enabling us to venture into areas of responsibility where the Institute should be, but cannot do so at this time due to lack of numbers.

Hence let us increase our membership and get with the strength.

F. S. PARKER VK2NFF,
VK2 President. ■

JOIN A NEW MEMBER NOW!

BETTER ANTENNAS VS. MORE POWER?

An article by ZL1OI in March 1979 Break-In analyses his contacts with over 2,500 USA and Canadian stations over several years on the 14 and 21 MHz bands. 59 per cent of the stations used input powers between 100 and 500W, 28 per cent above 500W and 13 per cent below 100W. The average power used was higher on the 14 MHz than the 21 MHz band. 48 per cent used yagis of heights from 10 to 25m, 21 per cent used verticals, 13 per cent quads and 13 per cent dipoles. Reports confirm that antennas have a far greater effect on signal strength than does the input power and that it is much more effective to improve an antenna than it is to increase power. Directional antennas are beneficial under present (sunspot) conditions, not so much for increasing signal strengths, but for reducing QRM from directions other than that of the wanted station. On 28 MHz very good communications are obtainable with small, simple and inexpensive antennas but higher gain antennas do however provide an advantage for DX phone operation.

AR BACK ISSUES

Normally most back issues of AR to 1972 are still available from Magpubs, Box 150, Toorak 3142, on payment of cover prices plus postage. However, June 1979 is out of stock in the 1979 series. ■

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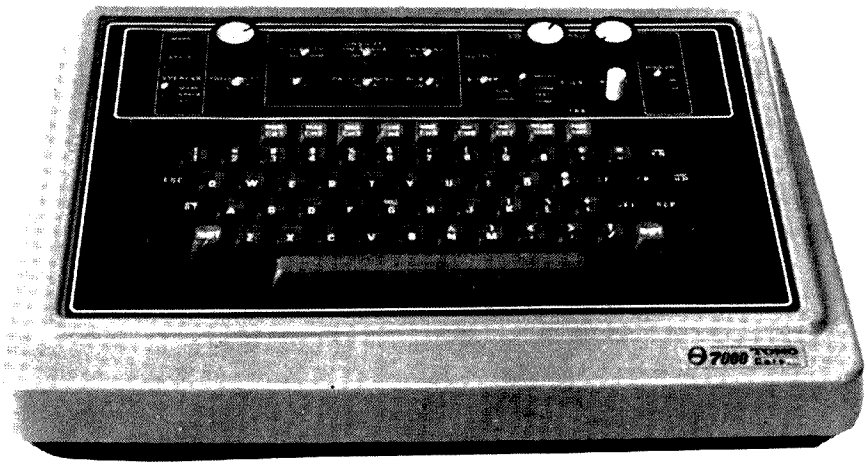

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SPECIFICATIONS

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3. Communication speed:	CW receiving: 15---220 characters/min. (automatic follow) transmitting: 17---176 characters/min. RTTY 45.45 baud, 50 baud, 56.88 baud, 74.2 baud ASCII 110 baud, 300 baud
4. Input:	AF input CW, RTTY Input Impedance 500 ohms ASCII Input Impedance 100 ohms TTL Level Input (common to CW, RTTY and ASCII)
5. AF Input frequency:	CW 830Hz RTTY Mark: 2125Hz Space: 2285Hz, 2550Hz, 2975Hz changeable and Fine Tuning in the NORMAL state ASCII Mark: 2400Hz

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6. Output:	Keying CW KEYING (1) 2000mA, 150V CW KEYING (2) 150mA, 300V FSK KEYING (3) 150mA, 300V FSK KEYING (4) 150mA, 300V AFSK output Output impedance 500 ohms TTL level Fan-outs 5 (standard TTL)
7. AFSK output frequency:	CW 830Hz RTTY Mark; 2125Hz Space; 2295hz, 2550Hz, 2975Hz changeable in the NORMAL STATE ASCII Mark; 2400Hz Space; 1200Hz
8. Display output:	VHF Australian CH4, Output impedance 75 ohms Composite video signals, Output impedance 75 ohms
9. Data output for a printer:	Data; 8 bits, Fan-out 1 (standard TTL) Strobe; 1 bits, Fan-out 1 (standard TTL)
10. Number of characters and number of pages to be displayed:	512 characters (32 characters x 16 lines)/page x 2 pages (total 1024 characters)
11. Battery backed-up memory:	32 characters x 7 channels
12. Buffer memory:	23 characters
13. Output for Oscilloscope:	Output impedance 1 megohm
14. AF output:	1S0mW (DC 12V), Output impedance 8 ohms
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A 40 CHANNEL DIGITAL SYNTHESISER WITH 25/50 kHz STEPS FOR 2m FM

Lou Destefano VK3AQZ
13 Moody Place, Endeavour Hills 3802

This article describes a 40 channel synthesizer suitable for many of the older style crystal locked transceivers on 2m FM.

INTRODUCTION

With the proliferation of modern synthesized transceivers on two metres, it was becoming obvious that we were missing out on a lot of potential QSOs. Having a crystal locked rig with a mere 5 channels, a few quick calculations for 75 more sets of crystals and an 80 position switch caused calculator overflow, temporary blackout, and words to the effect "you must have rocks in the head". Rather than be left out on the rocks it was decided that a digital synthesizer was the logical answer.

Being an ardent home brewer it was decided that rather than succumb to temptation and buy that you-beaut rig, it was far better for the soul to embark on a home brew contraption. Using my usual design techniques for home brew projects — first how much? then a bit from this circuit, some from that circuit, and a small smattering of original brain shattering concepts, I embarked on the design (3 min. 15 secs.), construction (33 min. 23 secs.), and final debugging (33 hours 10 min.) of the unit about to be described.

The basic concept was that it had to interface directly into my existing rig — preferably without wires. This being impractical it was accepted that some minor mods would be required but these were to be absolutely minimum and done only whilst the rig was asleep. The rig consists of a Hepburn-Jenkins Carphone transmitter with 12 MHz crystals, and a copy of the MTR43 commercial receiver with 34 MHz crystals. The Hepburn-Jenkins transmitter uses a Colpitts harmonic multiplier for 36 MHz output. The receiver uses an MPF121 Colpitts oscillator, followed by an MPF121 quadrupler for mixing down to a first IF on 10.7 MHz. Both these circuits have proven to be easy to drive at 36/34 MHz by disconnecting the capacitor from base/gate to emitter/source, and feeding directly into the base/gate via a crystal socket.

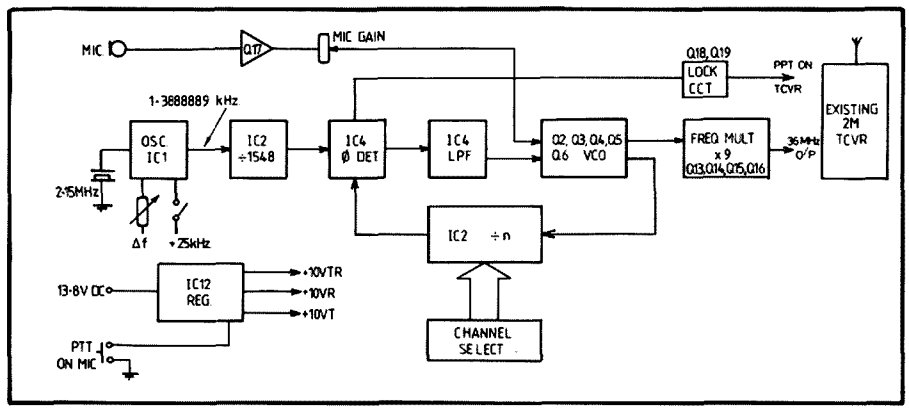


FIGURE 1: Block Diagram.

CIRCUIT DESCRIPTION

Fig. 1 shows the block diagram of the synthesizer. Fig. 2 shows the main part of the synthesizer containing the digital phase locked loop. The heart of the phase locked loop is the phase detector contained within the SCL4046.

THE PHASE DETECTOR

The phase detector compares 2 input square waves for frequency and phase and gives an output whose average DC component is proportional to the difference. A lowpass filter on its output gives smooth DC for controlling the frequency of one of the input signals. If one input is crystal-derived and the other is variable by means of the phase detector output, then when the loop is locked, the variable becomes as stable as the crystal. A simple numerical example will illustrate the use of this fact in a digitally controlled phase locked VFO. If we have a 1 MHz crystal-locked signal into one input, and a 1 MHz VFO with varicap diode control into the other input, then if the VFO is high in frequency, the phase detector will give a low average DC output. This when fed into the varicap of the VFO will cause it to shift low in frequency until the VFO is exactly on the same frequency as the crystal oscillator. The VFO becomes as stable as the crystal. If we now introduce between the VFO and the input of the phase detector a digital divider and arrange it to divide by 2, the input to the phase detector will become 500 kHz. The other input will still be 1 MHz from the crystal. The phase detector now gives a high average DC output because of the frequency difference. This in turn shifts the VFO UP in frequency until the phase detector has again 1 MHz from the digitally divided VFO into it. This means of course an actual VFO frequency of 2 MHz as we are dividing it by 2. If the division is changed to 3, the VFO will move up to 3 MHz and again it will be as stable as the crystal. Thus by varying the division ratio it would be possible with the correct type of varicap to shift the VFO up in steps of 1 MHz. The crystal oscillator input is called the reference frequency whilst the controlled VFO is called a "voltage controlled oscillator" or VCO. The reference frequency determines the step distance frequency whilst the digital division determines the number of steps (along with the range of the varicap in the VCO). The stepping distance can be 1 MHz as shown, or as low as 1 Hz.

The conventional phase detector gives an output which is a square wave whose period varies according to the frequency/phase difference. This square wave is filtered by a lowpass filter which generally would have to start attenuating at about one tenth of the reference frequency for good locking. A notch filter at the reference frequency may also be included to reduce the noise. The lockup time, capture range, and lock frequency range are highly dependent on this low pass filter design. The phase detector in the 4046 is of the digital memory type which only gives an output whilst the loop is unlocked. When the loop is locked or near locked, its output is an almost smooth DC. This means that a low-pass filter of greater bandwidth can be used resulting in fast response, wide locking range, and clean output. The 4046 also contains an emitter follower which in this circuit is used between the low pass filter and the VCO for added isolation. The IC also contains its own VCO but this is not used because it can only operate at

TABLE 1: PROGRAM CODES

Chn	Statue	Tx O/P Freq	VCO O/P on Tx Mode	÷ n on Tx Mode	Rx Injection Freq (10.7 MHz IF)	VCO O/P on Rx Mode	÷ n on Rx Mode
40	Simplex	146.000	4.055 555 6	2 9 20	135.300	3.758 333 3	2706
41	Rept. 1 I/P	146.050	4.056 944 4	2 9 21	135.350	3.759 722 2	2707
42	Rept. 2 I/P	146.100	4.058 333 3	2 9 22	135.400		2708
43	Rept. 3 I/P	146.150		2 9 23			2709
44	Rept. 4 I/P	146.200		2 9 24			2710
45	Rept. 5 I/P	146.250		2 9 25			2711
46	Rept. 6 I/P	146.300		2 9 26			2712
47	Rept. 7 I/P	146.350		2 9 27			2713
48	Rept. 8 I/P	146.400		2 9 28			2714
49	Simplex	146.450		2 9 29			2715
50	Simplex	146.500		2 9 30			2716
51	Simplex	146.550		2 9 31			2717
52	Simplex	146.650		2 9 32			2718
53	Rept. 1 O/P	146.650		2 9 33			2719
54	Rept. 2 O/P	146.700	4.075 000 0	2 9 34	136.000	3.777 777 8	2720
55	Rept. 3 O/P	146.750		2 9 35			2721
56	Rept. 4 O/P	146.800		2 9 36			2722
57	Rept. 5 O/P	146.850		2 9 37			2723
58	Rept. 6 O/P	146.900		2 9 38			2724
59	Rept. 7 O/P	146.950		2 9 39			2725
60	Rept. 8 O/P	147.000		2 9 40			2726
61	Rept. 9 O/P	147.050		1 9 41			2727
62	Rept. 10 O/P	147.100		2 9 42			2728
63	Rept. 11 O/P	147.150		2 9 43			2729
64	Rept. 12 O/P	147.200		2 9 44			2730
65		147.250		2 9 45			2731
66		147.300		2 9 46			2732
67		147.350		2 9 47			2733
68		147.400		2 9 48			2734
69		147.450		2 9 49			2735
70		147.500		2 9 50			2736
71		147.550		2 9 51			2737
72		147.600		2 9 52			2738
73	Rept. 9 I/P	147.650		2 9 53			2739
74	Rept. 10 I/P	147.700		2 9 54			2740
75	Rept. 11 I/P	147.750		2 9 55			2741
76	Rept. 12 I/P	147.800		2 9 56			2742
77		147.850		2 9 57			2743
78		147.900		2 9 58			2744
79		147.950	4.109 722 2	2 9 59	137.250		2745
80		148.000	4.111 111 1	2 9 60	137.300	3.813 888 9	2746

low frequencies. It is bypassed to prevent it triggering the loop (which it did with my layout). The same phase detector also has a conventional square wave output on pin 1. This is used to indicate whether the loop is locked or not. When the loop is locked, no output occurs but when it is unlocked full amplitude pulses occur. These pulses are detected and fed to a lock indicator (one of the display decimal points) and a transmit inhibit circuit.

THE VCO

To allow the synthesizer to be used with some of the older style rigs it was necessary to have a VCO around 4 MHz. This also enabled the use of low noise, low power CMOS devices in the divider. The frequencies finally chosen for the VCO on transmit and receive are shown in Table 1. For Ch. 40 transmit simplex, the VCO frequency is 4.0555556 MHz and on receive, for a 10.7 MHz IF, it is 3.7583333 MHz. These frequencies are multiplied by 36 times to give the required outputs for receive and transmit on 2m. For my set-up, 9 times multiplication is done in the synthesizer unit after the VCO. For those rigs with IFs other than 10.7 MHz, the receive VCO frequency will have to be different and this is achieved by altering the division codes in the divider.

For 50 kHz spacing at 2m, the 4 MHz VCO must shift 50 kHz divided by our multiplication factor of 36. Thus to go from Ch. 40 to Ch. 41 on transmit, the VCO has to move from 4.055556 MHz to 4.0569444 MHz — a change of 1.3888889 kHz. This is the frequency we step the VCO by to go from one channel to the next. The same applies to the VCO frequencies on receive if the total multiplication is also 36 times. From our initial discussion on stepping a VCO in a phase locked loop, it means the crystal reference must be 1.3888889 kHz. If the multiplication factor from the VCO frequency to the final 2m frequency is different, or we wish to step in different increments, then a different reference frequency is needed. If we step in Increments of 25 kHz on 2m with 36 times multiplication, our reference frequency would need to be 25 ÷ 36 kHz = 0.69444444 kHz. The lowpass filter after the phase detector is determined by the reference frequency and in my case it has a cutoff frequency (—3 dB point) of around 320 Hz. The VCO itself Is a Hartley oscillator with high L to C ratio. The frequency is controlled by a pair of BA102 varicaps. These enable the VCO to be voltage controlled from 3.7 MHz to 4.2 MHz. The Hartley oscillator is the best circuit for such high L to C ratios. The VCO is brought to the centre operating frequency (with 5V DC on the varicaps) by adjusting the inductance. No trimmer capacitor can be used across the coil as this will considerably reduce the range of the varicaps.

The VCO is also fed with audio from a microphone amp. A few millivolts of audio is sufficient to deviate the VCO the full 8 kHz on 2m. The quality of the audio with such a modulator is very good and there is no sign of loop instability with speech. Those rigs which use a direct FM modulator by varying crystal reactance will have to either modulate the synthesizer as done here, or build a phase modulator into the rig just after the original crystal oscillator. Rigs already having a phase modulator after the original crystal oscillator need not modulate the synthesizer. The original mic. amp. in the rig can be used and fed back to the synthesizer or a simple amp. used as shown in Fig. 6. This consists of Q17 which matches my rocking armature mic. to the VCO. A small trImpot sets the audio level or deviation and a lowpass filter reduces the higher speech frequency FM sidebands. Clipping was not included as I speak softly. You can also try connecting a 50k mic. direclty to the loop via a small 50k trimpot and a 0.0022uF directly across the mic. to limit the top end of the speech. Most 50k mics have more than enough level to drive the loop directly.

The output of the VCO feeds a tuned amplifier with a low Q tuned circuit to ensure a bandwidth from 3.7 MHz to 4.2 MHz. The tuned amplifier feeds two emitter followers — one feeds the digital divider via a squaring amp. (Q5) and the other goes to the frequency multipliers.

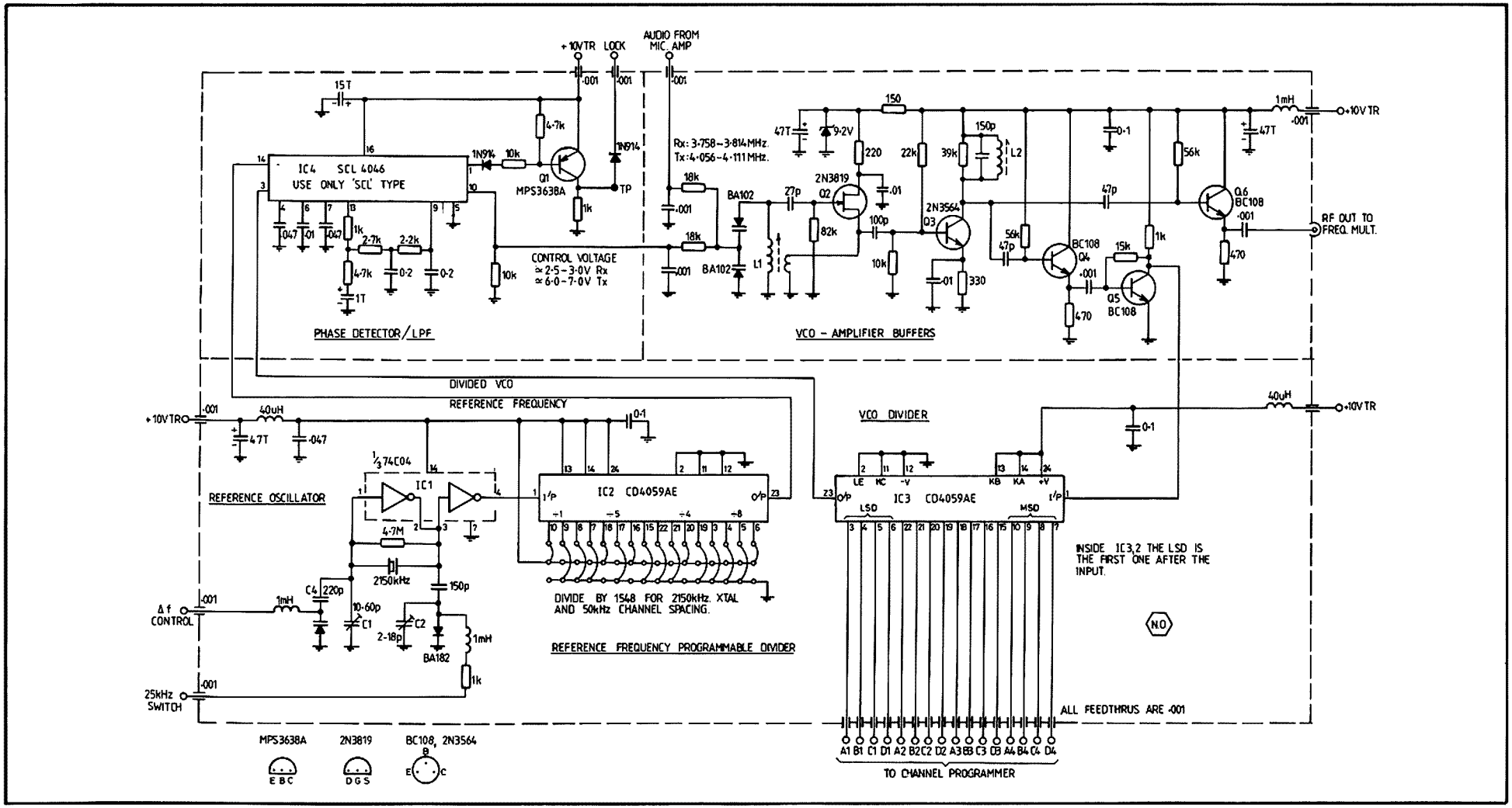


FIGURE 2A: 40 channel phase locked loop circuit for 2 metres FM.

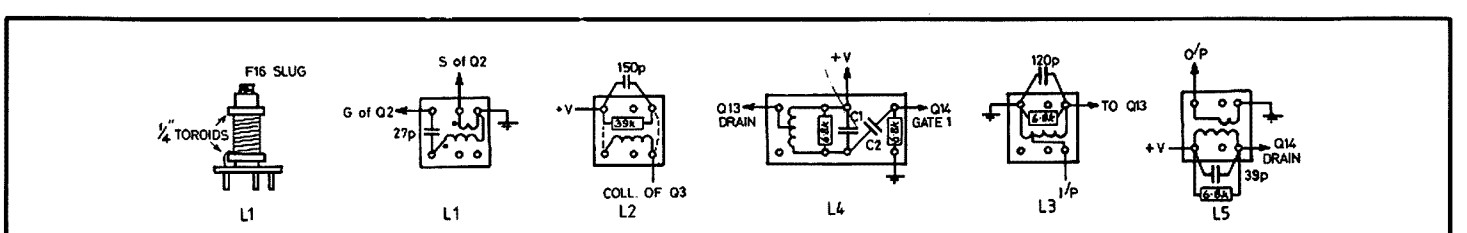


FIGURE 2B: Phase locked loop coil details.

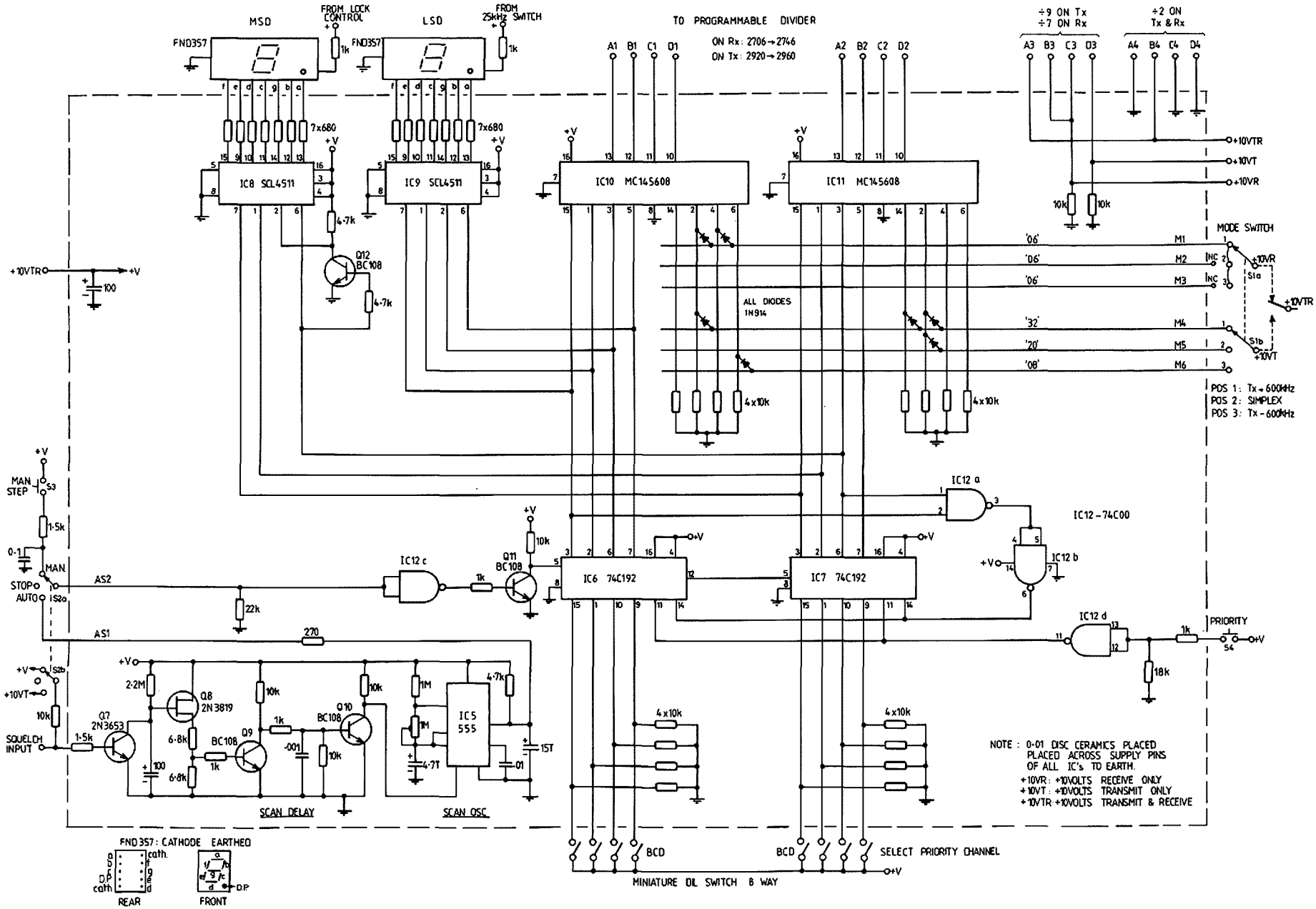


FIGURE 3: Circuit for 40 channel automatic scanner with one priority channel.

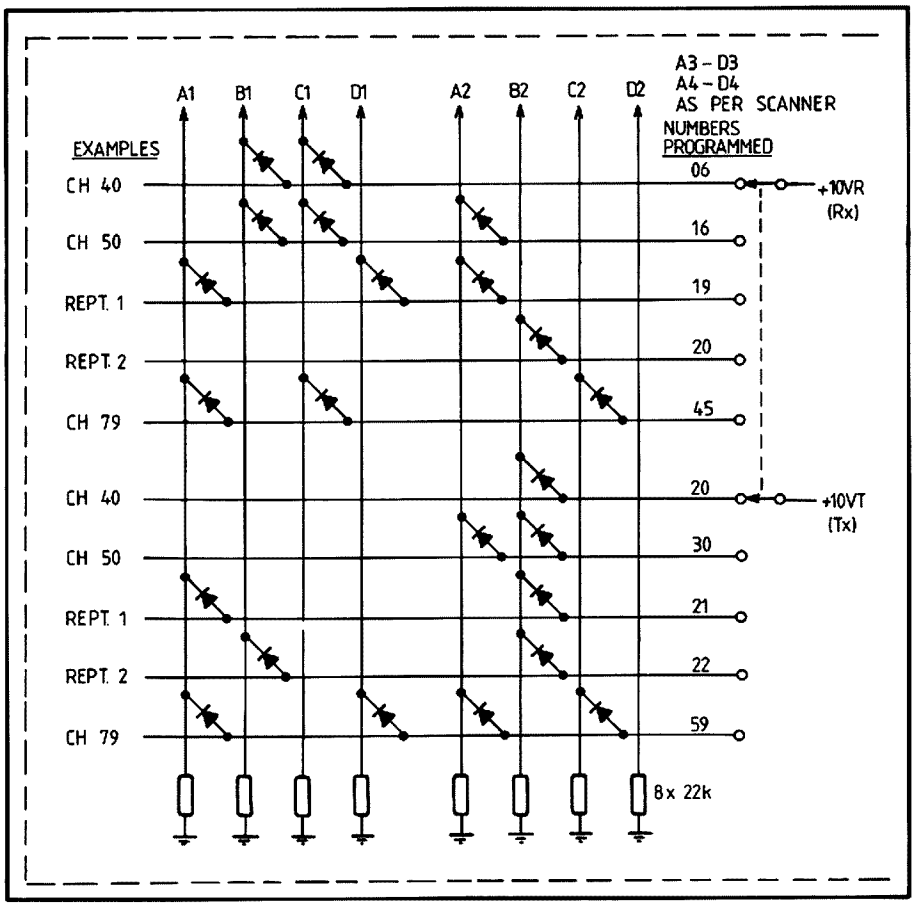


FIGURE 4: Simple diode-matrix channel select using two-pole switch.

Any low power RF transistor may be used in this section. The 56k base bias resistors are selected to give 5V DC (± 0.5V) at the emitters of the emitter followers. These resistors may need to be altered depending on the DC current gains of the transistors.

THE VCO DIVIDER

The output of the VCO feeds the digital divider via the amplifiers. The digital divider then feeds one input of the phase detector. The one used is the CD4059AE, which is a five decade BCD programmable divider capable of operating up to 4 MHz with a 10V rail and 6 MHz with a 15V rail. It divides the VCO down to the reference frequency for comparison in the phase detector. Table 1 lists the divisions need on Tx and Rx for moving from Ch. 40 to Ch. 80 in 50 kHz steps. The division ratio in IC3 is selected by putting logic highs (10V DC) and logic lows (0V DC) on the appropriate pins of the IC. E.g. to divide by 2920, the first decade must be programmed for 0, the next for 2, the next for 9, and the last for 2. The first decade in the chip, or the one closest to the VCO input, is programmed for the least significant digit which is zero in our example.

Its programme pins are labelled A1, B1, C1 and D1. The number one after the letter represents the least significant digit whilst the letter A signifies the least significant bit of the VCD code for that digit. The letter D signifies the most significant BCD bit of the digit. The least significant digit of 2920 is "0" and thus we must put the BCD code for 0 on pins 6, 5, 4 and 3, which is "0000" or all at 0V DC. The next digit must have the BCD code for 2, which is "0010". Thus pin 21 must have 10V DC on it, whilst pins 22, 20 and 19 have 0V DC on them. The third digit pins must have the BCD code for 9 on them, which is "1001". The most significant digit pins must have the BCD code for 2 on them, which is "0010". The fifth decade is disabled. It is the function of the channel select or programmer circuit in Fig. 3, Fig. 4 or Fig. 5 to provide these BCD codes to the divider for channel selection.

THE REFERENCE OSCILLATOR

IC1 is the crystal oscillator, which uses standard CMOS inverters with the crystal in the feedback path.

The output of the oscillator feeds another programmable divider the same as the VCO divider. The divider is programmed on the circuit board to give the correct reference frequency with almost any crystal in the range from 100 kHz to 4 MHz. A slight pulling of the crystal will allow those which are not an integral number of 1.3888889 kHz to be used. In my example I happened to have a 2.15 MHz crystal which when divided by 1548 gives 1.3888889 kHz. This approach allows greater flexibility than using discrete ICs and a crystal made to order. It works out cheaper also. The crystal oscillator contains VXO circuitry to enable it to shift the VCO for a 25 kHz offset on 2m (Ch. 40 to Ch. 40A). By altering the reference frequency by 0.238 Hz, the VCO moves 25 kHz on 2m. This represents a shift of 368 Hz at the crystal frequency of 2.15 MHz. Because the reference is actually shifted, the offset will not be exactly 25 kHz on all channels. The 50 kHz steps will be precise but the offset will vary, being about 1.25 kHz out on the lowest channel (Ch. 40 Rx) and the highest channel (Ch. 80 Tx). This is a limitation of using this method. The offset is achieved by switching a capacitor in and out with a switching diode connected to a toggle switch. A decimal point on the display or a LED is used to show on the display or an LED is used to show when the offset is in. When the switching diode is conducting, the reference frequency is for 50 kHz steps. The capacitor values used are for my crystal and these may have to be altered to suit your crystal. A varicap diode is also used for giving 5 kHz offset via a variable control.

CHANNEL SELECTION CIRCUITS

Figs. 3, 4 and 5 show alternative methods of deriving the BCD codes for channel selection. Fig. 3 shows a digital scanner circuit which is used for my base rig. This consists of a scan oscillator with auto stop from the receiver mute signal. The scan oscillator (IC5) gives pulses variable from about 3 per second every 3 seconds. The scan oscillator is stopped by putting an earth on pin 4. This occurs the moment the mute is opened by a signal. On my rig, the mute signal goes from 0.3V no signal to 1.5V with signal. This is buffered with an emitter follower in the rig and feeds Q7. From here it goes via amplifiers to IC5. A retriggerable delay is included to allow for breaks between overs. The delay occurs only when the mute closes. This delay is obtained from the capacitor across Q7. When the mute signal falls, the capacitor starts to charge towards the rail, and via the source follower, it removes the earth from pin 4 after about 12 seconds. If the mute opens during this 12 seconds the capacitor is discharged again by Q17, thus forming a retriggerable time delay. Note that on transmit, the oscillator should be stopped.

The output of the scan oscillator goes via the manual/auto switch to a 2 decade presettable counter. The counter output is in BCD form and increments one number on each positive edge of the scan pulse. The counter starts at "00" output for Ch. 40 and goes to "40" for Ch. 80. The counter resets on the count of 41 via IC1A. The counter feeds BCD to 7 segment decoder drivers which feed common cathode LED displays. The driver for the most significant digit has the number "4" permanently added by Q12 so that "40" is displayed when the counter output is "00".

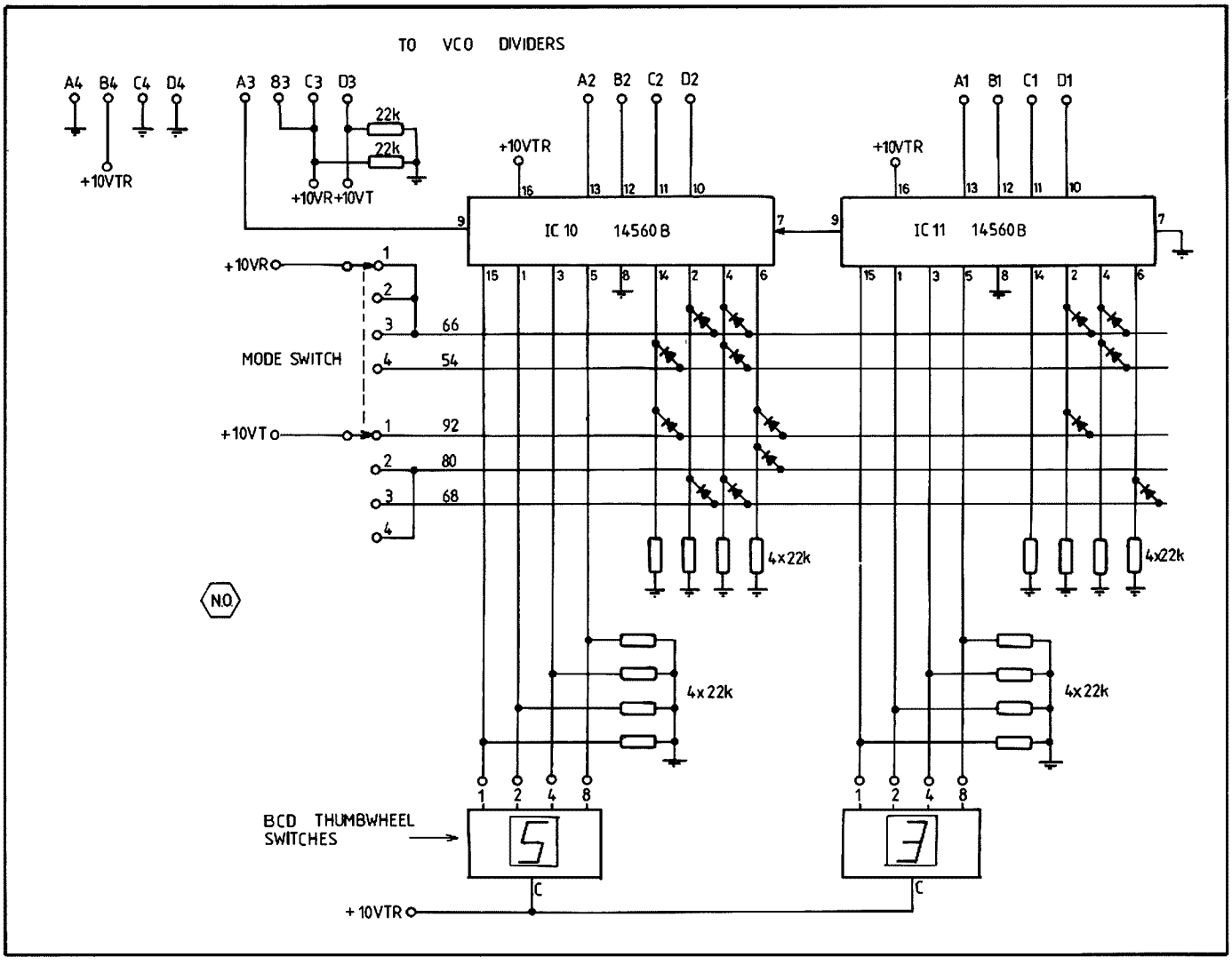
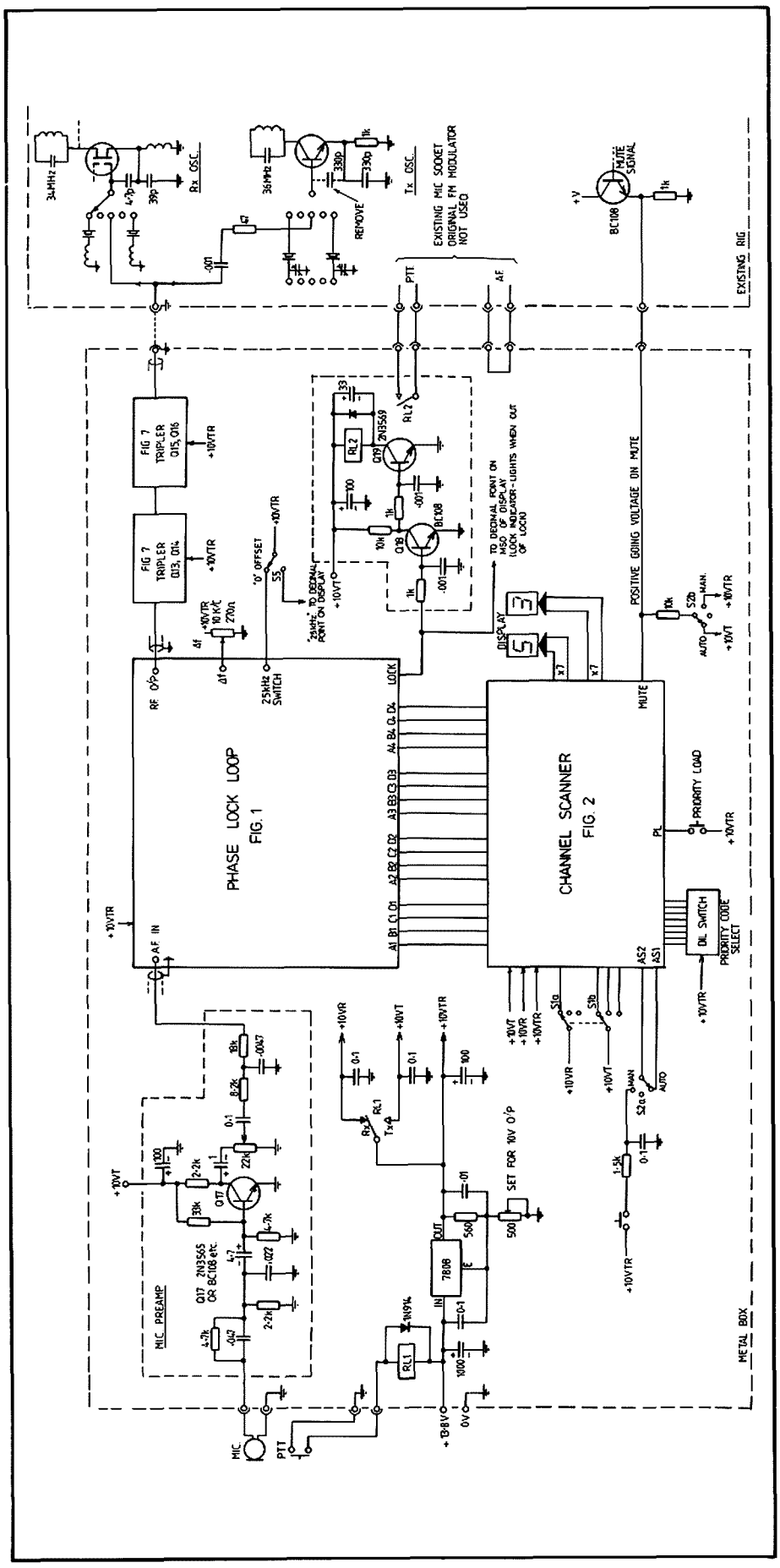


FIGURE 5: Channel selection using thumb-wheel switches.

The ICs used in the counter are presettable with a BCD code such that when the "load" input (pin 11) is set to logic low, the output disregards the pulses counted and immediately goes to the code on the preset inputs. This allows for selection of a priority channel. When power is first applied, the scanner always goes to the priority channel first. The priority code switch on my unit consists of an 8 way DIL switch mounted on the front panel. These inputs can also be used to select channels via a small calculator keypad.

The output of the scan counter feeds a group of normal binary coded decimal adders (NOT binary only adders). The adders are devices which add two BCD numbers giving a BCD result. They also contain a carry input and output for cascading. One set of inputs is fed from the scan counters whilst the other sets are fed from a small diode programmed matrix. The matrix is set up so as to give the channel select code to the VCO divider. An example will illustrate. On Ch. 40 Tx, we want the VCO divider to divide by 2920. For Ch. 40, the scan counter output will be "00" and thus we need to add the number 2920. If you study the code table for transmit, you will notice that the code number from Ch. 40 to Ch. 80 only changes in the two least significant digits, i.e. from 2920 to 2960. So for the 2 most significant digits we can permanently apply the BCD codes for 29. Thus all we need to do is add the number "20" for the two least significant digits, for all the transmit simplex channels. The number "20" is added by putting the appropriate logical levels on pins 14, 2, 4 and 6 of ICs 10 and 11. Logic zero is obtained via the 10k resistors to earth whilst logic high is via diodes and the mode switch. On receive, we need the BCD code for 2706 on Ch. 40 and 2746 on Ch. 80. Again, only the least significant digits change. On receive we need to add "06" to the scan counter output on all channels. Between Rx and Tx the most significant digit does not alter, thus the VCO divider pins can be hard wired for the number 2 (code word = 0010). The second most significant digit has to change from 9 on Tx to 7 on Rx and this corresponds to a code change from 1001 to 0111. This is done via the Tx/Rx relay. The change from 20 on Tx to 06 on Rx for the two least significant digits is done by selecting a different set of diodes in the matrix via the mode switch and the Tx/Rx relay. The same principle is used to select the different codes for repeater offsets. E.g., if we are listening on Ch. 54 repeater, the receive code we have is 2720. The scan counter is giving 14 and the matrix is adding 06. We now have to transmit 600 kHz lower to access the repeater. This represents Ch. 42 on Tx which has a code of 2922. Thus instead of adding 20 on Tx, we need to add 08 (14 from scan counter plus 08 = 22). Similar things happen on shifting +600 kHz on transmit and here we add 32. One point to note is that if the code required to the VCO divider changes in the third digit during scanning or channel selection, then a third NBCD adder or a transistor is needed. The PCB layout has this allowed for. This could happen with



different IFs or for more than 100 channels.

Fig. 4 and Fig. 5 show two alternate and cheaper methods for selecting channels. Fig. 4 uses a standard two pole switch plus diode matrix. The diode matrix selects the correct code for the least significant digits. A single pole switch can also be used if adders are incorporated to give the required offsets. A mode switch will reduce the number of positions needed. This Is the method used in the IC22S. No display is used apart from the switch position as this could mean extra adders. Fig. 5 uses standard BCD thumbwheel switches. In this case, the display is on the switches and the code would go from "40" to "80", thus adders are needed to give the correct codes as well as provide Tx/Rx offsets, etc. Note carefully that with offset facilities it is possible to transmit outside the band. The necessary circuits for inhibiting transmission under these conditions can be complex and have not been used in my set-up.

THE FREQUENCY MULTIPLIERS

Fig. 7 shows the frequency multipliers used, these acting as triplers in my unit. Two are used in cascade with modified coils for the second tripler so as to arrive at 34/36 MHz. The circuit can also be used as a doubler if needed or just the buffer amplifier used. It depends on what frequencies you need for your rig. It is best to try and make the Rx and Tx multiplication factors the same as only one RF cable is needed to the set. If you have a rig with 4 MHz crystals on Tx, you can try driving the Tx circuit directly from the VCO buffer and use the required multiplication stages on Rx. Transmitters with 9 MHz or 18 MHz crystals are best retuned in the oscillator output to take 12 MHz or 24 MHz drive. For 24 MHz drive, the second multiplier would be used as a doubler by altering the coils slightly. FETS are used to ensure easy and clean tune-up. Bypassing is critical as it is possible to generate unwanted frequencies. All the tuned circuits have their Q lowered with 6k8 resistors to ensure they cover the Tx/Rx range. With some rigs it may not be necessary to employ frequency multipliers. In my case I could have used a 34/36 MHz VCO with a high speed TTL divided between it and the programmable divider. This divider would be set for a constant division by 9. The programmable divider would thus see the original design frequencies and all the programme codes shown would apply. This means a saving in space and less tune-up. It does need a 5V supply and transistors to get back to 10V logic levels. Very careful screening would be needed to stop the tenacious TTL pulses from generating noise. The choice is yours.

FIGURE 6 (Left): Interconnections.

INTERCONNECTIONS

Figure 6 shows the general interconnections between circuits. Power is fed to the unit via an 8 or 6 volt regulator biased for 10V output. The PTT on the microphone activates a small 12 volt battery relay which selects the correct codes for Rx and Tx. On Tx, the lock circuit feeds Q18 and Q19 which operate the transceiver PTT via the original mic. socket, if the loop is stable. A mic. amplifier (Q17) matches my mic. to the loop. If you wish, the mic. circuit in the rig can be used by feeding the loop via a socket and screened cable. RF is fed via a single coax. cable to the rig where it goes to an uncrystalled position of the original channel switch. It feeds the Rx Colpitts oscillator directly and in fact in my unit I did not have to remove the gate to source capacitor. It also goes to the Tx oscillator which, with the removal of the base emitter capacitor, becomes a straight 36 MHz amplifier. A 56 ohm resistor drops the level so as not to overdrive this amplifier. The original modulator will need to be disconnected if it frequency-modulates the oscillator directly. In my unit, going to an uncrystalled position automotically disables the internal modulator. Some rigs phase modulate the sinewave from the oscillator at the oscillator output tuned circuit. These should not need modulation of the synthesizer as they should modulate any signal passing through them. This means that the original mic. socket is used for the mic. In this case the PTT on the mic. will have to go to the synthesizer via another socket. With my set-up I can go back to crystals by simply reconnecting the Tx base emitter oscillator capacitor and disconnecting the plugs.

CONSTRUCTION

The basic loop is built on PCB1 which is double sided. One side is used as a ground plane whilst the other side has the tracks. The foil side is printed whilst the other side is protected during etching with masking tape. The component holes are then drilled and copper is cleared on the component side with a small drill. Those holes going to earth are not cleared and the component leads are soldered on both sides so as to tie the earths to the ground plane. Most of the components are mounted vertically to conserve space. Molex pins are used as IC sockets. The whole PCB is mounted in a small PCB box and all non-RF connections made via 0.001 uF feedthrough capacitors. Don't use a PCB without this ground plane as earthing in any phase locked loop is very important if noise is to be low. The coil base diagrams shown are for my layout and are viewed from the bottom. The components shown with these diagrams are mounted in the cans and must be miniature types. The RFCs are miniature Japanese upright types and the exact values are not really critical. One of the frequency triplers is also included on this PCB. The coil slugs are locked in place with correcting fluid,

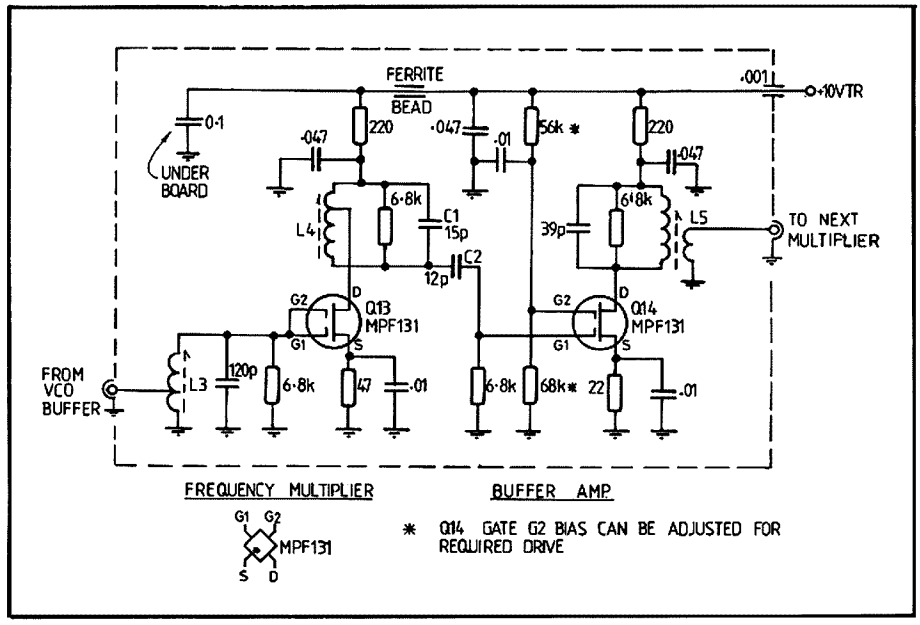


FIGURE 7: Frequency multiplier.

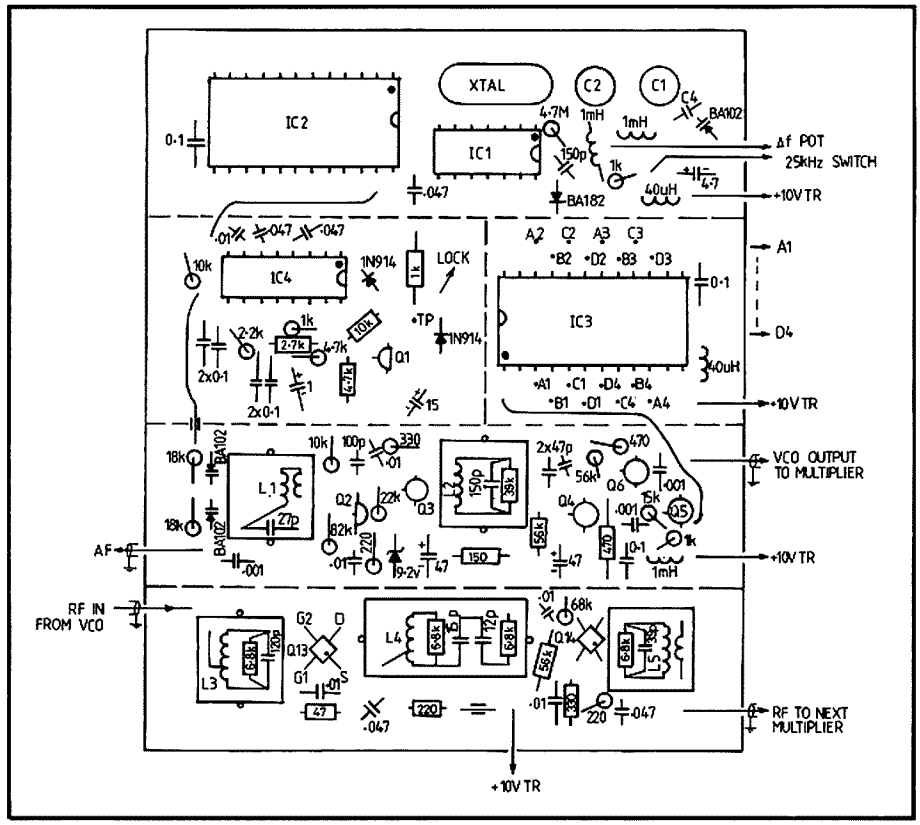


FIGURE 8: Component layout, phase locked loop.

the VCO coil being the most critical. Vibration in this coil will cause microphonics.

PCB2 has the scanner circuit on it and this is single sided with wire links to simplify the foil pattern. The scanner ICs have 0.01 uF disc ceramics across the supply pins under the board. Others are placed liberally around the board across the rails. The 10k resistors for the preset inputs of the scanner ICs are mounted near the LIL switch. An alternate arrangement for this section of the circuit is to use wire-wrap techniques.

The mic. amp., lock circuit, displays, etc., are all mounted on small pieces of

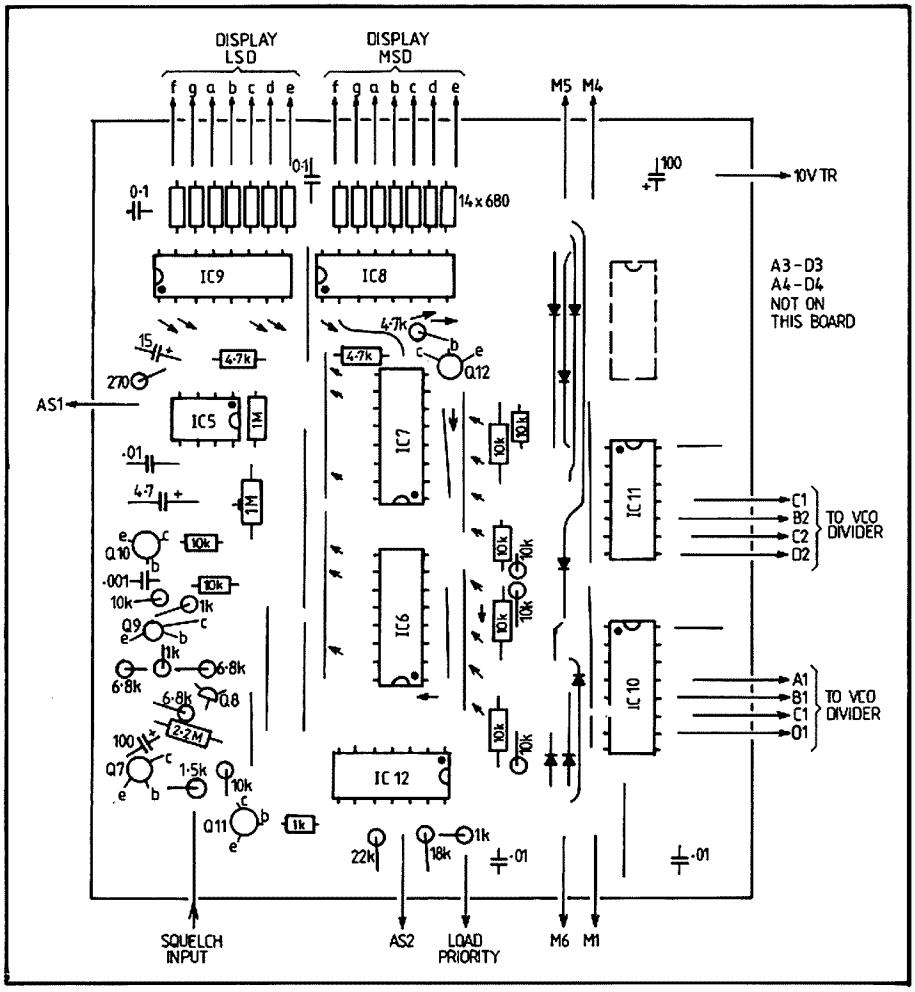
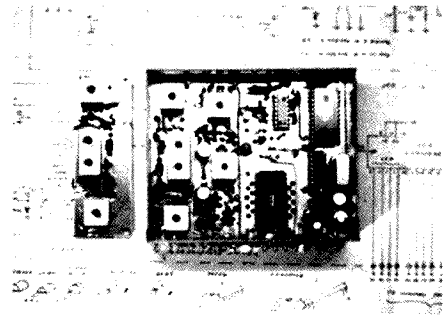
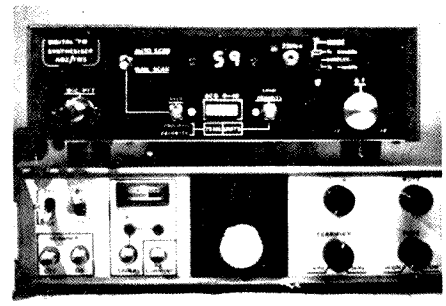


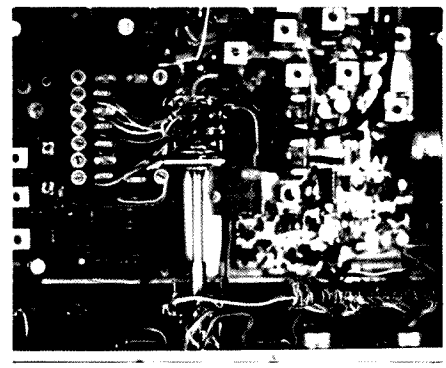
FIGURE 9: Component layout — automatic scanner.



The completed scanner.



Finished and working!



Final Installation.

veroboard near the appropriate sockets, switches, etc.

ALIGNMENT

Tuning up the synthesizer is relatively easy. A frequency counter will help but is not essential. After applying power ensure that the regulator is giving 10V output by adjusting the trimpot. Next check the scanner or code circuit and dial up one of the repeater output frequencies. Make sure you have the correct code by checking with a multimeter on the VCO divider. Close the switch to the crystal VXO so that you don't have the 25 kHz offset, and set the frequency control midway. The next thing to do is ascertain you have the correct reference frequency or close enough to hear signals. This is best done with a frequency counter connected to pin 4 of IC1. Adjust C1 for the required crystal frequency. If you don't have a counter, don't despair as in all probability you will hear signals in the receiver once you have aligned the frequency multipliers — even if you have to swing C1 back and forth during alignment. Next adjust the VCO coil till the lock indicator goes out. If it doesn't it means that you are outside the range of adjustment. Listening on a receiver, using a GDO, or a frequency counter, will tell you where this oscillator is in frequency. A multimeter on pin 10 of IC4 will read low if the VCO frequency is high, and read high if the frequency is low. As soon as you are within range, this voltage will start to change and the lock indicator will go out. Once the loop is locked you can start to align the frequency multipliers. By listening on a receiver or using a GDO you can set the coils for the correct harmonics. Adjust them for maximum voltage across the source resistor of the following stage, always making sure you are tuning for the correct harmonic. Acting as doublers, the MPF131s will give more output than as triplers. Instability may occur If you have straight amplification. At this stage you should start to hear the repeater output so adjust the coils for maximum signal without over-driving the mixer. Over-driving the mixer will increase intermod and spurious responses. Use a resistor pad if you have too much drive. You should now be able to set the reference frequency more accurately for cleanest audio. A centre zero meter on the discriminator will help while listening to a repeater which you know is on frequency. This has now set the synthesizer for all the 50 kHz channels. Now check that the loop works over all channels and remains locked for both Tx and Rx codes.

With a multimeter on Pin 10 of IC4, you should get about 2.5V on Rx and 7.5V on Tx. These voltages will depend on the range of your varicaps and the setting of the VCO coil. The greater the varicap range, the closer to 5V they will be. Loss of lock at the band edges will require another pair of diodes or more careful setting of the VCO coil. When I first got the loop going I had very limited lock range. This was traced eventually to the unbypassed VCO in the 4046. Bypassing it cured the problem along with severe microphonics.

Now check for the 25 kHz offset. You will probably need someone with a synthesized rig to check this or a good frequency counter. Juggling the values of C2 and C3 will enable you to get the required offset. You may have to reset C1 for the 50 kHz channels. Patience is needed — or a good frequency counter. Some crystals

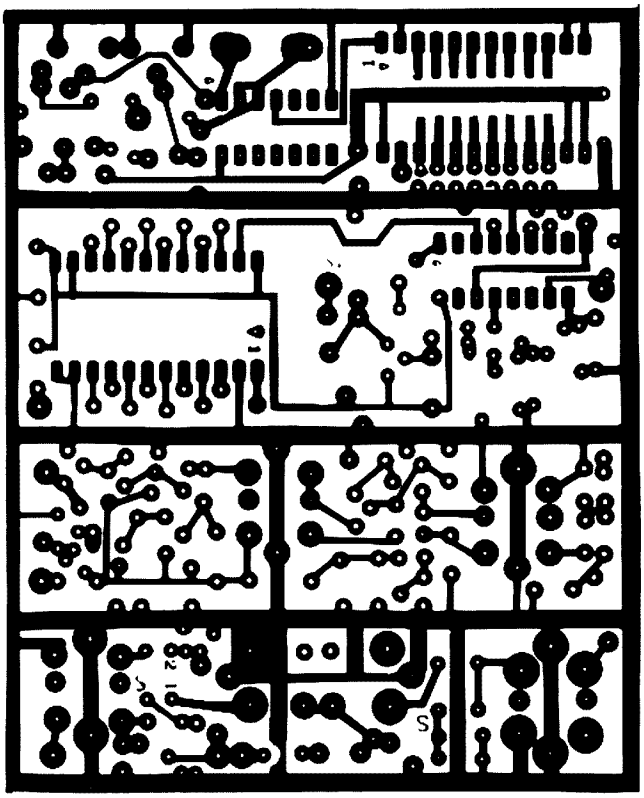


FIGURE 10: PCB 1 phase-locked loop, copper foil side.

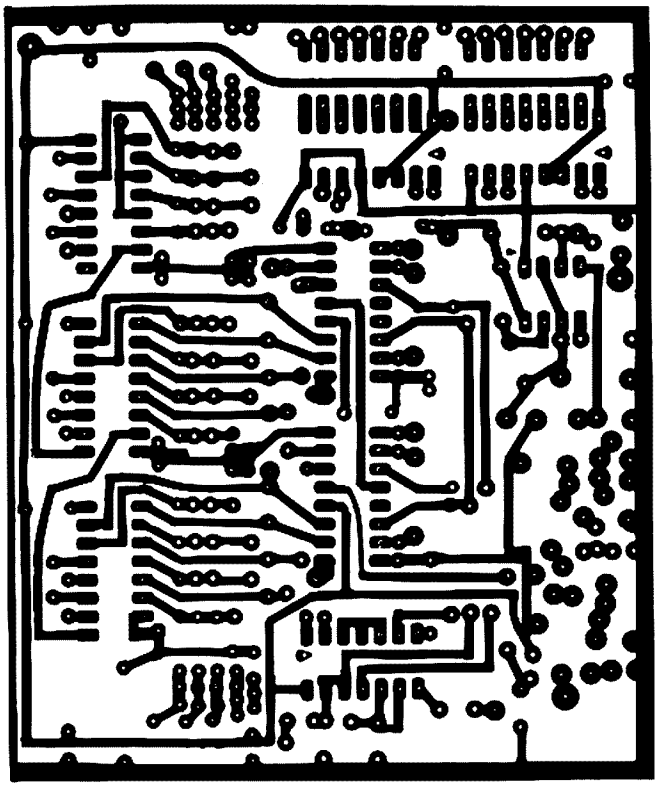


FIGURE 11: Automatic scanner, copper foil side.

may not VXO much so be careful and ensure the oscillator remains stable. Having set the frequency steps and offsets you can check the various other circuits such as the mic. amp. and the lock circuits. The collector of the mic. amp. should be between 4 and 6 volts. If not, vary the base bias resistors till it is. Do a final alignment of the frequency multipliers on transmit with a dummy load. Recheck the receive sensitivity and juggle the tuned circuits for best overall.

For those contemplating using the synthesizer in a new rig I would recommend the use of the building blocks circuit (AR October 1975). Purchase one set of crystals and get the receiver working first — then interface the synthesizer. On the air test showed the output to be clean. Don't be fooled when getting reports from people using 60 kHz wide receive filters — they will tell you they can hear you on 3 channels! When going between Tx and Rx, the reference frequency may be audible for a short instant. I suspect this is because the loop is underdamped.

All the components with the exception of the CD4059AE are easy to get. The CD4059AE is an RCA device and is handled by AWA. In Melbourne it can be ordered from Miles Street, Mulgrave. Cost is $10.00, including tax, for one offs. All-up cost is about $50. Use only the "SCL 4046" for the phase detector. Other makes which I tried had too much voltage drop across the emitter follower. I have built two units, one with a scanner and one with thumbwheel switches, and both are working satisfactorily. ■

MODE SWITCH S1 (See Fig. 5)

Pos. 1: Tx is shifted up by +600 kHz (Repts. 9-12).

Pos. 2: Simplex Mode.

Pos. 3: Tx is shifted down by 600 kHz (Repts. 1-8).

For all three positions, "06" is added to the automatic scanner to give correct Rx code.

For Tx +600 kHz, "32" is added to the scan counter output.

For Tx —600 kHz, "08" is added to the scan counter output.

For Tx Simplex, "20" is added to the scan counter output.

Scan counter output is "00" on Chn 40 and "40" on Chn 80.

For simplicity not all VCO frequencies shown.

$$\text{fvco on Tx} = \frac{\text{freq on 2m}}{36}\ \text{MHz}$$

$$\text{fvco on Rx} = \frac{\text{freq on 2m} - 10.7}{36}\ \text{Mhz}$$

■

QSP

22nd JAMBOREE ON THE AIR

An early reminder: The 22nd JOTA will be held over the weekend of 20th-21st October, 1979, from 0001 hrs. EAST on 20th October to 2359 EAST on 21st October.

Please note your calendars now.

Noel Lynch VK4ZNI, Nat. Organiser. ■

UHF SSB TECHNIQUES

Terry McCarthy VK5GU
2 Warwick Street, Enfield 5085.

Those interested in VHF/UHF will know of the record breaking contacts between Reg 5QR and Wally 6WG on the 23 and 13 cm bands and will realise the difficulties involved in generating a CW signal at these frequencies, let alone SSB. Most will also realise that while it is a relatively simple matter to varactor multiply a VHF CW or FM signal to any of the UHF bands any attempt to do this with a normal SSB transmitter results in a multiplied signal that little resembles single sideband and resembles it less the more it is multiplied. To find out the reason for this you might refer to the reference noted at the end of the article.

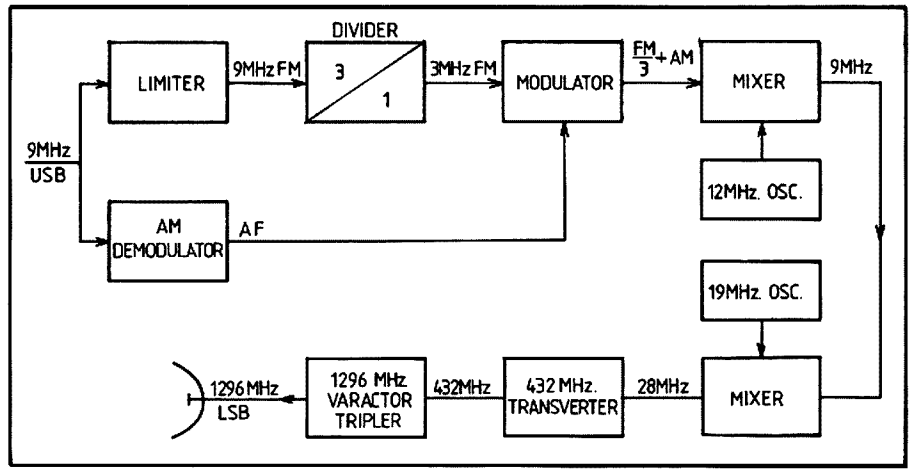


FIG. 1: The DJ4ZC method of generating VHF SSB as applied by VK5QR to 1296 MHz SSB.

In order to be able to multiply an SSB signal its FM and AM components must be separated, its FM component divided by the amount it is intended to multiply to the final frequency, and the two components then combined again. This can be done at low frequencies and the result mixed to a suitable frequency from where it can then be multiplied to the required UHF band. This method of UHF SSB generation was originated by K. Meinzer DJ4ZC and is the method used by VK5QR to generate SSB on both 1296 MHz and 2304 MHz. Figs. 1 and 2 show the methods used to achieve this. The first is essentially the scheme used by DJ4ZC in his original article. The second is the method used on 2304 MHz and has the advantage of using the more normal 28 MHz SSB source. Both of these schemes work quite well and I can testify to the fact that they are both indistinguishable from normal SSB signals on air.

Reg tells me that the secret of getting it working is the extensive filtering between mixing and multiplying stages. Since this isn't a constructional article I've left the filtering out of the diagrams in the interest of simplicity.

The third diagram (Fig. 3) is distinct from the first two in that it has never been built and is only one of many possible schemes for generating 3.5 or 10 GHz SSB. It shows that generating 10 GHz SSB is only a little more complex than generating 2.3 GHz SSB. Having generated 10 GHz SSB only one small problem remains (and this becomes apparent when you search the literature) a crystal locked 10 GHz converter. But this isn't an insurmountable problem.

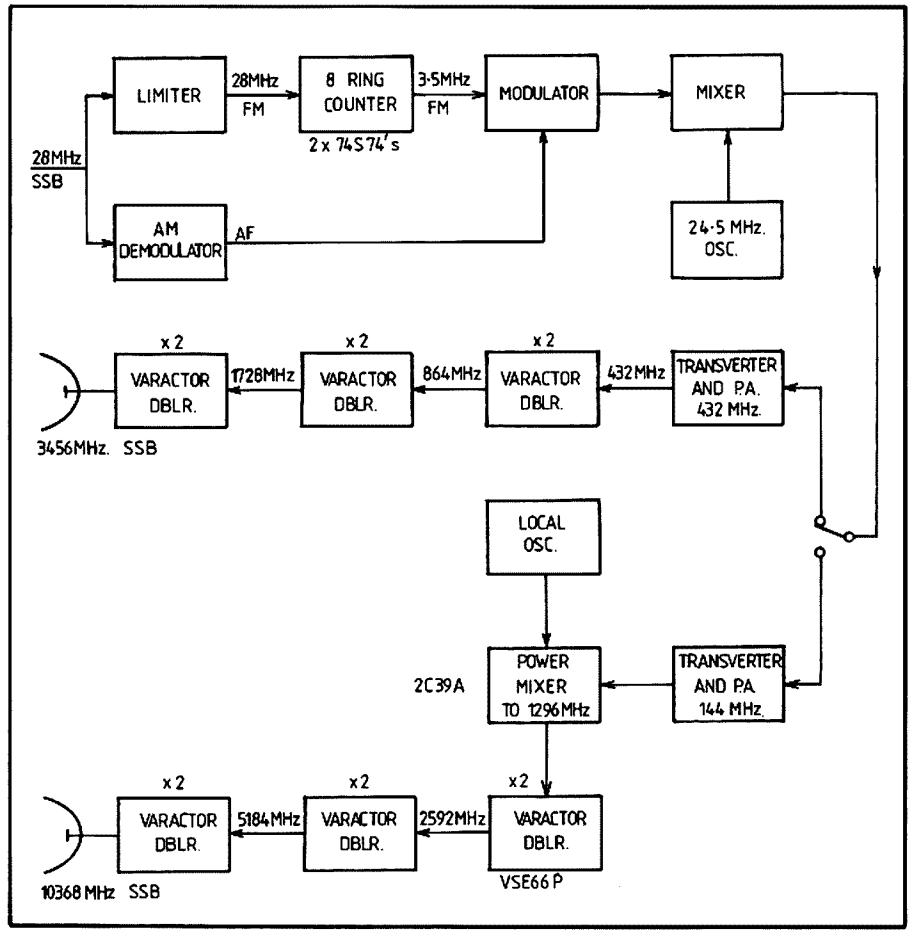


FIGURE 3: Proposed 3 GHz and 10 GHz SSB generator.

As you can see it's not impossible to generate SSB on 3 cm at levels of one or two watts. Considering that most work on 3 cm at the moment is wideband using milliwatts of power from free running GUNN DIODES, it can only be a matter of time before more records fall to this method of generating a microwave SSB signal.

Ref.: "A new method for frequency multiplication for VHF and UHF SSB", by K. Meinzer DJ4ZC, VHF Communications, Vol. 3, Edit. 3, Aug. 1971. ■

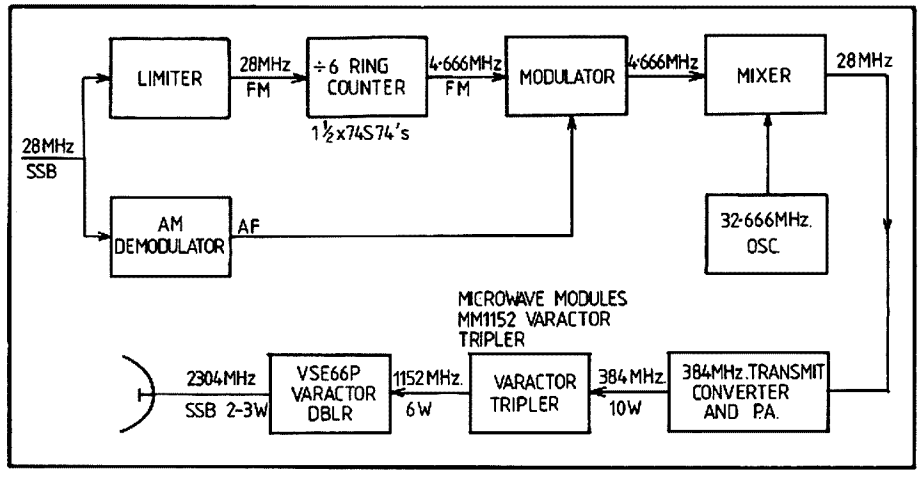


FIGURE 2 (Right): The DJ4ZC method of generating UHF SSB as applied by VK5QR to 2304 MHz SSB.

WEATHER RTTY

Alex Lutkewich VK6EZ

No doubt all of us at some time whilst tuning the band have come across a signal which to much annoyance turns out to be a weather transmission consisting of groups of 5 numbers and to cap it all, it's probably the strongest signal around. These broadcasts appear anywhere from 3 to 26 MHz and although they are of little use to us except for checking the machine at 50 bauds, they provide a vital service and their consequences affect our lives every day.

Every six hours meteorology stations throughout the Australian continent and neighbouring islands collect informtaion regarding temperature, atmospheric pressure, cloud cover, etc., and send this information to a regional office. This eventually ends up as a weather map of the continent. To send the Information in the quickest way, it is sent in a code, i.e., to say that "It is fairly cloudy today but general conditions are calm" comes out as "7000".

This code when gathered and collated with the three hourly satellite pictures gives a complete weather picture to services that rely on the Information, such as shipping, aviation, etc. Despite this, aircraft still manage to fly into "Cumulo Granities", or clouds with solid centres (like Mt. Kosciusko with cloud around it).

As we know it the weather consists of a number of forces such as temperature, pressure, wind speed, cloud and rainfall. These parameters can be broken down into more detail such as the type of cloud at various heights from ground to 50,000 feet or the temperature every 1,000 feet to 50,000 feet. To standardise all the variations of this information it is sent in a standard format. The first 5 characters are the station ID, second 5 are cloud cover expressed eights of cover, with 8 being completely obscured and 1 being clear. The third group is horizontal visibility, past and present weather, the fourth group being the ground pressure and temperature. The following groups indicate special phenomena and type of cloud at different altitudes, state of the sea, type of rainfall and the temperature of the ground. There are 8 groups In all and these groups are preceded by an indicator.

2 — lowest cloud and associated pressure change.

3 — state of the sea and direction of any swell.

4 and 6 — rainfall group indicators.

5 — temperature groups.

7 — ground temperature.

8 — coverage and types of cloud.

9 — special phenomena.

Confused??? You haven't seen anything yet. Let's take an example and try to decode it:—

96995 22304 98506 08030 753// 24///
87608 22/// 3316/ 41992 529/

First comes the station ID, the 96 is the NW quadrant of Australia up to Indonesia and 995 is Christmas Island. The next group, 22304: 2 is 2/8ths cloud cover, 23 is direction of wind 230 degrees true, 04 is the speed In knots. 98506 decodes as: 98 visibility which is 20 km, 50 which is present weather and that is drizzle, and 6 which is past weather which was rain. 08030 is pressure in millibars (1008.0) and temperature at 30°C. 753// is 7/8 low cloud, type 5 cloud (low), height 3 (650-1,000 ft.) and the // is where the middle to high cloud would have been, but with 7/8 cloud cover it wasn't observed and a filler inserted. 24/// is the Dew point or the point at which the air cannot hold any more moisture, and the pressure tendency which was not measured and therefore ///. 87608: 8 is the significant cloud group, 7 is the coverage of the significant cloud group which is 5/8 cover, 6 is the type of cloud, in this case stratocumulus, and 8 is its height — 800 ft. 22///: 2 is the group indicator and the second 2 is the cloud direction (East) and the next three numbers would have been the corrected pressure tendency had this station been one that reports it. Correction is only required at stations well above sea level.

3316/: The first 3 is an indicator followed by a 3 indicating that the sea is slight, 1 being a low swell and the 6 showing the direction of the swell in 1/8ths of the compass, this being west. The / is the end of block. 41992: The 4 is the group indicator and the 1 indicates the elapsed time since the last measurement. The 992 is the amount of rain recorded, this being 0.2 mm. Finally 529//: the 5 is the group Indicator for temperature, and the 29 is the maximum recorded since the last reading. The last two figures would have been the minimum, but as this reading was at 3 p.m. there has been no minimum since 9 a.m.

This completes one line of Information which may seem confusing but a Met man can decode this in seconds, but it takes a little space to explain to the layman, and if you have understood this explanation then you are on your way to being a meteorological observer. As for me, I'm going to stay away from all such signals.

From AARTG, No. 12. ■

EARLY DAYS IN RADIO

L. P. McGuire VK6MG ex VK3KM ex VK3LX

Well do I recall some of the earlier days of Amateur Radio.

The old reliable UV, later UX201A which, with a filament rating of 5V at .25 amp., was used as a self-excited oscillator, using mostly the TPTG system of feedback.

Because of non-availability of resistors suitable for the purpose, it was a common practice to hold an automobile headlamp under water and break off the exhaust tip which was on top of the bulb. This would cause the bulb to fill with water and was used as a grid leak. It was rewarding to see the bubbles forming around the burnt out filament supports. Later when the technology advanced a second 201A was added to constitute the popular MOPA.

Types of modulation being to wire a small audio transformer in series with the grid return and so modulate the grid.

Another poor man's modulation was to wire a carbon mike in the earth lead of the radiating system.

With the average mains being 240V DC rechargeable cells called B Batts were available and were a series of glass tubes with lead plates and H_2SO_4 electrolyte.

Many was the Marmite jar saved by Mum or scrounged from the tip, and from the plumber strips of lead to fashion home brewed B Batts, which were charged from the DC mains via a lamp.

Eventually the 201A PA was replaced by the 210, which gave somewhere around 10 watts, and if you aspired to the UX250 you were really in business. Soon the Quartz Crystal came along and made life easier.

It wasn't long before the shrewd amateur found that the lenses used in vintage spectacles were of quartz, and some opticians had them by the gross, and if you were lucky to find a source you could take them off their hands for a few quid a gross.

VHF was attracting some interest, and to get going on 5 metres or below (if lucky) the base would have to be removed from the glass envelope of the valve to bring the lead length to a minimum.

Underneath the operating bench would be a series of "slop jars" which could be used as rectifiers or, alternatively, as electrolytic condensers, depending on the application.

When valves were built with a suppressor grid, it wasn't long before it was used as a modulation grid, which also was very modest in its driving requirements.

With these various methods of modulation, the requirement was to avoid any change in oscillator frequency with modulation, in other words, FM. Of course both the crystal and the power amplifier helped in this respect. When crystal mikes came on the market, the D104 became popular with many amateurs.

Receivers were very simple, possibly what was termed 1V1, or one of RF, one detector and one audio. This was, with the use of phones, quite capable of dragging in good DX. The current RST report for CW used to be QRT and it was common to hear a report given as Q5 R9 T9X, the X denoting a signal of high order of stability, no chirp and rock steady.

A note with a percentage of ripple on it lent itself to good copy, indeed some have used, including yours truly, a Ford Model T trembler coil as a source of HT, with reduced primary voltage of course.

CW from such a rig was quite pleasant copy. Those were the days. ■

AMATEUR RADIO WEEKENDS

Sam Voron VK2BVS
YRS Magazine Publicity Co-ordinator
2 Griffith Ave., East Roseville 2069
Phone 407 1066, evenings 7 to 9 p.m.

The Wireless Institute of Australia Education Service incorporating the Youth Radio Service, NSW Division, has helped to co-ordinate several amateur radio weekends during October and November 1979.

Know someone who is just getting interested in Radio? At the weekend newcomers will be able to find out all about the hobby.

STUDYING FOR THE NOVICE OR FULL LICENCE?
Lectures and friendly people will help you at the weekend.

Want help in forming your own radio club at school or local area? You can learn about radio instructing and lots more at the weekend.

Want to meet other amateurs and try some way-out radio experiment in the bush?

Anyone for ten wavelengths on 80m? Yes you can try it at the weekend.

Newcomers, students for the novice, limited or full amateur licence and amateurs are all invited to get together, help each other and enjoy a great weekend.

Come to one of the weekends or all of them. Interstate travellers will find rail transport available.

All food and accommodation is provided.

All activities start at 8 p.m. Friday and conclude 3 p.m. Sunday, but you can arrive at any time.

FIRST WEEKEND IS AT WAGGA
Friday, 12th October, to Sunday, 14th October, 1979, at the NSW Sport and Recreation Centre on the Sturt Highway.

Send bookings to Education Officer, Wagga Amateur Radio Club, 110 Simkin Crescent, Wagga 2650, or telephone Bruce VK2VYZ on (069) 22 6746.

SECOND WEEKEND IS AT SPRINGWOOD
Friday, 2nd November, to Sunday, 4th November, 1979, at the Blue Gum Lodge Youth Centre, Springwood.

Send bookings to Amateur Radio Weekend, WIA Education Service, PO Box 52, Asquith 2078, or telephone Sel VK2NOK/YLS on (02) 827 3589, Ken VK2NWK on (02) 638 1687, or Les VK2NMY/YMY on (02) 477 3044.

THIRD WEEKEND IS AT PORT MACQUARIE
Friday, 9th November, to Sunday, 11th November, 1979, at the Wauchope Showground Hall.

Send bookings to Radio Weekend, Oxley Region Radio Club, PO Box 712, Port Macquarie 2444, or telephone Frank VK2NUG on (065) 83 1256.

Cost for each weekend is the same. Adults $22, wives (not attending lectures) $15, school students $15, children ten and under $8.

The cost covers all meals and accommodation, although sleeping bags or sheets and pillow cases are required. Beds are provided.

Get all your family and friends together and book early so you don't miss out.

Dick Smith has kindly donated over $60 worth of amateur products, including a short wave antenna kit, an Oscar satellite tracking kit, a multimeter, a two metre converter kit, and the Australian amateur radio handbook for a previous amateur weekend. The formation of regular Dick Smith amateur radio incentive awards is under discussion; a vote of appreciation was recently moved expressing thanks to Dick for his support of these weekends. ■

NEW ATLAS 110 LINE

• 250 WATTS • $499 • 80–10Mx •

At GFS, Australia's Atlas agents, we are proud to introduce a real breakthrough in HIGH POWER, LOW COST, amateur transceivers.

First came the receiver, The Atlas Rx-110 ... A performance plus Amateur Band Receiver incorporating high sensitivity, selectivity and dynamic range.
Couple that to a "bolt-on" Transmitter Module, the Atlas TX-110H ... which has low spurious and harmonic radiation, high carrier and unwanted sideband rejection and 250 Watts in-put. You now have the unbelievable Atlas RX/TX-110H top performance transceiver which costs ... NOT $950 ... NOT $750 ... NOT even $650 but just **$499**

RX/TX-110 Transceiver $499
PS-110 Power Supply $109
MM-110 Mobile mount $58

Now for only a fraction of the outlay previously necessary you can run up to 250 Watts on 80 thru 10 Metres, work CW or SSB, operate from the Car, or home QTH using the RX/TX-110H and its AC Power Supply, PS-110.

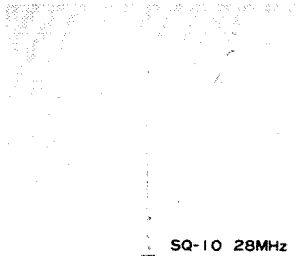
• • • • MORE OUTSTANDING FEATURES • • • •

- **Frequency Coverage** 3.5-4.0 MHz, 7.0-7.5 MHz, 14.0-14.5 MHz, 21.0-21.5 MHz, 28.0-29.0 MHz.
- **All Solid State.** High Performance Design. Excellent sensitivity, selectivity and dynamic range superior to most receivers currently on the market.
- **Receives and transmits CW and normal SSB.** LSB on 3.5 and 7.0 MHz bands, USB on 14.0, 21.0 and 28.0 MHz bands.
- **Semibreak-In CW** is a standard feature
- **Built in** speaker and CW sidetone.
- **Modular Design** provides much easier service and maintainance. This is a piece of equipment that you can work on yourself if you wish, because you can get at everything with ease.
- **Choice of** 12-14V DC for mobile or 220-240 V AC for home operation with the Atlas PS-110 Power Supply.
- **Superior Size** RX/TX-110 measures just 31W x 10H x 25D cms.

For color brochure with complete specifications write to us, phone us or just drop in and have a look at the RX/TX-110.

WHY SETTLE FOR A SECOND HAND TRANSCEIVER YOU CAN NOW BUY A BRAND NEW ATLAS

TET SWISS QUADS



This antenna is a **PHASED QUAD** *and well known as a HB9CV QUAD. Its concept is to drive the Radiator and Reflector at the same time with* **phase differences** *to obtain more gain and better front-to-back ratio than the conventional quads.*

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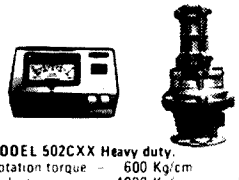
SQ-24 2m x 4 x Stacked **18dB** Gain **$219**
SQ-61 6m x Standard **12dB** Gain **$119**
SQ-10 10m x Standard **12dB** Gain **$159**
SQ-15 15m x Standard **12dB** Gain **$169**
SQ-20M 20m x Loaded **10dB** Gain **POA**

EMOTATOR ROTATORS

MODEL 103LBX Medium duty.
Rotation torque 450 Kg/cm
Brake torque 1500 Kg/cm **$164**



MODEL 502CXX Heavy duty.
Rotation torque 600 Kg/cm
Brake torque 4000 Kg/cm **$249**

MODEL 1102MXX Extra Heavy Duty
Rotation torque 800 Kg/cm
Brake torque 10,000 Kg/cm **$358**

1211 Mast Clamp for 103LBX **$19**
1213 Mast Clamp for 502CXX **$31**
1215 Mast Clamp for 1102MXX **$48**

AR-22XL CDE Light-Medium Duty rotator $150.

FINANCE AVAILABLE TO APPROVED PURCHASERS

Great Circle Map centred on Melbourne.

This new sought-after map, published by G.F.S. has just arrived. Centred on Melbourne it allows the user to take a bearing for directing an antenna to any place in the world. It also reads the shortest distance to that place. At 33.5cm x 43cm it is easily read and would be ideally suited to wall mounting or just mounting under a glass desk top.
Price: $1.00
allow 75 Cents for post and packing.

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Now a very wide range of Antenna Tuners

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MFJ-961 1.5KW Ant. coupler/6 Pos Co-Ax SW for Bal and Un Bal Line (Inc. Balun). **$199.00**
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MFJ-202 Antenna Noise Bridge, wide range 0-250 Ohms, ± 150 pF Xcc, 1-100MHz. **$78.00**
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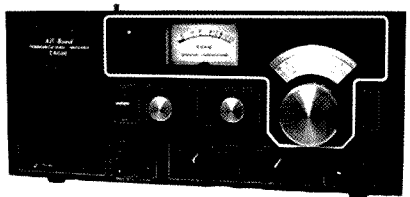

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A state of the art communication receiver covering the range 0.5-30MHz using a Wadley Loop for rock solid stability. Unlike some other receivers that use only one filter in the IF and exhibit poor selectivity The C-6500 has two filters, giving good selectivity on SSB and AM. For more details write to us for a brochure.

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- Covers 6, 2 and 0.7 meter Amateur Bands.
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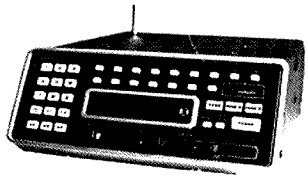

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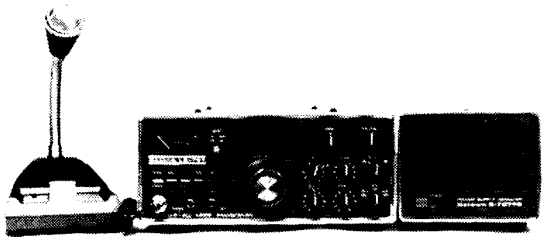

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BELCOM LS707

430-440MHz All mode UHF Transceiver
Continuous Band Coverage
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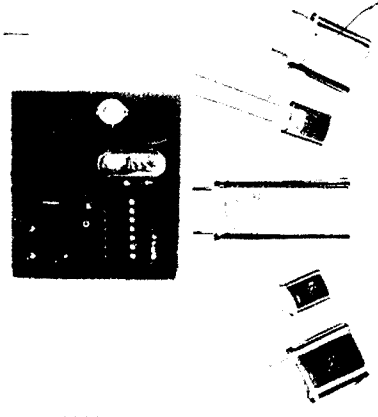

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2.08	⅝	8	3	No. 3006	$1.16
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3.16	¾	16	3	No. 3011	$1.40
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Special Antenna All-Band Tuner Inductance
(equivalent to B. & W. No. 3907, 7 inch)
7" length, 2" dia., 10 TPI **Price $4.36**
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2 Mtr. 1000 Channel. Memory. Scan	$380.00

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HF-5 10-80 Mtr. Vertical	$75.00
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Oscar 2S 5/8 wave. 2 mtr. mobile. including Mount & Coax	$29.00
144HS-16 8 Element stacked Yagi for 2 mtr.	$138.00
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TH6DXX, 6-element trap Beam	**$339.00**
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TD-1 Western (UK), 10 thru 80m. Approx. 110 ft. (34m), ready made with traps, insulators and HD copper wire. Use co-ax or low imp. twin line feeder (not supplied)	**$68.00**

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EKM-1A Audio Morse CP Osc with speaker, one transistor, and tone control, requires one UM3 cell, in metal case 3⅝" x 2½" x 1⅛"	**$16.90**
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DENSO 430 anti-corrosive compound for jointing antenna and beam elements (as used by electrical authorities). Per tube **$2.90.**

* *

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FT-7B TRANSCEIVER, 80-10m, for mobile use 100W peak solid state. **$629.**

FT-227R 2mx, 10W FM Tcvr, 800 Ch, with Dig. Readout memory, rev. etc. **$319.**

YC-500E 500MHz FREQ. COUNTER: Accurate to .02ppm. **$656.**

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SR-C146A. 2m hand held 5 chan. 2W transceiver, inc. carrying case and 3 chns.	**$199.00**

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LP-30TVI Filter low pass	**$1.90**
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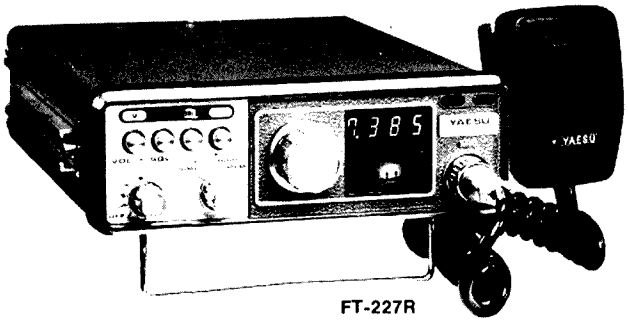

FT-227R

All items subject to stock availability

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HAM RADIO SPECIALISTS

NOVICE NOTES

TUNING AND OPERATING THE TRANSCEIVER

If you have an older model transceiver and do not have tune-up instructions in the handbook this will help you.

(a) Adjust the preselect for the loudest signal in the band that is to be used. The preselect may also be known as the drive.

(b) Turn the mode switch to the tune position and advance the carrier control to the halfway position.

(c) Set the plate to the desired band segment, and position the load control to the approximate setting for the band. This can usually be determined by consulting the operator's manual. If the manual is unavailable, then a midway position will suffice.

(d) Turn the meter switch to IP or IC position.

(e) Switch the transceiver to the dummy load.

(f) Hold the mike button in and quickly adjust the PLATE for a dip (minimum reading on the meter).

(g) Turn the meter switch to RF or PO position.

(h) Hold the mike button in once more and adjust first the PLATE then the LOAD for a maximum reading on the meter.

The microphone must be held in for no longer than ten seconds at a time. The procedure should be repeated until the maximum output is obtained.

(i) Turn the meter switch to ALC position . . . hold the button down once again and adjust the DRIVE or PRESELECT for maximum output.
The transceiver is now pretuned.

(j) Turn the carrier control to full and repeat steps (b) and (h) once more to provide maximum output from the set.

(k) Switch to the aerial, check that the frequency is clear, and repeat (j).

(l) Turn the mode switch to USB (for 20, 15 and 10 metres) or LSB for 40 and 80 metres and turn the carrier control completely off.

(m) Turn up the mike gain and with the meter switched to the ALC position, speak into the microphone adjusting the gain until the needle deflects into the end of the ALC scale.

Note: Kenwood equipment has a tune position with reduced carrier and must be peaked in the CW position.

After a period of operation, possibly an hour or so, it may be noted that the ALC reading has become sluggish on transmit. If so the set should be retuned for peak output, or if the operator has shifted some distance down the band from the original tuning position, the set should be retuned at the new frequency.

Experienced operators generally retune every 25 kHz or so. An unresonant transceiver is very prone to cause TVI and considerable care should be taken over the tuning procedure.

If a dummy load is unavailable always, always, check that the frequency is clear before tuning up on the band.

SPEECH PROCESSING

There is a mistaken impression amongst many operators that processing increases signal strength.

The signal may appear to increase marginally, however the most noticeable effect to an operator on the other side of the world will be an increase in audio output.

Your signal will SOUND louder and have more punch. It will of course lose some of the natural tone, but this will be an advantage during pile ups and bad QRM, and may make the difference between being heard or not.

Caution must be taken to avoid too much processing as the result may be a signal that splatters a considerable distance up and down the band, thus causing annoyance to other operators, and distorting your signal to the station you are trying to work. Background noise (fans, etc.) can be amplified too much if a lot of processing is used. Readability will suffer.

Checks from local stations to ascertain the best settings are essential but on average a station a mile or two away should not hear you more than 5 kHz either side of your transmitting frequency.

NEUTRALISATION

If for any reason you change the final valves in your transceiver the set must be neutralised by a competent amateur, or by strict adherance to the instructions in the manual if you feel you can attempt the procedure yourself.

A set that has not been neutralised may be a very probable cause of TVI.

From CQDX Radio Group Handbook — by Trevor Reid VK3NNR. ■

★ ☆ ★

NOTE OF CAUTION

The advent of a large number of youthful licence holders has been something we must applaud: but it does bring a few hazards, particularly when the experience of the operator is rather limited. An accident which prompted this par occurred recently when a young AOCP holder went visiting aboard a yacht, which, in addition to some rather sophisticated gear, also boasted one of the old AM marine radios. Assuming the transmitter to be VFO controlled with the switches set "so", he proceeded to "tune-up" on 160, 80 and 40 metres and give a hearty old "CQ, CQ", complete with call sign, at each point. Unbeknown to him, the rig was constructed along lines which were popular in the past: tunable RX and crystal-locked Tx, which complied with regulations and ensured that the Tx frequency stayed where it was supposed to be (or close to it with FT243 xtals!) and changed by selecting the appropriate crystal with a switch. In this case, an Amateur call sign had a good airing on 2524 kHz, the Small Ships Channel — which caused a certain amount of consternation amongst the people who like "muckin' about in boats".

Fortunately, there were no repercussions that we know of, which rather highlights the worth of the old saying (translated) about fundamental orifice beating class any day. There is a lesson there for our less experienced operators, however, and it is this — **NEVER EVER** put a transmitter or transceiver to air until you are certain that the signal will come out on one of the bands you are licensed to use. When confronted with a strange piece of gear, first find out what it is supposed to do; and don't take anyone's word for it, particularly that of non-technical people. If in doubt, consulting someone with practical experience in servicing the equipment is the safest course to take: thinking you know isn't good enough, even though the temptation to give it a go is great indeed. Taking it a step further, this is also sound advice with any surplus or discarded equipment which may or may not still have crystals fitted: many services, particularly Marine or Aircraft where lives may be at stake, do not take kindly to strange call signs appearing out of the blue — and remember that your call sign, being unique, is relatively easy to trace. Play it safe — leave that tempting box switched off until you know a lot more about it.

From Smoke Signals, April '79 ■

QSP

HEALTH, SUNSPOTS AND SOLAR FLUX

There is a strange but strong correlation found between sunspot maxima and virulent flu epidemics writes Pat Hawker in TT Radio Communications May 1979. Other medical researchers appear to have found equally odd and inexplicable links between solar activity and health matters. For example, he quotes a report on an apparent link between the daily number of admissions to the cardiac thoracic wards of two hospitals in India and geomagnetic data in the form of daily sums of the planetary index of geomagnetic activity normally used as a measure of the effect of solar particle flux.

NEW PREFIX

According to Radio Communications March 1979 the ITU has provisionally allocated the call sign series HTA-H2Z to the Republic of Cyprus. ■

AROUND THE NOVICE SHACKS

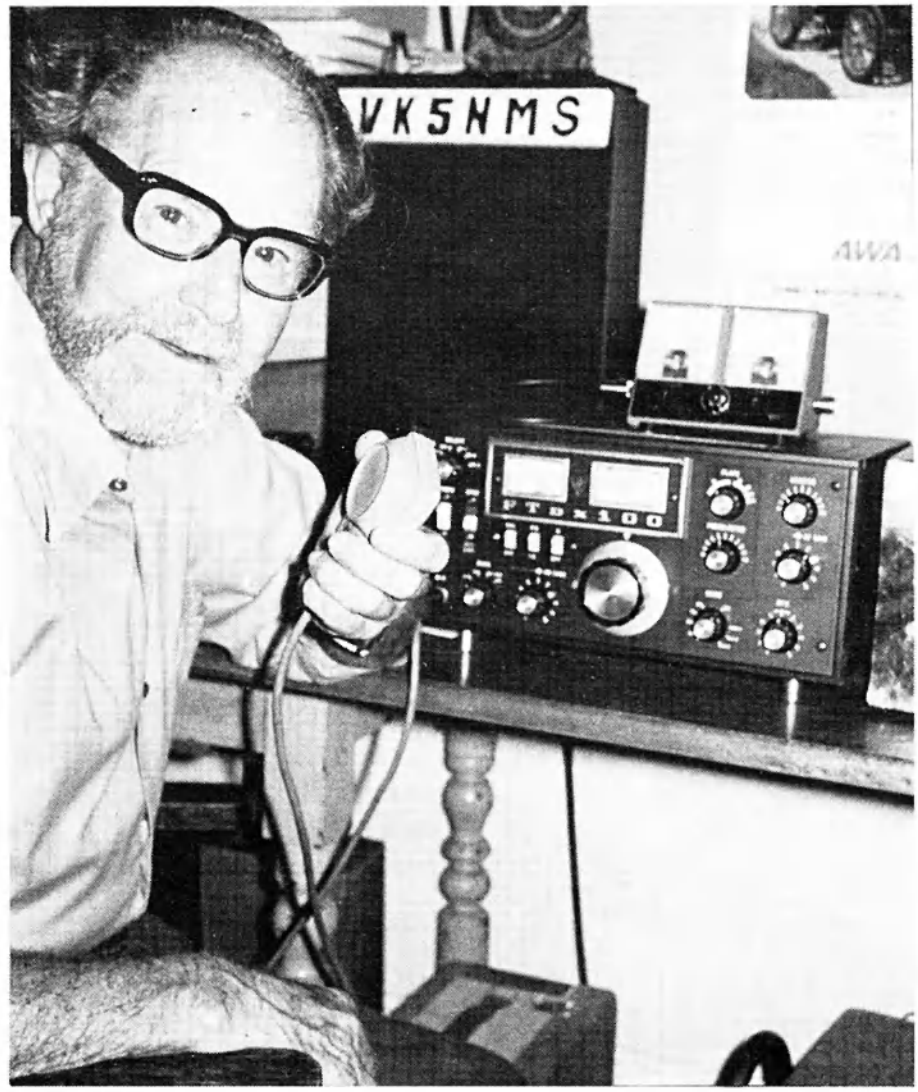
NEVER TOO OLD

Bert Shire VK5NMS was licensed in early 1979 at the age of 74. Prior to that he was and still is an active SWL, being an official monitor for HCJB and Deutsche Welle. Later this year he will have completed 10 years continuous monitoring for Deutsche Welle and will be awarded an official service plaque.

Bert happened to read about a new class of amateur licence in the paper and decided to give it a go. After some disappointment with his application being mislaid and having to travel 200 miles each time to attend the exam, Bert was successful in passing all three, and was in due course allocated a call sign. Not a particularly noteworthy achievement in itself, but at 75 I think one worthy of some merit. It now provides him with a rewarding hobby (when he has time between his other activities) in his den on the seafront at Tumby Bay.

—From Greg Nixon VK5ZER/NGN.

— Photo from Paul Shire Melbourne. ■



Who is this trying to hide behind his car? None other than Darryl VK3NEX. Darryl Is renowned for his mobile contacts, especially on 10 metres and 80 metres with a commercial helically wound mobile whip.

At home, in the north of Melbourne, Darryl runs a TS520 and a parasol beam and has many DX contacts to his credit.

★ ☆ ★

Portable Amateur Radio as shown by Reg Blackshaw VK3ARB. Reg has had his licence for many years now and is always active In introducing newcomers to the art of Amateur Radio, particularly CW, as this is Reg's favourite mode. Reg has many friends world-wide through his sole CW contacts.

★ ☆ ★

Werner Wulf VK3NCW is one of the very active DXers on 15 metres. Werner is originally from Germany and has many awards for working German stations. Recently Werner has been producing home brew yagis for either 10 metres or combination 10 and 15 metres. With his TS520 and 3 element tri-band yagi on a home brew tower, Werner's signal is one of the best Novice signals on the band.

QSP

REALLY RADIO ACTIVE!

The March 1919 Issue of the "Electrical Experimenter" featured some Interesting advertisements. For only 50 cents you could buy a "generous piece of Carnotite, a Radium ore, "enough to conduct experiments, such as affecting photographic plates through opaque material". Also included, at no extra cost, was a glass phial containing an ore which was 35 per cent radio active Uranium. Hope they disposed of these items properly; perhaps they are still lying In someone's attic! ■

REPEATERS

Peter Mill VK3ZPP

FEDERAL NEWS

At the recent Federal Convention the band plan, which was published in June 1978 AR, was adopted. The only change being that the ATV liaison repeater frequency is on 147.9/147-3 MHz.

After many years of discussion the channel numbering system has been changed and is now based on frequency. With the increased use of synthesised transceivers this has become necessary. The repeater channels will now be identified by the output frequency.

EXAMPLE:

146.5	Ch 50 — 6500	Ch 2 — 6700
146.55	Ch 51 — 6550	Ch 5 — 6850

It is realised that in practice the repeaters will still be Ch. 1-8.

The 70 cm band plan was also modified to conform with this principle.

EXAMPLE:

439.000 MHz — 900
2m FM channels from 6000-8000
70 cm FM channels from 8001-9999

STATE NEWS —

A.C.T.

The Mt. Ginini repeater (Ch. 6950) is operational again. Since it first went back on the air, the aerial has been changed to a nine element coaxial collinear. Its performance appears to be as good or better than the aerial used on the original repeater. The installation is housed in the VK1 Division's new building on Mt. Ginini.

VICTORIA

The Mt. Macedon repeater (Ch. 6850) is back on the air. It is using a 3 dB aerial on the top of the tower for the transmitter and a 6 dB on the receiver. The receiver aerial is upside down and on the west side of the tower, which shields it from the Hume Highway area. The transmit power is 8 watts to the aerial. When the duplexer is finished the 6 dB aerial will be installed on top of the tower.

The new Melbourne 70 cm repeater is expected on air soon. Its call sign is VK3ROU and is located on Mt. Dandenong. Operating frequency is 433.225/438.225 MHz (Ch. 8225).

The Bendigo repeater (Ch. 6800) has recently changed its call sign from VK3RAM to VK3RCV. Since the aerial on top of the TV tower was hit by lightning the repeater's range has been reduced due to a temporary aerial being placed lower down the tower.

Any information for AR or the Federal Repeater Sub-Committee should be sent c/- the Federal Office in Toorak.

Peter VK3ZPP. ■

BAND PLAN FOR 2m FM — 146-148 MHz

146-147 MHz Primary Voice Communication Channels

Sub-band		Recommended use for specific channels
Repeater inputs Repeater outputs (16 channels)	146.025-146.400 146.625-147.000	50 kHz channels to be preferred where available
Simplex (8 channels)	146.425-146.600	146.500 calling channel (national)
		146.450)) primary 146.550)
		146.600 RTTY (national)*

*RTTY channel is an exception to the recommended rule of allocating special purpose nets above 147 MHz as it is a well established and populated channel.

147-148 MHz Local or Special Purpose (voice or data)

Sub-band		Recommended use for specific channels
Repeater inputs Repeater outputs (15 channels)	147.625-147.975 147.025-147.375	147.300/147.900 ATV liaison (national) 147.325/147.925)) RTTY (national)
Simplex (9 channels)	147.400-147.600	147.400)) ATV liaison 147.425)
		147.450 ATV/SSTV/FAX
		147.475 SSTV-FAX liaison
		147.550 Micro net
		147.575)) Data Net 147.600)
		147.5)) Not allocated 147.525)

COMMERCIAL KINKS

Ron Fisher VK3OM
3Fairview Avenue, Glen Waverley, Vic.

AUTOMATIC REPEATER OFF-SET SWITCHING FOR THE IC-22S

John Miller VK3BFM has come up with this nifty idea to save confusion with the off-set switching on the 22S.

Over to John to tell the story.

Have you ever forgotten to flick the switch on your IC22S when QSYing to, or checking the freedom of, simplex channels? If your memory whilst driving (or at home) is anything like mine the answer could well be YES! This little circuit was designed to overcome this operator malfunction, whilst still enabling the IC22S to be used normally for listening on input frequencies, or working reverse on locally unused repeater channels.

Only one wiring change is necessary to utilise this circuit. The wire from the wiper of the duplex switch to the programming matrix board is removed and re-routed to one of the inputs, whilst the output of the unit is connected to the duplex position on the board.

The second input is derived from the switched 9V available at the edge of the matrix board using diodes, as supplied for programming the rig, so that you do not fire up on two channels at once, or rather some peculiar frequency. When both inputs to gate 1 are high (repeater channel selected and +9V receive) the output will

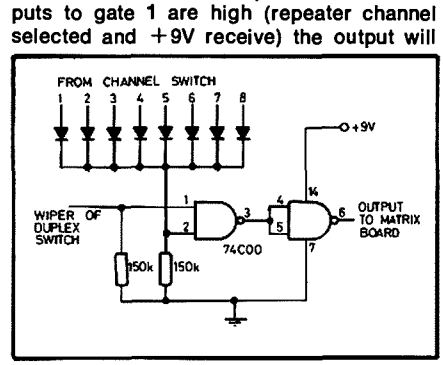


FIGURE 1.

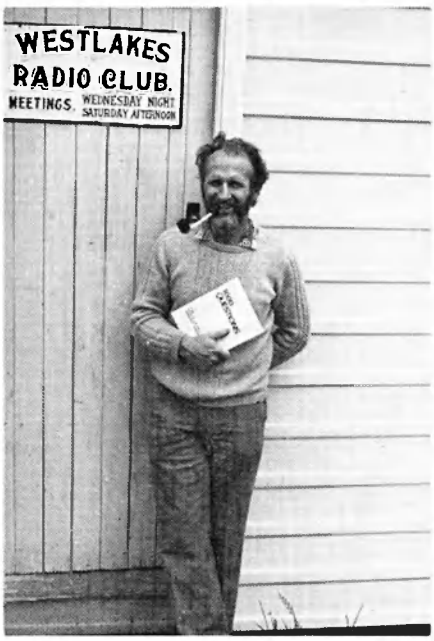
be low. This is then inverted by gate 2 to provide a high output to the duplex circuitry. On transmitting, the +9V from the duplex switch will disappear causing a high level on the output, once again inverted by gate 2 to return the set to its programmed frequency. On duplex B the +9V appears on transmit to shift the frequency up 600 kHz.

Should you desire to listen on the input, to find out if you are within simplex range, just move the duplex switch in the normal fashion.

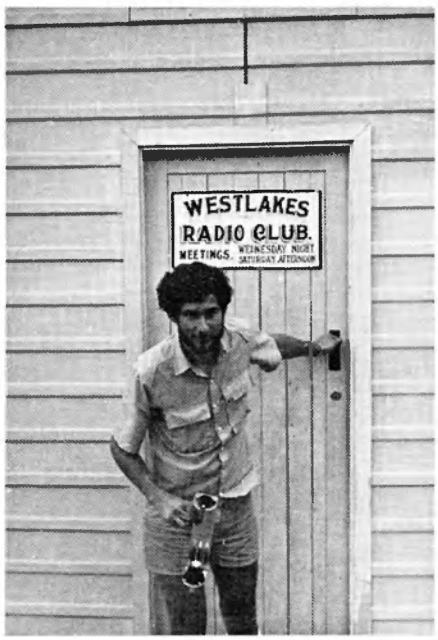
A CMOS IC was chosen partly because it was available but mainly because it could provide the required 9V level with no interface circuitry. So there you have it, a simple way to add automatic duplex switching to the IC22S. ■

THE WESTLAKES RADIO CLUB

Photos and details by Les Daniels VK2AXZ.



Ken Hargreaves VK2AKH, State Supervisor YRS, co-author of "1000 Questions for Novice Candidates" and several other YRS publications.



Jamie Campbell VK2YGJ, the builder of the Channel 10 repeater on Watigan Mountain. The repeater is solar powered and popular in both Sydney and Newcastle.

Keith Howard VK2ARX. Keith has been putting people through the AOCP for many years now. He is the author of the well known "Questions and Answers for the Novice Licence" and is the Director of the Westlakes Radio Club.

Harry Gray VK2AFA, aged 83 and first licensed in 1926 and still active on HF.

Lew VK2BPR giving a lecture at Westlakes Radio Club on one of his two dozen antique radios.

Ces Butterworth VK2BU, first licensed 1929, and now usually on 40m during lunch times. With Sir Allan Fairhall VK2KB, helped put broadcast station 2KO on the air.

Join the I.W. net at 2300Z on Thursdays on 14165 kHz when you have intruder information.

SUPPORT OUR ADVERTISERS

Presenting: A Symposium on 'Future Amateur Communications Techniques'

The 1979 F.A.C.T. Symposium

to be held over the weekend 29-30th September – 1st October in congenial surroundings at Noah's Northside Gardens Hotel
(52 McLaren St, North Sydney NSW)

Following the highly successful and enthusiastically attended 1978 Symposium held in May last year, the organisers are planning another event to stimulate and enthuse. The theme for this year's Symposium will be "Propagation and Circuit Techniques".

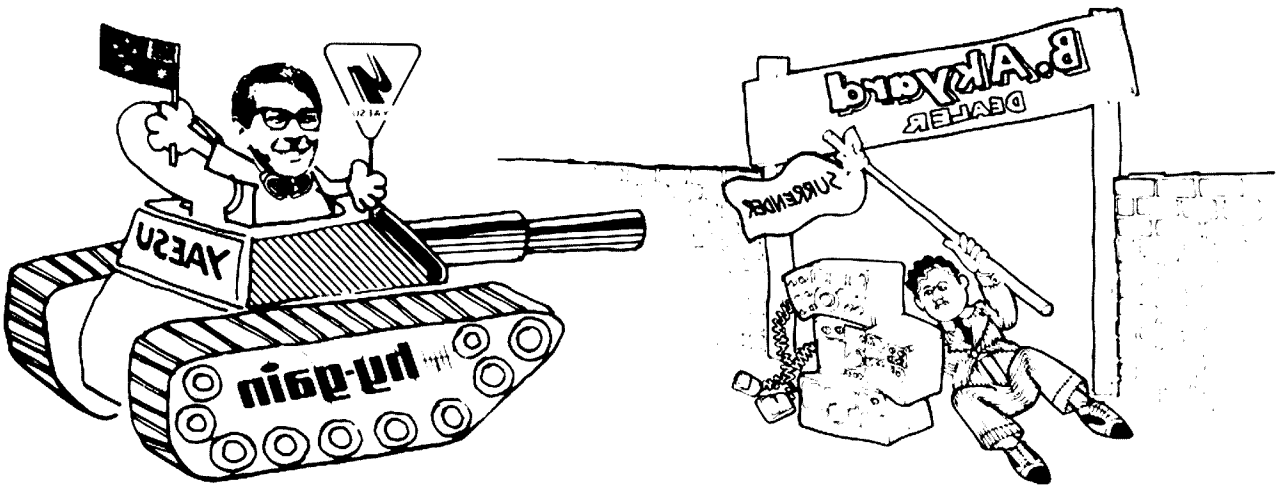
The series of lectures and workshops planned will cover the following topics: The coming solar cycle peak; Propagation research in Australia; Long distance VHF work; Practical SSB equipment; Circuit design and analysis using a computer; Amateur microwaves; Amateur applications of microprocessors; Building and using test equipment. A trade display is also planned.

For a registration fee of only **$20** you can enjoy two and a half days of stimulating lectures and discussions from well-known amateurs – lunches and coffee breaks included! Those attending will receive a bound copy of the Symposium 'Proceedings'.

For further information, registration forms etc; contact: **THE FACT SYMPOSIUM ORGANISER**
c/o ETI, 15 Boundary St
RUSHCUTTERS BAY NSW 2011

Organised by Roger Harrison VK2ZTB and a committee of amateurs; sponsored by Ansett Airlines of Australia and Electronics Today Magazine.

"We will match any genuine price on Yaesu and now on Hy-Gain antennas if it is to the benefit of our customers."



Reinforcements are on the way!! Yes, to help in the war we have sent for reinforcements. The long awaited FT-625R (6m all mode transceiver) should hit the beaches mid August.

After the loss of the FT-7, the more powerful FT-7B has joined the war to fill the gap for a good mobile transceiver (available mid August).

YOU REAP THE BENEFIT!

This may be your last chance to buy a fully guaranteed, factory-fresh Yaesu at a true bargain price. Don't say we didn't warn you after the white flag has been waved!

HERE ARE OUR YAESU PRICES: (and we'll send them anywhere in Australia for just $6.00 extra – We even lose money on this 'below cost' freight offer!)

FT-101E 80-10m HF transceiver	Cat D-2860	**$789.00**	FT-101Z New HF transceiver	Cat D-2862	**$775.00**
FT-301 Solid State HF transceiver	Cat D-2870	**$795.00**	FT-901D Top class HF transceiver	Cat D-2854	**$1229.00**
FT-7B Mobile HF transceiver	Cat. D-2868	**$625.00**	FT-227RB 2m FM scanning transc.	Cat D-2891	**$379.00**
FT-227 2m FM transc with memory	Cat D-2890	**$319.00**	CPU-2500 computerised 2m transc.	Cat D-2889	**$549.00**
FC-301 Antenna tuning unit	Cat D-2896	**$219.00**	FC-901 antenna tuning unit	Cat. D-2855	**$249.00**
FL-2100B 1.2kW linear amplifier	Cat D-2546	**$529.00**	FL-110 200W linear amplifier	Cat D-2884	**$189.00**
FRG-7 Solid State HF Rcvr	Cat D-2850	**$319.00**	FRG-7000 Digital HF rcvr	Cat D-2848	**$599.00**
FT-625R 6m all mode transceiver	Cat. D-2886	**$795.00**	YC-500S 500MHz Freq. Counter	Cat D-2892	**$475.00**

We believe that the prices above are better than any supplier in Australia. If you find someone cheaper for the same goods, tell us! For us to better any price, simply show us the advertisment from any Australian company. After checking that they have stocks available at that price we will sell it for a lower price. Offer remains open while present stocks last

Easy terms available to approved personal applicants on any item priced at $111.00 or more.

NEW HY-GAIN HF ANTENNA PRICES:

SUPER SPECIAL:
TH6 DXX SLASHED BY $104.00 TO ONLY
$295.00 WHILE STOCKS LAST
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TH3Mk3 BEAM:
Save $50.00 . . .
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$20.50 off!
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SAVE $14.50
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CHIRNSIDE ELECTRONICS

FRED SWART — VK3NBI

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AB 3-10 • 3 el.10 M.	$59.--
AB 5-10 • 5 el. 10 M.	$89.--
AB 3-15 • 3 el. 15 M.	$89.--
AB 5-15 • 5 el. 15 M.	$139.--
AB 3-20 • 3 el. 20 M.	$129.--
AB 4-20 • 4 el. 20 M.	$189.--

ROTARY DIPOLE.

Dipole 20-15-10 M. $ POA.

HIDAKA.

HIDAKA

VS-33. 3el.Triband Beam 20-15-10M.Inc.Balun. .$259.
VS-41-80KR. 80-10M Trapped Vertical. .....$119.
VS-RG. Radial Kit for VS-41-KR. .....$35.

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18-AVT 80-10 M Vertical .....$129.
TH-3 Mk.3 20-15-10 M Beam .....$255.
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TH-6 DXX 20-15-10 M 6 EL. .....
BN-86 1-1 Matching Balun .....$24.

Few only.

TH-6DXX....$275.--

2 Position COAX Slide Switches

2 80-10M. Traps for dipole. **$50.-**
Complete with balun and insulator.

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SWR-200. Large dual meter SWR. .....$75.
590G. 5 position coax switch. .....$39.
Diawa 2 Pos. Coax Switch. .....$25.
LP-42. Drake Low Pass Filter.200W. .....$19.
TWS-120. 2 Position slide coax switch. .....$18.
M330. Diawa Mic. compressor. .....$94.
5D-fb. Foam filled coax double shielded 2.02 dB loss per 100 feet. .....$1.20 per metre.
RG-58U. Thin coax. per metre .....50 c.
PL-259. .....65 c.
PL-259 to suit 5D-FB. $1.50
FF-501DX. Low Pass Filter. .....$40.
Bumper Mounts 3-8x 24 Thread. .....$10.
Wide Range of Coax Cable and Connectors in stock.

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Porcelain Egg Insulators .....50c.
CN-620 DAIWA SWR Meter. .....$95.
WESTON trap-set 80-10 M.Incl.balun .....$50.
HI-Q Balun 1:1 .....$15.95

NEW!!

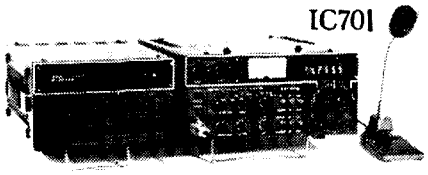
CHIRNSIDE MOBILE ANTENNA

6 feet long with 3/8 24 tpi. thread

80M Helical. $22
40M Helical. $21
20M Helical. $20
15M Helical. $20
10M Helical. .....$20.

Bumper Mounts 3-8x 24 Thread. .....$10.

IC701



The fabulous state of the art ICOM IC701 solid state transceiver.

ICOM $1299

IC-701. HF 160-10M Transceiver. .....$1299.
IC-202E. SSB Portable Transceiver. .....$229.
IC-22S. FM 10 Watts 2M Mobile Transceiver. $295
IC-211. ALL Mode 2M.Transceiver. .....$799.
IC-280. Mobile 2M.Digital Transceiver. .....$449.
IC-701PS.Power Supply. .....$250.

NEW !

TS-120

KENWOOD

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VFO-520S Ext. VFO for 520 .....$163
DS-1A DC-DC for TS-520 .....$79
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VFO-820 Ext.VFO for 820 .....$195
TS-120S 80-10 M. Transceiver. .....$POA
VFO-120V Ext.VFO for 120. .....$148
PS-120 Power supply for 120 .....$110
SP-120 Ext speaker TS-120 .....$40
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SM-220 Station monitor scope .....$379.
BS-5 Panoramic adaptor for 520S. $66
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AT-200 SWR meter.antenna coupler $185
RD-300 Dummy load 150 mHz-300W. $79
TR-7625 2 M.-25 W. Digital $465
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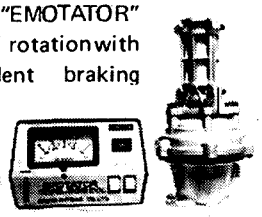
MC-35S Hand mic. noise cancel. $26
MC-50 Desk mic. $59
YG-3395C CW filter for 520. .....$59
YG-8BC CW filter for 820 .....$59
YK-88C CW filter for TS-120 .....$38

The high quality professional "EMOTATOR" Powerful rotation with independent braking systems.



EMOTATOR ROTATORS

103LBX. Medium Duty. .....$164.
502CXX. Heavy Duty. .....$243.
1102MXX. Extra Heavy Duty. .....$369.
1103MXX. Extra Extra Heavy Duty. .....$395.
502 Mast Clamp. .....$32.
103 Mast Clamp. .....$22.
VCTF-7. 7 Core Cable.per Metre. $1.20
VCTF-6. 6 Core Cable.per Metre. .....$1.00.

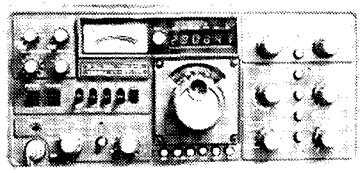
DIAWA

DR-7500S. Medium Duty. .....$189.
DR-7600D. Heavy Duty. .....$289.

YAESU Mobile Antennas.

RSL base mast Inc. 2 M. $29
80 M.Resonator. $22
40 M.Resonator. $21
20 M.Resonator. $20
15 M.Resonator. $20
10 M.Resonator. $20

YAESU



FT-101Z 160-10 M Adj. N/B IF $765
OPTIONAL.
FAN $39
DC-DC for 101Z $79
FT-901DM Transceiver. $1549
FV-901 Ext.VFO FT-901,FT-101Z. $439
FC-901 Antenna coupler $249
YO-901 Panoramic adapter, monitor scope $499
TV-901 6M,2M,70 cm All Inc. $839
SP-901 Ext.speaker for 901-101Z. $53
YR-901. Morse readout Adaptor STBA.
FRG-7 Communication receiver $339
FRG-7000 Communication receiver .....$595.
LF-2A Narrow band filter FRG-7 .....$20
FT-7B 80-10 M.Transceiver 100W. $619
YC-7B Digital display for FT-7B $123
YE-7A Hand Mic for FT-101Z $21
YD-148 Desk Mic for all Yaesu $49
YP-150 150 Watt dummy load and Watt meter $112
FL-110 Solid state amp. 160-10 M. $239
FL-2100B 1200 W. Amp. $585
QTR-24 24 hour world clock $33
YC-500 Freq. counter .....$POA
FT-227R 2M. Digital transceiver $329
FT-227RA 2M. Scanning digital transceiver. $399
FF-50DX Low pass filter 2 kW. $40

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AMATEUR SATELLITES

Bob Arnold VK3ZBB

OSCAR 7

OSCAR 7 keeps appearing in working order although there are occasions when the beacons are not operating and it is necessary to call through the satellite to ascertain whether it is working. At the present time OSCAR 7 is flying in long periods of sunshine and therefore the batteries, which I have previously mentioned as defective, are receiving a reasonable charge. Some time in September the satellite will pass into quiet long periods of darkness and therefore the battery recharging facilities may not be available and at this time we may find that communication through the satellite is not possible.

OSCAR 8

OSCAR 8 continues to work satisfactorily and many contacts are heard on both Mode A and Mode J.

PREDICTIONS

As will be noted this month's edition does not include the predictions for September, i.e. the month after publication. The reason for this is that the orbital parameters of OSCAR 8 in particular are changing slightly and it is not possible to determine accurate reference orbits three months ahead. Although it may cause some inconvenience I propose for the time being to revert to publishing the orbital data for the month in which the journal is published. This will mean that if there is any delay in receipt of the journal, interested operators will have to do their own calculations for a few days at the beginning of each month; this should not prove difficult as the movement in each day's time is constant enough for reasonably accurate predictions.

It would appear that the predictions given for August in last month's copy of "Amateur Radio" are between four and five minutes late; therefore, to obtain the correct time add, say, five minutes to those predictions. As mentioned, I am not too sure what is happening and this correction time may be even a little longer when we reach the month of August.

AMSAT NEWSLETTER

The saga of the missing copies of the September and December issues of AMSAT Newsletter continues and the mystery deepens. A letter from Perry Klein, President of AMSAT, quite positively states that the Newsletters were sent in bulk to Australia for redistribution to Dave Hull VK3ZDH who, for many years, has been responsible for the re-direction of bulk posted mail and assures me they were not received by him. I am quite confident that this would be so as I have spoken with Dave on a number of occasions and we have both expressed concern at the non-delivery of these letters. One can only presume that the parcels went astray in the post.

I will continue to pursue the matter and hope that eventually the subscribers will receive the missing editions.

As from the March 1979 edition the Newsletters are being posted direct from the USA by air mail to Life Members and sea mail to Annual Members, unless an additional $3 has been forwarded for the extra cost. All VK AMSAT Members should have received the March edition by now; if not I suggest you write direct to AMSAT.

BRITAIN'S FIRST AMATEUR SPACECRAFT

I am indebted to M. N. Sweeting G3YJO and "Radio Communication", the *journal of* the RSGB, for the following information on a proposal for a British amateur spacecraft. This satellite, known as UOSAT, is a joint venture of the University of Surrey and AMSAT, backed by British industry, and it is hoped that the spacecraft will be available for launch into polar earth orbit in 1981-82. The proposed spacecraft will be a departure from the traditional OSCAR satellites which have been oriented predominantly towards providing improved long distance communications for amateur operators. UOSAT will complement the OSCAR series as an experimental and scientific amateur spacecraft.

In the past, frequencies used in amateur satellites have been in the VHF and UHF areas of the spectrum and It is proposed that UOSAT will be used to explore satellite communication at other frequencies.

The proposed experimental modules aboard the satellite will include:—

Ionospheric studies experiment:
- Phase referenced HF beacons on 7, 14, 21 and 28 MHz.
- Magnetometer.
- Radiation counters.

Education experiment:
- Earth-pointing slow-scan TV camera.
- Synthesized voice telemetry system.

Future systems experiments:
- SHF beacons on 1.296 and 10.47 GHz.
- Expanded CODESTORE system.
- Microprocessor housekeeping system.
- Two-axis stabilization system.

The spacecraft will be constructed in modular form commencing with the service modules and then progressing through the simpler experiments, i.e. the HF beacons, to the more complex items until resources and/or time run out. The resources necessary for this project are of considerable magnitude and may be of Interest. A sum of $160,000 has been raised to support personnel, components and travel, the major components including 4000 solar cells, batteries, magnetometer and antenna deployment mechanisms have been located, sophisticated test facilities have been arranged and construction facilities have been provided by the University of Surrey. It is proposed that there will be a Project Manager with a full-time assistant, together with a group of at least ten amateur and non-amateur staff who will contribute on a part-time basis.

It is hoped that much of the spacecraft will be built at the University and it is anticipated that interested groups of amateurs will contribute specific experiment modules.

It will be seen from the above notes that the experiments proposed from UOSAT will be of considerable interest to specialised groups of amateurs in Australia, including amateur TV operators. Early notice of this experiment will also give local amateurs an opportunity to develop their 1.3 and 10.5 GHz equipment so that it will be available in time to listen to UOSAT during its early orbits. This is new ground for many amateurs who, to date, mainly confine their activities to discussion and it should be a means of promoting SHF experimentation in this country. ■

TECHNICAL CORRESPONDENCE

The Editor,

Dear Sir,

I recently bought two wind your own balun kits from a well known electronics supply house.

As I studied the printed design leaflet supplied with the kit it seemed to me the information portrayed could have been presented in a simpler form and contained an error in Figure 10.

As the information in the leaflet came originally from the ARRL Electronics Data Book, I found this hard to believe but practical application of my ideas proved me right.

In the interests of others who may be led astray by the wrong circuit shown, I supply the following reasoning and corrections.

Firstly the wrong circuit as printed in the leaflet.

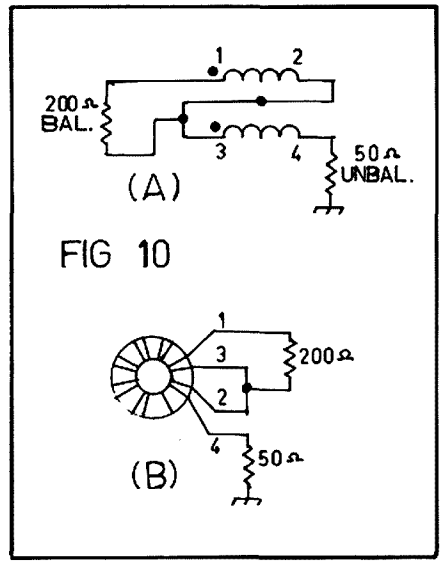


FIGURE 10: Original.

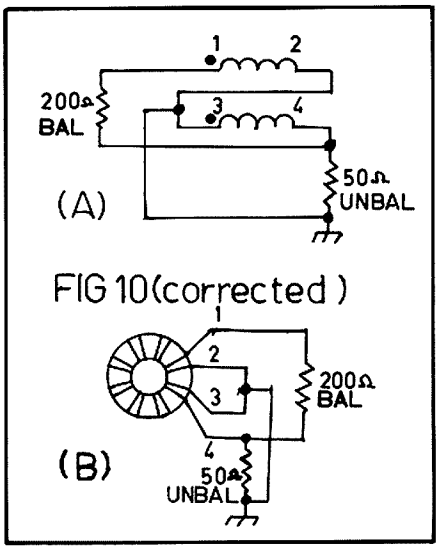


FIGURE 10: Corrected.

Looking at Fig. 10, firstly there is no complete circuit for the low Z side as an additional wire or earth point is needed.

Secondly a balanced winding needs a centre tap which would normally be earthed, and this is not so in the diagram.

Thirdly as a 4 : 1 impedance ratio is needed a 2 : 1 turns ratio is necessary but not achieved in the circuit shown.

To correct both the top and bottom diagrams the following changes need to be made.

The wire connecting 2 and 3 should be earthed. The lower end of the 200 ohm resistor should be connected to 4 and not to 2-3 as shown.

Bruce Hannaford VK5XI ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

The Editor,
Dear Sir,

I wish to comment upon and draw attention to, the statements by the WIA Federal Awards Manager relating to the "Worked All VK Call Areas (VHF) Award" in May 1979 AR.

To start with, the fact that the majority of the awards issued have gone to stations in VK2 and VK3 is only to be expected. A check with the number of licences alone would suggest that out of 12 certificates issued the majority would come from these two areas.

As for operators not being interested in the award, how could they possibly be expected to be? Since 1973 ALL the WIA Awards have received virtually no real publicity at all. If you fail to tell people that these awards are available you can hardly expect to have them clamouring for them.

The comments about no VK9 activity are totally incorrect as any active 6m operator will confirm. If this isn't so, how come that the VK9 call area has been worked by stations in Japan and the USA? VK9ZR alone worked over 500 stations on 6m during the Mellish Reef operation.

True, there may not CURRENTLY be any VK0 activity on 6m but does this mean that you delete an award because ONE year no one takes 6m equipment to VK0?

Such a suggestion is obviously ridiculous. There is every reason to be optimistic that there will be future operation on 6m and VK0. It should be borne in mind, too, that the many VK0 QSOs from Macquarie Island were during a sunspot minima period, not the type of conditions we are experiencing now. The mere fact that an award of this type is offered in itself provides incentive for 6m operation from VK0 where little if any incentive existed before. Surely that alone is a very important reason for maintaining the award.

Currently there are only THREE awards available to VHF operators from the WIA. These are the Worked All States, VHFCC and WAVKCA (VHF) awards. With so few incentives for VHF operating I would have thought it more desirable to increase rather than decrease the number. If the number of awards issued is to be the criteria for keeping them it would seem logical to examine the number of certificates issued for the other two awards and consider deleting them, too. What rubbish! I would ask how many operators licensed since 1973 are aware of our VHF awards? VERY few I would guarantee. This cannot be blamed on VHF operators.

To say that VHF operators "will never now be able to qualify for this award because of their locations and the lack of opportunity to work VK0 and VK9" is utter nonsense. Has Bill Verrall read or heard of what is taking place on 6m? After making that statement I can only conclude that he can't possibly know what is happening. In recent correspondence he told me that he wasn't active any more on 6m and not likely to be active again, therefore can he claim to be making informed statements about 6m operation and what is possible? I can't really see how he can.

One reason that few awards have been issued is that the first eight people to qualify for the certificate didn't receive their certificates until almost FIVE YEARS later. As an exercise in how to win friends and influence people the WIA must have set some sort of record in this matter. To add insult to injury, the quality of the award compared with overseas equivalents is quite pathetic.

It is almost impossible to write rules for an award that will give "an even chance" to every applicant. Invariably someone will be at a disadvantage somewhere no matter how hard you try to do your best in giving everyone the same chance. However in the long run these problems are almost always surmountable and those who really try make the grade. There is little point in having an award that is too easy, as obtaining such an award really proves nothing and requires no skill, effort or determination. Any award of value should prove that the recipient has done something worthy of the distinction it gives. It should be noted that seven out of the 12 operators who have so far received the award have obtained it while operating in Ch. 0 service areas with something like 20 hours per day of TV transmission (usually 6 a.m. to 2 a.m. the following day operating hours). Any operator who hasn't tried to work 6m under these conditions can't imagine the problems that this involves. To obtain the award under these limitations is a worthy achievement above and beyond the basic award requirements.

I have always been of the opinion (and as an ex WIA Federal Awards Manager myself) that the position of the Awards Manager is to administer the decisions of the Federal Executive and not to institute personal whims alone. Except for changes to DXCC listings all changes to awards, even of the most minor nature, had to be submitted to and approved by the Federal Convention of the WIA during my term of office. Has this position now changed? As the current Awards Manager has held the position for a very brief time I question whether he should start chopping out awards on his own say so. After all, it is the interest of the membership he represents, not his own. If the VHF Awards are too great a burden I would willingly take on the job of issuing them if the interest of members is to be served.

Certainly, at the moment, it may not be possible to achieve the award in question until there is further operation, particularly from VK0, but this is no reason to abandon the award. 2m WAS is even harder but many people are waiting for their one VK6 or VK8, no one has ever suggested deleting this award because it is too hard — it is the difficulty that provides the incentive to try and reach the particular goal. The very fact that VK9 and VK0 are requirements for the WAVKCA (VHF) Award is incentive for the operators going to or living in those areas to use 6m. There is absolutely NO reason why a VK5 or VK6 operator couldn't get the award given activity. Not very long ago many operators thought working all JA districts (1-0) was too hard from southern VK. Not only has that been achieved but some have 40 or more of the JA Prefectures worked as well as countries such as HL, KG6, KH6, KL7, W, XE, etc. In this light it can't possibly be claimed that an award such as the WAVKCA (VHF) Award is too hard. Any reasonable dedicated operator, given time, should be able to qualify. Please don't discourage attempts to try harder or work further because uninformed people think it can't be done; it can and will be done given incentive to do so.

Geoff Wilson VK3AMK. ■

The Editor,
Dear Sir,

May I make a plea for the correct use of phonetics in call signs and general conversation. I have found it very confusing to hear the names of countries used instead of the well recognised phonetic alphabet. I may be a voice in the wilderness, but correct operation must be easier.

Now, another matter stemming from some comments in WIANEWS June 1979, page 6, about the recent convention. Quote: "A position on 10 metre band beacons was adopted with a reminder to novices to leave the beacon frequencies clear as far as possible (28.2-28.3 MHz segment)" unquote.

As the novice does not have sole occupancy of this section of the band, I wonder why we were singled out in this manner. Perhaps some information on these "beacons" may help us to understand your comment.

Yours faithfully,

Peter Lord VK3NPL
Victor Kilo 3 November Papa Lima
NOT
Venezuela Kenya 3 Nicaragua Pakistan Luxembourg. ■

The Editor,
Dear Sir,

The small number of operators on UHF FM seems to be due to several factors. The first seems to be the general unavailability of rigs (commercial/disposal) and the second a syndrome about anything higher than 144 MHz. How many times have we heard "Oh it's too hard for me" from avid home brewers, fiddlers and conversion types. If you have mastered 2 metres FM then go forward, young man. The Icom IC30 is now available and Newcomers to 70 cm FM will find operators willing to help them to be active on repeater VK3RAD.

Don Sinclair VK3VH. ■

QSP

6m DX RECORD

According to Ham Radio May 1979 a new 6m DX record of 12,059 miles was set early in March when LU8AHW worked HL9TG. This was apparently the same evening when VK4s worked WA4TNV/KL7.

CW IN SPACE

Among the items on the recordings "The Sounds of Earth" on a gold-plated copper album strapped to the bodies of Voyagers I and II (Jupiter, Saturn and beyond) is the latin phrase "ad astra per aspera" (to the stars with difficulties) in CW. This was taped by WB2FWS. The second Voyager is due to arrive at Jupiter on 9th July and from 6th to 15th July the Jet Propulsion Laboratory Am. Radio Club will contact the spacecraft through its station W6VIO and will be operative on all HF bands as well as possibly via Oscar on CW, SSTV and SSB. A special QSL card is promised — QSL via bureaux.—QST May 1979. ■

VHF-UHF
An expanding world

Eric Jamieson, VK5LP
Forreston, 5233

AMATEUR BAND BEACONS

Freq.	Call Sign	Location
50 004	PY1RO	Brazil
50.010	HL9TG	Seoul *
50.023	HH2PR	Haiti
50.025	6Y5RC	Jamaica
50.030	KL7CDG	Alaska
50 030	ZS6PW	South Africa *
50.035	ZB2VHF	Gibraltar
50.050	WA1ENX	Maine *
50.050	ZS6LN	South Africa *
50.075	HK3/4	Columbia (repeater)
50.080	TI2NA	Costa Rica
50.088	VE1SIX	New Brunswick
50.091	WA6JRA	Los Angeles *
50.093	WA8FTA	Michigan *
50.092	W7KMA	Oregon*
50.098	K7IHZ	Arizona *
50.100	ZS6HVB	South Africa *
50.101	FO8DR	Tahiti *
50.104	KH6EQI	Pearl Harbour
50.110	JD1YAA	Marcus Island *
50.110	KG6RO	Saipan *
50.110	AL7C	Alaska *
50.500	5B4CY	Cyprus
51.999	YJ8PV	New Caledonia
52.100	VK0BC	Casey Base †
52.200	VK8VF	Darwin
52.300	VK6RTV	Perth
52.350	VK6RTU	Kalgoorlie
52.400	VK7RNT	Launceston
52.450	VK2WI	Sydney
52 500	JA2IGY	Nagoya
52.500	ZL2VHM	Palmerston North
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
52 900	VK6RTT	Carnarvon
53.000	VK5VF	Mt. Lofty
144.010	VK2WI	Sydney
144 400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144 700	VK3RTG	Vermont
144.800	VK5VF	Mt. Lofty
144 900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
147.400	VK2RCW	Normanhurst
145.100	ZL1VHF	Auckland
145 150	ZL1VHW	Waikato
145.200	ZL2VHF	Wellington
145 250	ZL2VHP	Palmerston North
145.300	ZL3VHF	Christchurch
145.400	ZL4VHF	Dunedin
432.400	VK4RBB	Brisbane
432.475	VK7RTW	Ulvarstone

* Denotes attended operation.

Further to the closure of the Ballarat 432 MHz beacon briefly mentioned last month, it appears someone didn't get moving and renew the licence. No news yet of any resumed operation.

No news either of the 3D2AA and VK0MA beacons so they have been removed from the list this month as promised!

SIX METRES

To say six metres has gone quiet would be an understatement. It seems incredible that the constant good conditions of March-April-May should die so completely in June — it tends to indicate TEP and F layer operations are still mightily dependent upon equinoxial periods for best results. Many of our summer contacts have been possible in southern climes only because of Es enhancement, and without that in the winter there are no contacts!

Tony VK6BV has written from Northam outlining KH6EQI being heard in the West on 21-4, 23-4, 24-4, 25-4. 26th April was a good day all over VK, including the west, KH6EQI 0000-0135, peaking S7. KH6IAA copied 5 x 3 on 52.010 at 0007 for 15 seconds! Open to JA at these times also. Heard VK8VV on backscatter. JA2IGY beacon on S9 + 20 in Northam, most call areas from JA being worked at 9+. 28-4 KH6EQI again. 29-4 worked KG6JIP. JA1, 2, 4, 7, 9 and 0. 1-5 HL9TG 5 x 9+. 6-5 HL9WI and plenty of JAs. Since then practically nothing has been worked from Northam or Perth either! Thanks, Tony. The DX will return!

FROM DAVID VK5KK

David's pen has gone very quiet this month, along with the DX. I wonder if there is any connection? But he does report several Es openings, with conditions and distances varying from QTH to QTH, so there have probably been Es openings to other areas Interstate about which we know little. On 8-6 VK2BYX from 0205 to 0215Z via scatter (E), signals peaking to S9 but only readable 40 per cent of time, contact at 0211Z. 15-6 excellent E conditions to VK7 from VK5 from 0145 to 0910Z. Stations involved included VK5KK, VK5AVQ, VK7TW, VK7JG and VK7DA, all in Launceston area. Signals usual strong E type. Also worked VK2BA on E backscatter at 0820Z at S2-3. Not bad conditions for middle of winter. VK7 beacon audible through entire opening. 16-6 E opening to VK4 from 0600 to 0700Z with VK4ABP, VK4IS/P, VK4ZGI from S4-7. VK5SV and VK5ZMO kept the VK5 end up, most other likely VK5s being on their way to the Mt. Gambier Convention at this time. Not much info coming back from overseas so one can assume the DX being worked is not getting involved with VK! Several reports of VK4, 6 and 8 and YJ8OT openings but nothing too thrilling, to Japan from down here.

LET'S TALK TWO METRES!

Seeing the ionosphere has toned down a bit, David turned his interests to 2 metres which, as usual, didn't let operators down in winter. From 30-5 to 3-6 rather good tropospheric conditions existed over the southern portion of VK with all sorts of things going on. Like Repeater DX and 144 SSB and Repeater DX and Repeater DX . . . START: 31-6 VK3RTG beacon audible to VK5CK (Piccadilly in the Adelaide Hills, on top of the ranges almost!) 5 x 5 and to VK5KK S1 at 1000Z. 1-6: VK5SV worked VK2DAB, VK2BEV, VK2ADZ, all of Griffith; they were also worked by VK5CK and VK5KK. VK2DAB also worked VK5ZDR. VK2YNB from Griffith also through R8 Adelaide. Meanwhile VK5CK worked seven Melbourne stations and one Shepparton station. Strongest station at VK5KK was VK2DAB 5 x 8 at 1145Z, and stayed open to Griffith to 1225Z. VK3RTG again audible at S5 (two nights in a row!). Repeaters from all across VK3. Some contacts involved five States, VK1, 2, 3, 5 and 7. On 2-6 things didn't stop. VK3RTG again from 1000Z to Adelaide and VK5AVQ tucked right in under the hills! Mainly Melbourne stations from 1000 to 1600Z. Some of the call signs involved: VK3AUQ, VK3YFU, VK3ZY, VK3YMY/P and VK5ZDR, VK5ZPS, VK5SV, VK5KK, VK5AVQ and VK5CK. (Unfortunately VK5LP had to look on as the temporary 8 element beam at 21 feet didn't do much justice to the distant signals!) At 1400Z worked VK7ZAH on 144.1 up to S7. Throughout the opening tropo was not good enough for 6 metres over 300 miles. VK3AXV was worked by VK5AVQ on 6 and 2m. VK3AUG at Merbein worked VK5KK, VK5SV, VK5CK and VK5ZDR from 0045Z with signals to S9.

Small openings then to 21-6 with more tropospheric openings but not as good as early June. 22-6 VK5CK to VK2DAB S1 at 1230Z. Nothing on the Plains. 23-6 VK5CK to VK3YMY/P (on Mt. Macedon as in previous opening) at 1200Z. VK5KK to VK3YMY/P 5 x 1 at 1223Z. Conditions declined shortly after. During these openings Ch. 5 Mt. Macedon Repeater was quite consistent alongside the regular Ch. 7 Mt. William Repeater.

MORE ON TWO METRES

Two metres in the southern areas of VK may start to provide more consistent operating with the emergence of Dave VK5CK at Piccadilly, who in a short time since becoming fully operational on 144 MHz has made his name and call sign known in a lot of shacks to the East, and will be a force to be reckoned with in the future. The Adelaide Plains area in the past has had only a few operators able to successfully get over the Mt. Lofty Ranges with any degree of consistency, namely Mick VK5ZDR, Col VK5RO, Roger VK5NY, Peter VK5ZPS and very few others. Later on the scene came Tony VK5ZDY at Stirling, not far from VK5CK, also in an excellent position, but Tony has not been operating from there for some years now. Of recent times Keith VK5SV and David VK5KK both at Wasleys, about 35 miles north of Adelaide, came to the fore and are still there, but are further away from eastern contacts when the conditions are less than favourable, though they don't miss too much from their excellent open plans location! And now to keep adding to the activity from this end comes Dave VK5CK, who is keen and should have a reasonable degree of time to operate. He can run either 3 watts or 60 watts of SSB to a pair of 13 element KLM type LP yagis, and this set-up should give him long distance capability. So now we look to the VK2, 3 and 7 end of the Continent to do their share and look this way with more regularity. Contacts on 144 will be aided by the many repeaters currently operating, when early warning will be given by their reception, and giving an opportunity for operators to QSY to the lower end. Also you guys in the other States, don't overlook 432 MHz, there are a number of stations quite capable of sending a good signal, even VK5LP has 100 watts output on that band to a 16 element LP yagi 72 feet high and fed with heliax cable, and usable for CW, SSB, FM or AM — it's your choice!

STILL MORE ON TWO METRES

To further stir some of you people in VK2, 3 and 7, how about the following as an initiation for Dave VK5CK after getting up his stacked 13 elements. The list is printed to show 144 MHz SSB is not yet dead! Dave first heard VK3RTG beacon on 31-5 at 2330Z S2. Then on 1-6 between 1038 and 1200Z he worked VK3AMY, VK3ARS, VK3YMS, VK3BKF, VK3YLD, VK3YNV (Shepparton). On 2-6 worked VK2DAB, VK2ADZ and VK2YEZ, all at Griffith, VK5OA Mt. Gambier, VK3BPH Warrnambool, VK3ZYU Glen Waverley, VK3BHS Stawell, VK5NC Mt. Gambier, VK3YII Frankston (who was 5 x 3 until a meteor ping lifted his signal to 5 x 9 + 20!), VK3YOU Melbourne, VK3AUR Halls Gap, VK3ZUK, VK3ZY, VK3AUQ, VK3BCY, VK3NM, VK3YFU, VK3AIE, all of Melbourne or suburbs, VK3YMY/P Mt. Macedon, and VK7ZAH Launceston. All these stations were worked between 1218 and 1420Z with signals varying from 5 x 1 to 5 x 9 + 40! Even Kevin VK7ZAH was 5 x 9! On 3-6 VK3ZY Melbourne 5 x 9 + 20 at 1500Z and VK3AUG Merbein next morning at 0045Z S3. VK3ZY was also worked with the IC202 on its own whip antenna at 5 x 1.

During the tropo opening many repeater contacts were made, including 17 to interstate stations. At 1000Z on 2-5 Mt. Ginini repeater heard as a heterodyne against Mt. William. Incidentally, Mt. William repeater was weaker throughout the opening than Mt. Macedon. Also Dave heard repeaters on Ch. 3 and 4, worked through VK2RGF at Griffith, also R8 at Mildura, and idents from Wodonga repeater. Finally, on 16-6 during the Mt. Gambier Convention VK5CK worked VK5AVQ and VK5KK, who were standing on the side of the mount at Mt. Gambier holding a 2 element beam in their hands at 5 x 1 on 144.1

The above gives you some idea what can be done if you are around at the right time, and the equipment is going! Let us all hope this is only the forerunner of many such openings — there is very little to beat the thrill of a widespread opening on 2 metres, you never know how far signals may travel. And there still remains that possibility that New Zealand will be worked again from VK5 some time, perhaps this time on tropo and not Es!

TWO METRES FROM TASMANIA

VK7ZTA writes from Lenah Valley with a report of the opening on 2 metres on 2-6 when he heard the VK1 repeater from Hobart, with VK1RC working VK2ZYM at 0030Z. He gave a call and worked VK1RC, VK1AOP, VK1DS, VK1FT, VK1ZAH, VK2ZYM, VK2YNB (Newcastle), VK2ZLX and VK2AVA all about 4 x 1 signals. Adjourning to a nearby mountain with a 5/8 antenna and IC202 and IC22S, and via Ch. 7, worked VK1, MP, KV, RP, ZAD, BX,

ZBJ, VK2, BEV, DO, ZLX, FD, AMG, ZMP, ZDJ, RX, ZRJ, ASM, ZBQ, RJ, BZX, YWX, YKV and VK3ZLK, finishing at 0315Z when R7 faded out. Via R5 Mt. Macedon worked VK3 BPH, AEU, YRP, BNU at 5 x 3. At 0615Z VK3BBB was *heard on* R2 at Hobart, so worked him direct on Ch. 40. Returning home he worked some more signals through R7.

Thanks for writing the above. The moral of all this repeater activity seems to be that if conditions are that good, did anyone really try to work simplex, say Ch. 40 or Ch. 50? With so many small rigs around these days, it is not much hardship to run up to some local high point with a 5/8 antenna and get into the DX direct. I guess this would be more rewarding than being confined to repeaters only. It depends on your point of view. The above correspondent did show it was possible to work one station on Ch. 40, had others at the other end been willing, perhaps more might have been worked.

VK0BC BEACON FUND

There hasn't been a lot of response to this suggestion yet. Gil VK3AUI has offered help, and a letter from VK4NOB (note the kindness of a Novice operator) has offered financial support as well. We already have the offer of an amplifier from David VK5KK to help lift that 300 mW to a respectable level. So what about it, you guys, especially those in VK3 and VK7, which operation from the south will obviously suit best. Write a letter to me indicating what you are prepared to give, but send no money at the moment. For further information I refer you to the original article in May 1979 AR.

FM BEACON

In a departure from the usual, Barry VK2AAB has written to say the Hornsby and District Amateur Radio Club has made a project to construct a beacon, mainly for morse training, but useful for other purposes. It is operational 24 hours a day on a frequency of 147.400 MHz FM, with the call sign VK2RCW (that's appropriate) and the morse is generated by a 2650 microprocessor using ASCII data from a cassette tape. It has been operating successfully from Barry's QTH for six months. No details as to power or antenna, but it will be a useful addition to our beacon list. Thanks, Barry.

MICROWAVE NEWS

Lyle VK2ALU via "The Propagator" indicates enquiries are being made to locate amateurs presently interested in getting on the 10 GHz band. So far the following have been found in VK2: VK2AHC Sydney and VK2YCN Gosford, with operational transceivers on 10 GHz; VK2BBY and VK2ZPC with Gunnplexers for future use on 10 GHz; VK2ZAC with other equipment being made up for reception or transmission on 10 GHz. Others are known to have "X" band gear, but not operational to transmit or receive in the Amateur 10 GHz band. Lyle would be interested to hear from any amateurs in VK2 who are working towards getting equipment on the 10 GHz, and I would think he would be most happy to swap experiences with others who may be heading towards that band from other areas of VK. Write Lyle Pattison VK2ALU, QTHR.

STOLEN

While attending the Mt. Gambier Convention over the weekend of 16th and 17th June, Mark VK5AVQ had his FT221 Yaesu 144-148 MHz transceiver stolen from his car. Serial number is 6F307750. When stolen it had an Icom (202 style) microphone and normal DC cord but no AC cord. The rig has some other internal modifications which are apparent to the astute eye. This includes a U310 FET pre-amp. Any information to be passed on to the Mt. Gambier Police or VK3AQR or VK5AVQ. A slight operational fault exists on FM which concerns RF getting into VOX circuitry and causing the transmitter to hold in and "cycle" when the PTT is dropped. This can be noted on air. That's most unfortunate, Mark, and I sincerely hope that the equipment was not stolen by one of the participants at the Convention. However, the caravan park from where the equipment was taken on the Sunday night after the Convention was full of various people, so it could have been taken by anyone on the spur of the moment.

TESSA NEWS

From "Radio Communication" of June 1979 comes the following which will be of interest to many, especially those concerned with 432 MHz records.

"Following the success of the 144 MHz and 432 MHz operations by the Tessa Group, ZE2JV has begun beacon transmissions on 432 MHz. He is using 100 watts into a pair of Quagi antennae stacked horizontally. As reported in last month's 4-2-70, these signals have already been received by George Vernakis SV1AB in Athens. The distance involved, approximately 6300 km, is the longest path over which 432 MHz signals have been received without involving the use of moonbounce. Attempts were to be made to make a two-way QSO over this record-breaking distance, but unfortunately ZE2JV's equipment was damaged by fire. To complicate matters, the fire was extinguished by a gardener with the assistance of a great deal of water! It is hoped that the equipment can be repaired soon so that these most interesting tests on 432 MHz can be resumed over the path between Athens and Salisbury.

"The Tessa Group is also co-operating over plans to add a 432 MHz output to the beacon transmissions from ZS6DN. Other TE beacons in the planning stages include one from Pete Sawyer ZS1U, who should by now be beaming 144 MHz signals north from Cape Town. EA3ADW now has a 1 kW beacon on the air on 144.111 MHz from 1730 to 1930 GMT daily. Amateurs in Italy and Yugoslavia have also indicated they would like to join in the Tessa beacon TE project in the near future. SV1DH has a 1 kW beacon feeding an 88 element multi-beam firing towards Rhodesia, and it will be most interesting to see how far this high powered transmission can reach via TE on 432 MHz.

"The Tessa Group has a regular net on 28.333 MHz at 1500 GMT to discuss the day's TE reports. This frequency is monitored continuously until at least 1930 GMT so that stations can immediately be informed of TE openings. Anyone who would like to assist the Tessa Group with these experiments on 50, 144 and 432 MHz are invited to join in the above net and contact the net controller, Ray Cracknell ZE2JV."

All that of course, apart from being very interesting experiments, indicates to VK amateurs that they should not be resting too much on their laurels now that the 432 MHz record is held in VK, it may not be too long before it is taken away from us after reading the above. It seems VK stations should be making some efforts to work across to New Zealand or Japan on 432 MHz, and it is probably not stupid to suggest looking towards Africa, particularly in the first instance on 144 MHz from VK6. If I (VK5LP) lived on the west coast of WA I would certainly be doing something about it — it is no use these days saying it cannot be done — while you are saying that someone is likely to be doing it elsewhere!

SMIRK DXDC

Bill VK2HZ has sent me a small supply of SMIRK DXDC application forms which will save any qualifying VK amateur having to send to the US for a copy. Bill also has copies. I note with interest that an added requirement has been inserted on the application, viz.: All contacts made must show proper band segment operation for both working parties, i.e. for VKs 52 MHz." With that I most heartily agree, following especially on what was written last month on the subject of out-of-band operation. I am pleased also to see steps are being taken overseas to disallow any contacts wherein a QSL does not indicate at least that the VK contact took place on 52 MHz, so any award collectors are going to need some further contacts with certain stations somewhere along the line.

My present main concern is the fact that I don't want to see any undermining of our position here in VK by thoughtless operators, selfish operators, who cannot wait for the right contact, particularly when we have WARC 79 coming up, and with quite a lot of ground work already done for a possible return of 50 MHz to the amateurs. I don't want to appear to be a goodie-goodie, but I am firm on this situation.

GENERAL NOTES

I was surprised to see the May 1979 issue of "Break-In" does not contain any VHF notes! I cannot recall ever seeing an issue during the past 16 years which has not contained such notes. I hope this is not an indication of likely 52 and 144 MHz interest in the future over there.

I note from "Break-In" of a letter circulating to those interested of what their thoughts are on changing their repeater offset from 700 kHz to the more usual standard (and that used in VK) to 600 kHz. It still appears unlikely any changes will be made, however.

VK5MC continues to have 432 MHz EME contact, VK3ATN is working towards getting back on to EME and ZL3AAD has heard some stations via the moon. His transmitter is almost ready to go.

I hope next month to be able to pass on some interesting information regarding the operation of the KLM type yagis, especially the new style 13 element types for 144 MHz. Tests are being carried out here. Suffice to say at this time that they are capable of giving outstanding performance but they are not as readily reproducible as you might think, there are a number of factors which can upset their performance, so be careful. This equally applies to the 7 element six metre type.

Well, it's been a different lot of information this time. The winter conditions have shifted emphasis from six metres to the higher frequencies, and this situation will probably exist for another couple of months. The copy this time may seem orientated around the southern States, but that seems to be where the main activity is centred. I occasionally receive information from VK4, nothing from VK8 for six months, but having made a phone call to Graham VK8GB I am hopeful he will let us know soon how the last six months has been on 6 and 2 metres in Darwin. I could do with more information from VK2 and VK6, but I do thank Tony VK6BV, who is pretty regular with his information. But what about the northern areas of VK6?

As the Editor has been very good to me over the months of high activity in giving me considerable space for our notes, I will give some respite this time and let him have some more room for something else by closing now with the thought for the month: "History has seen wars that used up less ammunition than a cease-fire does today."

STOP PRESS ITEMS

SIX METRE PORTABLE OPERATION

Paul Brinsden VK3YFJ will be operating portable on six metres for six weeks from the 1st August.

Paul will be portable between Tarcoola and Mangoorie during a microwave equipment installation trip.

Paul works for NEC, who have the contract to supply and install microwave radio equipment which will be used for communications along the new standard gauge line to Alice Springs.

During the trip Paul will be operating portable in style with a reasonable rig feeding a reasonable antenna which will be on a portable tower.

Look out for Paul VK3YFJ during August and September.

YB0X CONTACTS

David VK5KK has now become the proud possessor of two cards for YB0X DXpedition (52 MHz), being one of only six (VK) stations to contact said station. In fact, the only station below the 20°S line which is generally the stopping point for so much DX. The following are the results of the operation.

"It is our great pleasure to send you this information reporting the successful result of 'YB0X', the tentative operation, for 6m propagation test which has been done at Java Ancol Dreamland, Jakarta, from April 29th to May 7th, 1979.

This remarkable project has been authorised thanks to the big efforts of IRARI (Organisation of Amateur Radio Indonesia) staffs, particularly General Suwondo YB0AT, the President of ORARI, and Mr. Kwik YB0CJ.

We, five goodwill Japanese operators, joined this operation co-operating to YB operators (JA1UT, JA1UPA, JJ1CEI, JA2TTO and JH4RUG).

The details of OSOs are as follows:—

HF (21, 28 MHz band) 3,762; VHF (50 MHz band) 2,156; Total QSOs 5,916.

Details of 6m OSOs: JA 2,133, VK 6, H44 3,

P29 2, KG6 8, KH6 1, HL9 1, CR9 1, DU 1, Total 2,156.

The rigs we used were FT-625D (Yaesu), FTV-902R + FT-901DM (Yaesu) and antenna, 50T4 (Masspro), 6m 6 el. Yagi and TA33Jr for HF

All QSLs shall be handed by JA1UT.

We are much appreciated for your co-operation through the operation and hoping FB DX and best 73s OM.

Yoshi Hayashi JA1UT.

QTH: 4-20-2, Nishi- Gotanda, Shinagawa, Tokyo, Japan 141."

LIST OF VKs WORKED BY YB0X

29th April, 10.36Z, VK8GB; 30th April, 01.59Z, VK5KK; 1st May, 08.31Z, VK8ZBB; 1st May, 08.34Z, VK4RO; 1st May, 11.44Z, VK8VV; 3rd May, 11.13Z, VK8VF (CW).

All were on 52 MHz. The VK8VF beacon was only heard, and not worked.

Congratulations to all six concerned and commiserations to VK5LP and VK5RO, who heard YB0X on 30-4-79 but unable to make contact.

LATE TWO METRE NEWS

A tropospheric opening between VK2, VK3, VK4 and VK5 took place on Sunday, 24th June. Contacts from VK3 to VK2 were common with other areas getting in on the action as well, including VK3 to VK4.

73. The Voice in the Hills. ■

WICEN

Ron Henderson VK1RH
Federal WICEN Co-Ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

MAP READING

Continuing with our theme of WICEN training, the WICEN operator will often be asked the question "Where are you?". Replies based upon local knowledge are frequently given but these presuppose that the questioner is equally familiar with the countryside. To overcome this difficulty a system of map or grid references is used in conjunction with grided maps.

Maps vary in scale and date of compilation, however the most common ones are Survey Corps even the older inch to the mile (1 : 63 360) scales. or National Mapping 1 : 50 000 or 1 : 100 000 or Grid intervals are either 1000 metres or 1000 yards for older maps and each grid line is labelled with a bold two digit number, plus other smaller digits which should be disregarded. Grid references are normally given to six figures, that is three figures for eastings, followed by three for northings. The first two figures of each sub-group are the grid line digits, the third is an interpolation to give the locations to the nearest 100 metres (or yards). Similarly a four digit grid reference defines a 1000m x 1000m square and may be adequate for some purposes.

Instruction on map reading is best taught as a student involvement activity on a WICEN course. applicable to the likely local area of operations. The following items should be covered using a map Indeed it is a good idea for each member to purchase his own local map.

- Marginal notes.
- Scales.
- Symbols and legend.
- Grid references (there is a worked example on each map).
- Contours.
- Orientation for direction and position using compass or prominent features.
- Magnetic and grid variation.

Maps are easily mounted on desk type blotter boards with clear sheet plastic (TALC) cover sheets. Markings on this cover sheet can be made with chinagraph, omnichrome or grease pencils, then erased when no longer required.

Useful training in map reading can be achieved during exercises by locating mobiles at grid references and by not using prominent local features by name.

WICEN FORMALITIES

I covered in a recent article the contents of a local WICEN plan which relates to WICEN involvement in an emergency. Allied with this are a number of formalities which apply at all times, not just in emergencies. These are:

Membership of WICEN — Registration, training and allocation of duties.

Accreditation with Police and Emergency Services — Identification cards and car stickers.

Post and Telecom Liaison — Routine matters, exercise clearances, emergency call-outs. Note a single point of contact — Co-ordinator to DRI.

Insurance and Compensation — Applicable for training, exercises and emergency call-out. Personal liability, personal accident and property loss or damage. (See AR June 1979.)

Powers of Command — Who is the operator responsible? Who may give lawful commands? Limit of duties is essentially communications.

Obviously many of these matters are subject to regional variations. It is my aim here to provide you with a check list to lighten your workload and provide a basis for planning. Please make sure your group has considered them as they are as important as voice procedure or map reading.

1978 AIR CRASH EXERCISE

NSW WICEN members Ray Gill VK2BRF, Alan Nutley VK2BNA, Mike Richter VK2BMM, Barry White VK2AAB and Gareth Davey VK2ANF were invited to attend along with the other 200 or so people present.

Buses loaded with "injured passengers" simulate aircraft fuselage on fire.

Foam cannon in action — a very effective fire control device.

Plenty of ambulances available, along with helicopter transport service.

I believe that these photos are still of current interest to members as they demonstrate some aspects of emergency situations, and also the authorities recognition of the role WICEN can play. ■

YOU and DX

Mike Bazley VK6HD
6 James Road, Kalamunda W.A. 6076

Apologies for the fact that there was no DX column in the June issue of AR. Bill's column, VK5VW, showed under my heading and the copy sent by me appeared to disappear into the system. (Humblest apologies — see July issue.—Ed.)

DXpeditions are considered by some to be the lifeblood of DXing. How, they ask, is one able to contact those uninhabited islands unless someone takes the trouble to go there and put them on the air? This is true, of course, but it does raise the point if they are uninhabited why should they count as DX countries? Is there any real justification in calling a rock that is just above the ocean eight hours out of twelve a country? The recent 7J1 DXpedition is a case in point. This, though, is no reason for complaining about a DXpedition — if someone wants to work all the uninhabited islands on this earth then let him, provided he does not cause too much interference to others who have not the same interest. It is in this area that I believe the DXpedition does a disservice to Amateur Radio.

Let's be honest. Have you ever heard a DXpedition, on say 14195, stating that he was tuning 14200-220? Without any further thought on your part have you swung your VFO into some area of that frequency range, before listening to see if the channel was occupied by someone in QSO? I have! As I said, let's be honest! Your answer may be "Well everyone knows that 14195 is a DXpedition transmitting frequency and they usually listen 5 to 25 kHz above". True — but what happens when the DX station says he listens 14200-250 and then changes that 30 minutes later to 14140-14160 and then changes that to 14160-15180? The The resulting chaos is no ordinary QSOs for anyone in a frequency range of 14140-14250. Well that's 20, you may say, it's only to be expected. Well this writer heard the recent 7J1 DXpedition listening for replies on 40 metres and moving his listening range between 7175 and 7250 in the space of 15 minutes. Imagine what that did to local and other QSOs in the States.

After all the above, I suppose I am making a plea to DXpeditions to consider other users on the bands and the havoc that they can so unwittingly cause and at the same time we, the chasers, should also remember others.

The spate of stations signing with the ITU suffix recently were in connection with the ITU contest. Those with prefixes ED, EE and EF go via the EA bureau, TK via REF and: 8J via JARL. (EE4 operating from EA4, EF6 from EA6, TF from F and 8J3 from JA3, etc.)

From Eric BERS 195, comes information that VR1P and KB6 (both the same island but counts as two countries!!!) will become part of Kiribati, the new name for the Gilberts, in 1980. So there's two more off the countries list.

Useful DX has been heard/worked from VK on the CW mode during the past four weeks (May 25-June 21) and may be of interest to those chasing DX on bands other than 20. At least you know what is active, for example, from the lists received comes the following, all CW 3.5 MHz, K7CA/HC1, KL7AF, 5W1BX; 7 MHz, FR7BW, GU4EON, HD1A, J7DD, LU3ZY, UJ8JAS, VQ9KK, ZE3JO, ZS5LD; 21 MHz, CO2PY, CP7GM, CR9AJ, HD1A, HI8LC, KV4KV, KZ5NW, SV0AA/5, 4S7RM, 5Z4CW, 9G1LR; 28 MHz, FB8XV, FR7BW, FW0WW, WA7JRL/SU.

Those KP4AM/D QSLs are now reported to be on their way at long last.

LU3ZY is still being reported in the States as showing on 21035 after 2330Z.

If you need Franz Joseph Land, UK1PAA is regularly QRV on 14030 from 1400Z.

DX YOU MAY HAVE MISSED!!!

JF1IST/7J1 — Okino Torishima — QRV June 11th-18th.

FW0WW — QSL via W9GW.

DA1WA/HB0 — QSL via DJ0LC.

VE1AIH/1 and VE1AST/1, Sable Island — QSL both via VE1AIH. They will be back on Sable Island in July.

RUMOUR CORNER

There may be some operation from CE0X within the October-November period, also strong rumours of activity from XZ. Others are looking at the possibility of an extended 601 operation and finally there are rumours of a West Africa OXpedition covering TL, TN and TT.

I would suggest that you check 14195 and 14025 regularly. The chances are that one of these will show.

In a QSO with SV0AA recently I was told by Jack that he would definitely be on from Rhodes again this year (SV5). Possibly in October or November, with a view to catching one of the big CQ contests.

Apologies for such a small offering this month but work QRM has beaten amateur radio. Watch those long path openings August-September. Very many thanks to BERS 195, VK4KX, VK6AJ, VK6LK and ZL2MM for information. Happy hunting. 73 Mike.

QTHs YOU MAY HAVE MISSED

A4XGY — Via K2RV.
CP5GK — Box 2659, Cochabamba.
FH8CL — PO Box 20, Mayotte, via Reunion Island.
N0DX/H44 — Via W0PAH.
HD1A — CW operation, via K7CA/HC1.
J7DD — Via W2OB.
KH3AA — Box 69, APO San Francisco 96305.
K0BO/KH8 — Via W0PAH.
KZ5BU — Via W0PAH.
OA4UI — Box 538, Lima.
OD5LX — Via SM0GMG.
OH2BP/OH0 — PO Box 928, Oulol, Helsinki 10.
WA7JRL/SU — Via W8LZT.
VP2MOC — Via K2YY.
VS500 — Via N200.
VR6DX — Via W0PAH.
VR6HI — Via ZL1ADI.
XE1FR — Via W5QK.
YJ8OT — Via VK3OT.
ZF2CL — Via DK7PZ.
5H3GK — Via SM5AWO.
9N1BMK — Via JA8BMK.
9X5PM — PO Box 863, Kigali, Rwanda.

EXPEDITION MONACO 1979

Date: 30.9.1979-12.10.1979.
Call: 3A0JD.
ORG ± QRM.
CW: 3.550, 7.025, 14.050, 21.15, 28.150 MHz.
SSB: 3.700, 7.050, 14.200, 21.300, 28.300 MHz.

QSL only via HB9 OSL Bureaux, PO Box 9, Ch. 4900, Langenthal, Switzerland; or direct to HB 9 ASJ, Leopold Spreitzer, Hopfernstrasse 4, Ch. 4900, Langenthal, Switzerland.

LETTER RE F8DW

A letter from Dennis Rogers VK5NOK dated 19-6-79 mentions the following:—

On 13-5-79 I made contact with F8DW Doc Gibert, Belfort, France. The conditions were really excellent, and we were both excited to have such good signal reports. Dr. Paul Gibert's personality came across with remarkable clarity. I think many VK amateurs will have worked this splendid old enthusiast, however for those who do not know him, please allow him to introduce himself in his own words:—

"I am a real OT — using a coil from a model T Ford transmitted 50 miles in 1920! Was able to copy W1BCG. Had contacts with several "spark stations" late 1923 (three transmitters, six antennas).

"I am an old airman and flew prototypes, winning two races. I have had 60 cars since 1928, a dozen Harley Indians — still got the last XL 1000 cc Harley.

"I am 90 years of age, weigh 102 kg, no white hair, and all my teeth. I like hunting, drinking, sailing, and think a young girl a thing of beauty when she is paying cash for the transmitter, and the expense of keeping my pipe going!!

Dick KV4AA.

"73 from the Old Bug O' De Woods, Doc Gibert."

I think you will agree that this is indeed a "rare old bird" and as a young novice (albeit 60 years old) I feel privileged to have met him.

VK5NOK. ■

48,100 QSOs in 1978

With a last minute spurt on December 30th and 31st, which netted 540 QSOs, Dick KV4AA wound up 1978 with a total of 48,100 contacts. This was an average of 131 per day or one QSO every 11 minutes of 1978.

About 65 per cent of the contacts were on CW with the balance on SSB. A total of 199 countries were worked with only a couple of them being "chased". Assorted equipment held up nicely as did Dick's 73-year-old health except for a "sticky" attack of shingles, last May, which slowed operations only slightly.

Continuous calling by European stations on CW (even during QSOs) and the co-operation of USA SSB ops, plus contest operations, made large totals easy. KV4AA took part in just about every contest that turned up, including a few where the origin is still not known — otherwise QSOs, although short, were not of the "contest" or "DXpedition" variety. This makes a difference of three QSOs per minute versus one every three minutes when things are humming.

All this started in 1976, when Dick's AJ3AA bicentennial call resulted in 35,335 QSOs or an average of 96 per day. A goal of 36,500 contacts was set for 1978, 100 per day. When this was passed on October 19th a new goal of 45,000 was set. This was met on December 14th, and another 3,100 were worked.

Thus a total has been set for whatever it's worth. It is realised that certain factors are a "must" for such totals like a fairly "exotic" call and plenty of time. This will limit most. KV4AA was not on continuously, as he works daily until 1 p.m. and, until the latter part of the year, was seldom on after 7 p.m. Stations contacted twice, or more, the same day were only counted one time unless the mode and band were different. In going for high totals a QSO with a WD4 can be just about as satisfying as a VU2 contact.

Invaluable aid was given the project by Yasme (WA6AHF) and other west coast hams who handled the KV4AA QSLing chores.

KV4AA's three year total now stands at 115,280 contacts. Dick says "This year we rest, but t'ain't easy getting used to". ■

INTERNATIONAL NEWS

April 1979 QST advises that Bud Panchard VE3UD has been nominated to the Canadian delegation for WARC 79 by the Canadian Administration. He is well qualified to represent Amateur Radio on the delegation.

FIJI

News has been received that the Fiji Association of Radio Amateurs has been re-started. President is 3D2CM and Joint Secretaries 3D2UP and 3D2BM. The address for the Society and QSL bureau is PO Box 184, Suva, Fiji.

SEANET CONVENTION

Will be held this year in Penang, Malaysia, from 30th November to 2nd December. MARTS states hotel bookings are heavy at that time of the year and they ask that details be sent to them before the end of August. The venue is the Eastern and Oriental Hotel, 10 Farquhar Street, Penang. MARTS' address is PO Box 725, Penang.

QRP OPERATORS

There has existed since 1972 the G-QRF-Club, with over 500 members in 25 countries, to promote interest and growth in low power (5W DC in or PEP and under) communications. Membership is open to any amateur or SWL and the annual sub is only £2 or $US3, for which you receive their quarterly magazine "SPRAT" containing QRP technical circuits and other useful items. International QRP calling frequencies are — for CW 3560, 7030, 14060, 21069 and 28060, and for SSB 14285, 21285 and 28885. For further details write to G3BUE, "Alamosa", The Paddocks, Upper Beeding, Steyning, West Sussex, BN43JW, England.

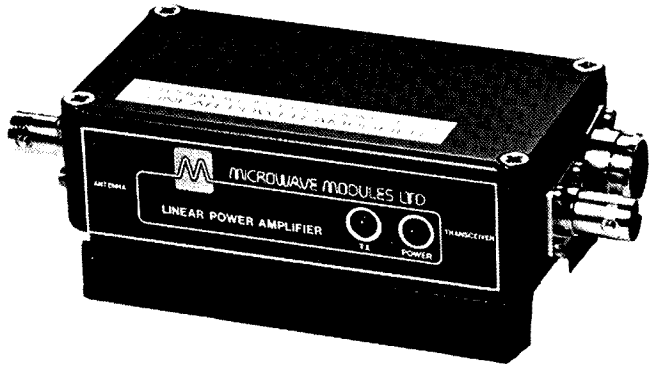
RECIPROCAL LICENSING

The number of enquiries about reciprocity of licensing seems to be on the increase. Please see AR January 1978, page 25, for details. ■

QSP

RESIDENTIAL AREAS BAN ON TXS

A prohibition of radio transmissions in residential areas is under consideration by the Senate of Oregon State. The Government Affairs Co-ordinator for the Oregon Environmental Council said that medical studies "have found that persons living next to electromagnetic sources often experience serious health effects, including rashes, headaches, dizziness and tingling sensations".—Ham Radio report May 1979. ■



MML 144/25

25 WATT 144 MHz LINEAR POWER AMPLIFIER & LOW-NOISE RECEIVE PREAMP

* RUGGED 65W DISSIPATION PA TRANSISTOR * ULTRA LOW-NOISE RECEIVE PREAMPLIFIER * EQUIPPED WITH RF VOX AND MANUAL OVERRIDE * L.E.D. STATUS LIGHTS FOR POWER & TRANSMIT * SSB/FM, AM and CW.

SPECIFICATION

LINEAR AMPLIFIER
Power profile: 25 watts typical output for 3 watts input
Frequency bandwidth: 144-148 MHz at – 1dB
Power requirement: 13.8 volts at 2.8 amps for 25 watts output
Quiescent current : 75mA nominal at 13.8 volts

RECEIVE PREAMP
Overall gain: 10dB typical
Overall noise figure: Better than 2.5 dB
Frequency bandwidth: 144-148 MHz at – 1 dB

Weight : 300g
Overall size: 150 x 65 x 47 mm

MML 144/100

100 WATT LINEAR POWER AMPLIFIER

* 80 watts minimum RMS output 100 watts RMS typical.
* Fully protected against poor load VSWR overheating and excessive or reverse supply rails.
* Equipped with RF VOX and manual override.
* Frequency bandwidth 144 – 148 MHz at – 0.5 dB.
* 10 watts nominal for 80 watts output.
* Weight 4 Kgs.

PRICE AMATEUR NETT $295.00

MML 432/100

100 WATT 432 MHz LINEAR POWER AMPLIFIER

* 100 watts minimum output 10 dB minimum gain.
* Fully protected against poor load VSWR, overheating and excessive or reverse rail.
* Equipped with RF VOX and manual override.
* Frequency Bandwidth 435 MHz – 15 MHz @ – 1dB.
* 10 watts nominal input for 100 watts output. * Weight 4 Kgs.

PRICE AMATEUR NETT $435.00

MMT 432/144'S'

LINEAR TRANSVERTER

UTILIZING an IF of 144MHz * 10 WATTS DRIVE of ½ WATT * VOX OPERATED, TWO SELECTABLE RANGES 432-434/434-436 MHz. FEATURES EXTENDED COVERAGE FOR OSCAR 8
FEATURES: High quality double-sided glass fibre printed board * Highly stable zener controlled oscillator stages * PIN diode aerial changeover relay with less than 0.2 dB through loss * Extremely low noise receiver converter, typical 3 dB * Separate receive converter output gives independent receiver facility * Built-in automatic RF VOX with override facility * Built-in 10 watt 144 MHz termination, selectable attenuator for ½ watt * Use of the latest state of the art Power Amplifier transistors provide reliable 10 watts continuous output.

PRICE AMATEUR NETT: $315.00

Features independent TX and RX frequency switching.

MMT 432/28'S'

LINEAR TRANSVERTER

FEATURES EXTENDED COVERAGE FOR OSCAR 8
Second Crystal Oscillator gives two ranges: Low 432-434 MHz – High 434-436 MHz programming available to either Transmit receive both Low, both High, or a mixture of the two. Adjustable Drive Level is now provided by an input potentiometer. Optional RF VOX. Power output 10 watts minimum * 28 MHz IF * Drive 1 mW to 500 mW * Aerial Changeover by PIN diode switch*Modern Microstrip Techniques * Power requirements 12 volt nominal at 150 mA 2.5 amp peak * Case size 187 x 120 x 53 cm. * Spare 432 input socket.

MODEL MMT 432/28 'S' PRICE AMATEUR NETT: $265.00

MMT 144/28

144 MHz LINEAR TRANSVERTER

FEATURES: Low noise receive converter 2.5 dB noise figure
Highly stable zener diode controlled 116 MHz oscillator
Rugged highly reliable PA transistor rated at 25 watts

Frequency Coverage : 144-146 MHz – Input frequency range : 28-30 MHz
DC power requirements : 11 - 13 volts (12 volts nominal)
Current Consumption : 300 mA quiescent 2.1 Amps peak

TRANSMIT SECTION
Input Impedance : 50 ohm
Input Modes : SSB, FM, AM, or CW
Input required for full output : 5mW to 500 mW (variable input attanuator)
Power Output : 10 watts continuous rating
Output Impedance : 50 ohm

RECEIVE SECTION
Overall converter gain : 30 dB typical
Overall converter noise figure : 2.5 dB maximum

PRICE AMATEUR NETT $197.00

NEW READY-TO-OPERATE MODULES AVAILABLE IN THE SALES PROGRAM OF VHF COMMUNICATIONS.
All modules are enclosed in black cast-aluminium cases of 13cm by 6cm by 13cm and are fitted with BNC connectors. Input and output impedance is 50 ohms. Completely professional technology, manufacture, and alignment. Extremely suitable for operation via sattelite or for normal VHF/UHF communications.

2 METER MOSFET CONVERTER: Noise figure typ. 2.8 dB. Overall gain typ. 30 dB. IF: 28-30 MHz. 9-15 V 20 mA.
PRICE AMATEUR NETT $47.00

DUAL RANGE 432 – 434 MHz & 434 – 436 MHz Converter. Type MMC 432/28 'S' & MMC 432/144 'S' Input frequency ranges 432-434 MHz (low), 434-436 Mhz (high). I.F. output frequency 28-30 Mhz or 144/146 Mhz. Typical gain 30 dB. Noise figure 3 dB maximum. D.C. Power requirements 11-13.8 volts, 12.5V nominal. Current consumption 50 mA maximum. PRICE AMATEUR NETT: $67.00

1296 MHz CONVERTER; Mircostripline, Schottky diode mixer. IF: 28- 30 Mhz or 144-146 MHz. Noise figure: typ. 8.5 dB. Overall gain 25dB. Power requirements: 12 volts DC ± 25% at 50 mA. PRICE AMATEUR NETT: $65.00

VARACTOR TRIPLER 432/1296. Max. input at 432 MHz. 24 W (FM,CW) – 12 W (AM) Max. output at 1296 MHz. 14 W.
PRICE AMATEUR NETT: $74.00

500 MHz COUNTER 6 DIGIT LED DISPLAY. Two ranges 0.45-50MHz, sensitivity. Better 50mV. 50-500 MHz, sensitivity better 200mV. Features low angle AT cut quartz crystal, typical temperature stability of 0.5ppm per degree C. Power requirements 11-15 Volts DC at 300 mA approx.
MODEL MMD050/500 PRICE: $175

BNC CONNECTORS – Excellent quality, fully imported from U.K. U.S. PRICE AMATEUR NETT: $1.45 each.

CONVERTERS PACK & POST $2.00

AMATEUR ELECTONIC IMPORTS IS THE EXCLUSIVE AUSTRALIAN DISTRIBUTORS FOR THESE PRECISION BRITISH MADE UNITS FROM MICROWAVE MODULES LTD.

ALL PRICES F.O.B. SYDNEY

All prices subject to change without notice. Onwards forwarding please add sufficient for freight or postage. Excess will be refunded.

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ICOM Gear

IC701	HF solid-state 160 m 10 m transceiver – $1380.00
IC701PS	Matching power supply/speaker for above – $253.00
IC22S	2 m fm synthesised transceiver – $299.00
IC280	2 m fm remotable cpu controlled – $450.00
IC215	2 m fm portable inc 1 channel – $229.00
IC402	70 cm ssb portable, 3 watts – $439.00
IC502	6 m ssb portable, 3 watts – $739.00
IC202S	2 m ssb portable, 3 watts – $349.00
IC211	2 m all mode ac/dc transceiver – $799.00
ICRM3	Remote control unit – $159.00
ICSM2	Condenser-electret desk mic. – $45.00

Speech Compressors & Processors (Daiwa)

HF660	Phasing type, dc, 6dB gain – $109.00
HF440	Phasing type, ac/dc, 6dB gain – $126.00
HF550	Filter type, ac/dc, 6dB gain – $169.00
MC330	Speech compressor – $99.00

Microphones

VM-1	Noise cancelling hand ptt, dynamic, low Z – $10.00

Antenna Couplers

CL67A	Daiwa 1.9 – 28 MHz 500 W pep – $135.00
CNW217	Daiwa incl. SWR PWR meter, 200 W – $165.00
CNW417	Daiwa incl. SWR/PWR meter, 500 W – $199.00
MFJ901	MFJ. Matches everything 1.8 – 30 MHz – $119.00
MFJ16010	MFJ. Random wire tuner 160 – 10 M – $71.00
MFJ941	160 – 10 M, 300 W, incl. SWR/PWR – $157.00
LAC-895	Leader 3.5 thru 28 MHz – $169.00

Antenna Rotators (Daiwa)

DR7600S	Heavy Duty with controller & mast clamps – $259.00
DR7500S	Medium Duty with controller & mast clamps – $189.00
6 Core	Cable for above (200 m rolls) – $1.00/m

QRP Transmitter (MFJ)

MFJ40T	5w. 40 meter CW (Xtals not included) – $59.00
MFJ40V	VFO unit for above – $59.00

Hand Held Transceiver

AR240	2 meter 800 ch. synthesized, i. 5 w. – $365.00

Daiwa Low Pass Filters

FD30LS	32 MHz, Fc, 200 w., 3 stages – $20.00

Baluns

AS-BL	Asahi 50 ohm for beams – $34.00
BL50A	50 ohm, 4 KW, 1:1 for dipoles – $30.00
BL70A	70 ohm, 4 KW, 1:1 for dipoles – $30.00

Leader Test Equipment

LAC 895	Antenna Coupler 3.5 – 28 MHz – $169.00
LPM 885	SWR/PWR Meter – $89.00
LPM 880	RF Power Meter – $135.00
LDM 815	TR Dip Meter – $89.00
LBO-310	3" Ham Oscilloscope – $310.00
LA-31	Ham monitorscope adapter – $25.00

Just arrived!

The IC22s 2m FM transceiver

The most popular FM rig around. It's now available at a special price. Come in and check it out.

Now only $299

Kenwood Transceivers

TS520 S	HF Transceiver – $635.00
TS120 V	Solid state HF transceiver – $530.00
TS120 S	HF transceiver, 100 W – P.O.A.
SM220	Station Monitor – P.O.A
TS180 S	HF transceiver – P.O.A

CALL US FOR A GOOD DEAL ON KENWOOD PRICES!

Coaxial Switches

CS201	2 position, high pwr, to 500 MHz – $23.00
CS401	4 position, high pwr, to 500 MHz – $59.00

Radio Teletype Terminal

0-7000	Tono RTTY CW/Baudot/ASCII – $699.00

Tubes

6KD6	Finals for Yaesu linears – $9.00
6JS6C	Finals for Yaesu transceiver – $9.00
12BY7A	Driver – $3.75
6146B	Finals – $12.00

CW Filters

FT101E	Yaesu – $39.00
TS620S	YG3395 Kenwood – $57.00
TS820S	YG88C Kenwood – $59.00

Morse Keys

HK702	Deluxe Key with marble base – $41.00
HK708	Economy key – $23.00
HK706	Operator's Key – $25.00
MK701	Manipulator (side swiper) – $45.00
PALOMAR	IC Keyer – $149.00

SWR/PWR Meters & Dummy Loads

VC-2	Twin meters 3-150 MHz with cal. chart – $35.00
SWR200	Oskerblock 3-200 MHz, 2/20/200/2000 W – $86.00
SW210A	Daiwa 1.8 thru 150 MHz, 20/120 W, direct – $99.00
SW410A	Daiwa 140-500 MHz, direct reading – $129.00
CN620	Daiwa Cross-needle, 18-150 MHz, direct – $99.00
CN630	Daiwa 140-450 MHz, 20/200 W, direct read. – $135.00
CN650	Daiwa 1.2 – 2.5 GHz, 2/20 W, direct read. – $169.00
LPM 885	Leader SWR/PWR meter – $89.00
LPM-880	RF Power Meter – $135.00
RW-155D	Kuranishi RF Power Meter – $185.00
RW-151D	Kuranishi RF Power Meter – $165.00
RW-1002L	Kuranishi RF watt meter – $139.00

Coaxial Change-Over Relays (Daiwa)

CX-2L	1.8 thru 170 MHz, 100 W pep max – $45.00
CX-2H	1.8 thru 450 MHz, 200 W pep max – $69.00

Jaybeam Antennas

5Y/2m	5el 2 m, 7.8 dBd gain, length 1.6 m – $43.00
8Y/2m	8el 2 m, 9.5 dBd gain, length 2.8 m – $51.00
10Y/2m	10el 2 m, 11.4 dBd gain, length 4.4 m – $84.00
10XY/2m	10el 2 m, cross yagi, 11.3 dBd – $114.00
DB/70cm	Twin 8el, 70 cm, 12.3 dBd, 1.1 m – $64.00
PBM 18/70	18el, 70 cm, 14.9 dBd, 2.8 m – $96.00
MBM 48/70	48el, 70 cm, 15.7 dBd, 1.83 m – $83.00
MBM 88/70	88el, 70 cm, 18.5 dBd, 3.98 m – $105.00
PMH/2C	Phasing harness – $20.00
8XY/2m	2 m cross yagi, 8el, 9.5 dBd, 2.8 m – $99.00
12XY/70 cm	70 cm cross yagi, 12el, 13.0 dBd, 2.6 m – $139.00

Parabolic Dishes

PBA 1200	70 cm and 1.2 GHz complete – $349.00

Rak Antennas

AL240XN	20 – 40 m trap dipole – $70.00
A4VPN	40 m dipole kit – $27.00
LISTENER 3	Short wave Rx antenna – $49.00
LISTENER 1	Short wave Rx antenna – $77.00

Nagara

SS56	6 m 5el beam 1 KW – $159.00
V5JR	80 – 10 m trap vertical, 6.7 m high – $129.00
V4JR	40 – 10 m trap vertical, 5.2 m high – $99.00

Hy-Gain Antennas

HYQUAD	10/15/20 m, 2 element quad – $279.00
204BA	4 el monobander for 20 m – $259.00
TH6DXX	6 el tribander – $310.00
TH3MK3	10/15/20 m 3 el beam – $249.00
TH3JR	10/15/20 m 3 el beam – $229.00
203BA	3 el beam 20 m – $199.00
LONG JOHN	5 el wide spaced 27/28 MHz – $180.00

Scalar

M22T	1/4 wave 2 m mobile whip, top only Qty 1 – 4 – $7.00
M25T	5/8 wave 2 m mobile whip, top only Qty 1 – 4 – $14.00
BASE	B/L for above – $4.00

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GOOD NEWS FOR TRANSCEIVER BUYERS! Our trio TS-120V and Kenwood TS-520S, both from the Trio-Kenwood stable, and the Yaesu-Musen FT-7 are at low prices and supported by 90-days warranty and after sales service. Arie — VK-2AVA — is in Europe operating from DL-3 at the time of writing. Poor bloke lost all his possessions in transferring planes when the DC-10s were grounded. He's most likely down to his last half million, so buy a transceiver and help him out.

ROY LOPEZ

HY-GAIN ANTENNAS

TH6-DXX 10-15-20M 6-el yagi $275
TH3-MK3 10-15-20M 3-el yagi $240
TH3-JR 10-15-20M 3-el yagi $160
18-AVT/WB 10-80M vertical $110
204-BA 20M 4-el Tiger Array $200
12-AVQ 10-15-20M vertical $50
2M 5-el yagi w/balun 6'3" boom $25
2M 8-el yagi w/balun 12'5" boom $30
BN-86 balun for beam buyers $20

HY-Q (USA) 50-ohm 1KW balun $15
HY-Q (USA) multiband 10-80M dipole kit, wire, balun insulators, spreaders, etc $45

ROTATORS & CABLES

All rotators now come with bottom brackets and control-indicator boxes wired for 28V AC operation
KEN KR-400 medium duty $110
CDR BT-1A light duty 4 position push-button programmable $90
CDR Ham III heavy duty $175
CDR tail-twister extra H.D. $225
KS-065 stay-thrust bearing 1¼" to 2½" masts $25
RG-58U coax cable, per yard 30c
RG-8U foam coax cable, per yard 80c
8-cond. rotator cable, per yard 60c
⅞" H.D. VHF/UHF coax, per yard $3
Cable cutting & packing, per length $1.50

ACCESSORIES

Voltage regulator 18V AC input 12V DC 3A output $23
240/18V AC transformer $10
5 meter RG-58U coax cable with PL-259 one end $2.50
Mobile bumper mounts ⅜" 24 thread $5
Mobile gutter mounts ⅜" 24 thread $3

TRIO-KENWOOD PRODUCTS

TS-520S 10-160M transceiver .....P.O.A.
TS-120V 10-80M 12V transceiver .....P.O.A.
TL-922 10-160M linear amp $1,100
All further Trio-Kenwood accessories and transceivers at competitive prices

CO-AX CONNECTORS

PL-259-SO-239-cable joiners ea. 75c
Right angle & T connectors, ea. $1.50
GLP right angles RG-58U to SO-239 w/lock nut & cap, ea. $2.50
Double female connectors, ea. 80c
MLS right angles RG-58U to PL-259, ea. 90c
In-line mike sockets 3 & 4 pin, ea. 75c
Mike sockets 3 & 4 pin, ea. 75c

YAESU MUSEN PRODUCTS

FT-7 10-80M 12V DC transceiver $400
FT-301S 10-160M 12V DC transceiver $500
FRG-7 .5 to 30 Mhz receiver $300

NOVICE SPECIALS — TRANSCEIVERS

10M Sideband SE-502 USB/AM 15W PEP-240V AC 12V DC-inbuilt SWR/RF meter 28.3-28.6 mhz-clarifier tuning transmit and receive $125
10M Universe 224-M USB/AM 15W PEP 12V DC 24-ch. 28.480 to 28.595 mhz, 5-khz steps-clarifer tuning transmit and receive $100
CONVERSION CRYSTALS for amateur licence holders — set of 8-crystals to convert 23-ch. 27-mhz CB units to 28-mhz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above — CRYSTALS and instructions $40

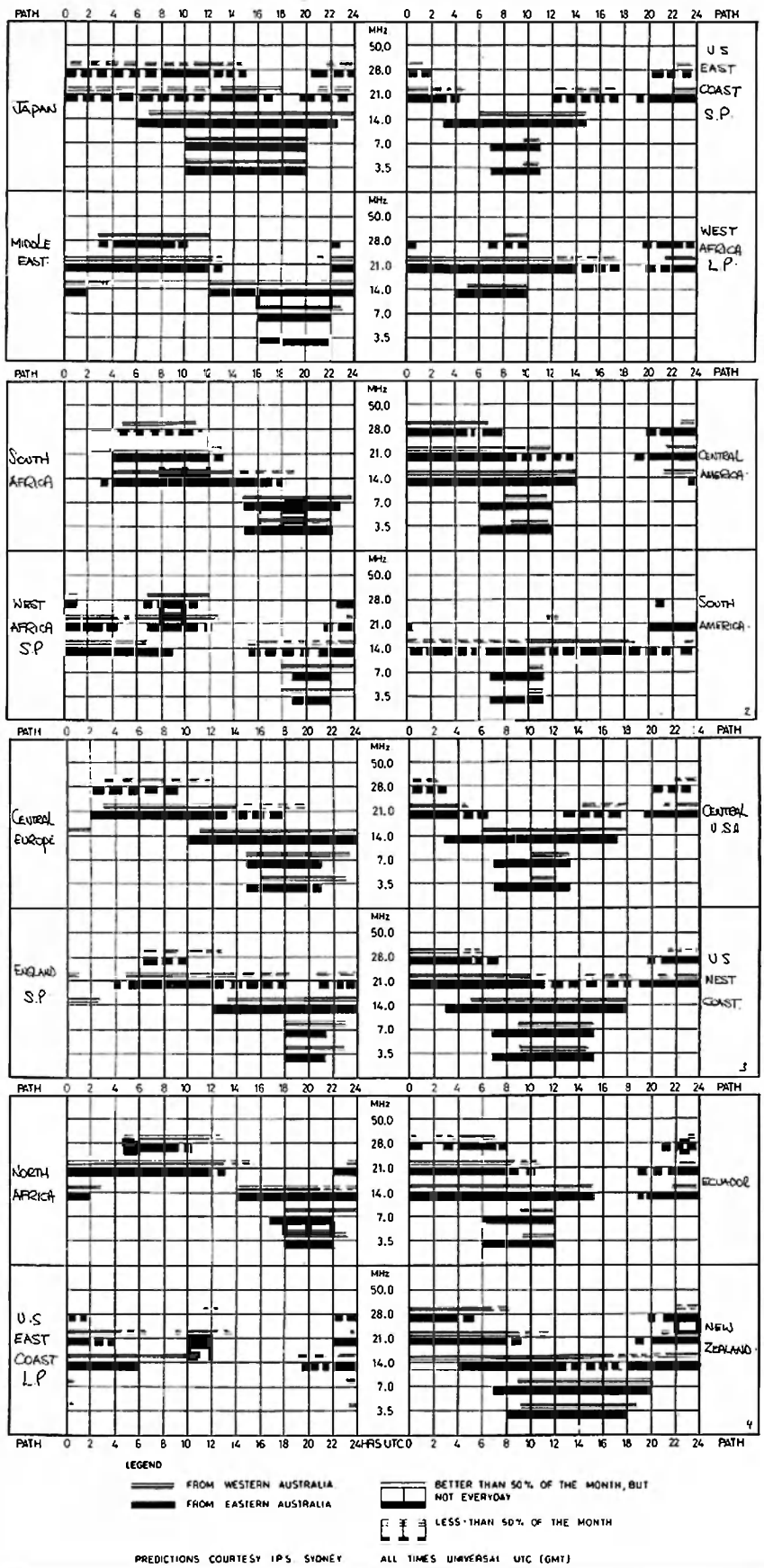
KYOKUTO FM-2016A 800 channel 2 meter FM transceiver with 4-channel memory & scanner $360

All Prices are NET, ex Springwood, NSW, on a pre-payment with order basis. All risk insurance is free of charge, allow for freight charges by air, road, rail or postal, excess will be refunded. Prices are subject to change without prior notice. All orders cleared on a 24-hour basis after receipt of order with payment.

Arie Bles (VK2AVA) Proprietor **Roy Lopez (VK2BRL) Manager**

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



AWARDS COLUMN

Bill Verrall VK5WV

7 Lilac Ave., Flinders Park, SA

MEXICO DX AWARD

This award is issued by the Mexico DX Club for confirmed contacts with Mexico DX Club member stations.

Overseas stations are required to complete 3 QSOs with Club members. There are no band or mode restrictions to this award and all contacts must have been made since 1st January, 1973.

To apply, prepare a list showing the log details of the required 3 QSOs, plus the QSL cards, and forward to Mexico DX Club, PO Box 21-167, Mexico 21, DF, Mexico.

To cover the cost of return of your QSL cards and the award, please include 10 IRCs or $US2.00. There is no fee payable but sending IRCs or money will ensure the return of your QSLs and the award.

Note: Some members of the Mexico DX Club sometimes check into the P29JS DX net on 14220 kHz at 0700Z daily. Keep an ear on this net and you may be lucky to qualify for this award.

WORKED ALL MALAYSIA AWARD (WAMA)

The Malaysian Amateur Radio Society has announced a change in name and requirements for the WAMA Award.

The Award will now be known as the Worked All Malaysia Award (WAMA) and the rules are as follows:—

(1) All applicants for the award will submit a log extract witnessed and certified by another two members of the WIA or by any two council members of the WIA, one of which may be the Awards Manager of the WIA.

(2) The award is also available to SWLs, who must submit a log extract of QSOs heard as detailed in rule 3 and certified as in rule 1 above.

(3) The log extract shall show details of two-way contacts between the applicant's station and that of 10 (ten) 9M2 stations, 2 (two) 9M6 stations and 2 (two) 9M8 stations. The previous requirements of ten 9M2, ten 9V1, one each of 9M6, 9M8 and VS5 will stand till the 31st August, 1979, for the WAMA Award.

(4) All applications must be accompanied by 10 (ten) IRCS to cover post and packing.

Anyone submitting SEANET Contest results may state if he is claiming the award if he wishes as this can be verified by checking with the logs of the Malaysian stations entering the contest. However, 10 IRCs should be enclosed in the contest logs.

Applications for the award should be addressed to Hon. Secretary, Malaysian Amateur Radio Transmitters Society, PO Box 777, Kuala Lumpur, Malaysia.

Note: With the introduction of GCR rules, this award should appear more attractive to our novice operators as well as the established award hunter.

VIII MEDITERRANEAN GAMES AWARD

Here are the details of a once only award which should appeal to our 20 metre award hunters.

On the occasion of the VIII Mediterranean games taking place in Split from 15th September, 1979, to 29th September, 1979, radio clubs "MARJAN" and "ANTE JONIC" sponsor the award named "VIII Mediterranean Games". The rules for the award are as follows:

(1) This award is available to any licensed radio amateur or SWL.

(2) Only contacts with amateur radio stations from countries participating in the VIII Mediterranean Games are valid. Countries participating are — CN, EA, EA6, EA9 (Ceuta and Melilla), F, FC, I, IS0, OD, TA, SU, SV, SV9 (Crete), SV5 Dodecanese), YK, YU, 3A, 3V8, 5A, 7X and 9H.

(3) Overseas amateurs require 5 QSOs to qualify.

(4) Contacts may be made on any authorised band or mode.

(5) Instead of any country listed above, a contact with a station from Split having a number 9 in the prefix may be substituted. Only one such substitution will be permitted. Stations which may be substituted are:—YT9MI, YU9CBR, YU9CDL, YU9DX, YU9FH, YU9FW, YU9RBE, YU9RCZ, YU9RDB, YU9RJG, YU9RJT, YU9RKY, YU9RMG, YU9RTW, YU9RXK and YZ9MG.

(6) All contacts must be made during the period from 15th September, 1979, to 30th September, 1979.

(7) GCR List, 4 IRCs or $US1.00 (do not send OSL cards) should be addressed to Radio Club "MARJAN", PO Box 155, 58001 Split, Yugoslavia, Europe.

Good hunting. ■

FROM THE OVERSEAS ADS

Quite a bit of activity as many new products are introduced and many new models are released.

Trio-Kenwood have released a new transceiver, the TS180S, which is a new all solid state transceiver in the same class as their TS820.

Swan have released the Swan Astro 150, which is a new synthesised transceiver which owes much to both Swan and Astro. A very neat looking rig.

Dentron have released their HF200A HF SSB transceiver.

Comtronix are advertising their FM80, which is a synthesised 80 channel 10m FM transceiver.

Yaesu have released a new synthesised Handy Halgy, which features keyboard frequency entry and a small LED readout.

Henry Radio are marketing Narrow Band Voice Modulation equipment. This is the VBC3000 NBVM transceiver, which is a modern unit for use with a standard rig.

Hy-Gain have released a new tribander, the TH5DX.

MFJ have a range of antenna tuners. The MFJ961 and the MFJ962 have 1.5 kW rating and the MFJ984 has a 3 kW rating.

Drake have a 2 kW tuner with 160m capability. This is the Drake MN2700 antenna tuner.

Dynamic Electronics, Microcraft Corp., and Kantronics all have released Morse and RTTY copies which display the code received as a moving strip of LED alphanumeric characters. ■

INTRUDER WATCH

Alf Chandler, VK3LC

Z-CODE FOR POINT-TO-POINT SERVICES

For those members who are observing intruders in our HF bands the following samples of the Z Code will be of interest as many CW (A1) and F1 stations are using it, especially the Iron Curtain countries:—

(Asterisk indicates US Military Usage)

*ZAA — YOU ARE NOT OBSERVING CIRCUIT DISCIPLINE.

*ZAB — YOUR SPEED KEY IMPROPERLY ADJUSTED.

ZAC — Advise (call sign of) frequency you are reading.

*ZAY — Send on (kcs). Will confirm later.

*ZBI — Listen for telephony.

*ZBO — I HAVE TRAFFIC.

ZCF — CHECK YOUR CENTRE FREQUENCY, PLEASE.

ZCL — TRANSMIT CALL LETTERS INTELLIGIBLY.

ZGW — YOUR SIGNALS GETTING WEAKER.

ZHC — HOW ARE YOUR RECEIVING CONDITIONS?

ZNN — ALL CLEAR OF TRAFFIC.

ZRO — ARE YOU RECEIVING OK?

ZSH — STATIC HEAVY HERE.

ZSR — YOUR SIGNALS STRONG AND READABLE.

ZSU — YOUR SIGNALS ARE UNREADABLE.

ZWR — YOUR SIGNALS WEAK BUT READABLE.

ZYA — Cease traffic; send As on A channel.

ZXD — Send Dashes, please.

Lately another pulse transmission has been observed, and it is very potent and wide in kHz. The pulse is transmitted at 26 to the second instead of the old "woodpecker" at 10 to the second. Observations would be appreciated.

All Chandler VK3LC,
Federal IW Co-ordinator. ■

CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

AUGUST

11	ZL QLF PARTY
11/12	REMEMBRANCE DAY "THE FRIENDLY CONTEST"
11/12	EUROPEAN CW CONTEST
18/19	SEANET PHONE DX CONTEST
18/19	SARTG RTTY CONTEST
25/26	ALL ASIAN CW CONTEST

SEPTEMBER

8/9	EUROPEAN PHONE CONTEST
15/16	SCANDINAVIAN CW CONTEST
22/23	SCANDINAVIAN PHONE CONTEST

OCTOBER

6/7	VK/ZL/OCEANIA PHONE
13/14	VK/ZL/OCEANIA CW
13/14	RSGB 21/28 MHz PHONE
20/21	RSGB 7 MHz PHONE
27/28	CQ WW DX PHONE

NOVEMBER

3/4	RSGB 7 MHz CW
24/25	CQ WW DX CW

20th ALL ASIAN DX CONTEST CW SECTION

Period: 30 hours from 1000Z 25 to 1600 Z on 26th August.

Operation on all bands.

Contest call: CQ AA.

Exchange: RST plus 2 figures denoting operator's age if male; RST plus 2 figures if female.

Point and multiplier: A perfect contact with an Asian station will count one point. The number of different Asian prefixes, per WPX rules, worked on each band is the multiplier.

Scoring: The sum of the points on each band multiplied by the sum of the multipliers on each band.

Note: Contacts with KA stations are not eligible, they are considered military stations.

Logs must be kept in Z (GMT) time.

Logs and summary sheets to JARL, PO Box 377, Tokyo Central, Japan, by November 30.

Full details from FCM. Please send SASE. ■

CW TAPE REVIEW

LEARNING MORSE CODE KIT

Recently we reviewed the booklet "Learning Morse Code" by Rex Black VK2YA, which is published by the NSW Division of the WIA. Since then we have received a complete "Learning Morse Code" kit. This contains the booklet plus two C60 cassette tapes.

After spending some time both reading and listening it was obvious that this is an excellent kit and provides the nearest thing yet to painless learning of the code.

The student is introduced to the concept of morse code and carefully and progressively taught the elements of the code. The tapes and the booklet are used together and allow the student to progress at his own pace and yet have the presence of a tutor. Revision tests are included at appropriate points, consolidating the student's progress. By the end of the second cassette the student will be receiving five w.p.m. quite well, although more practise would be required to pass the novice examination. To cater for this two further tapes can be obtained.

A comprehensive section of the booklet covers sending of morse and it is here that a small blemish (in the opinion of the reviewer) is seen. The photograph showing the "key down" hand position shows the wrist being thumped some eight cm into the table. Apart from the bruising, this sort of exaggerated action cannot be sustained for very long. A little more care in set up and treatment of the artwork would have made this illustration on a par with the other excellent photographs.

Other sections of the booklet cover the O-code and other useful information plus details of a simple QRP CW transmitter.

The quality of the audio on the cassettes is better than some tapes I have heard. One interesting aspect is the use of the voice to send morse before the audio oscillator is used.

Here in this kit is an easy way of learning morse at a cost of only $6.50. You can get your copy from

WIA NSW Division,
Education Service,
PO Box 109,
Toongabbie, NSW, 2146.
VK3AFW ■

QSP

CALL SIGNS

It is strange how some amateurs misquote their call signs by writing VK9-ZZZ or VK9Z.Z.Z. or VK9.Z.Z.Z. The suffix — i.e. "ZZZ" — is merely an alphabetical selection and therefore should not be differentiated from the remainder of the call sign. On occasion, the letters of the suffix have some significance, if the licensee has any choice at the time they are issued. Otherwise the letters are merely the next vacant ones in the alphabetical list kept by the issuing office. ■

QSP

OVERSEAS SOCIETY SUBSCRIPTIONS

The RSGB membership subscription rate will become £10 instead of £8 from 1-1-1979. The ARRL membership dues became $18 from 1-4-1979 in place of $12. All are for one year. Radio Communications March 1979. ■

COMPLEX EQUIPMENT

Writing in TT Radio Communications May 1979 Pat Hawker comments that the advice "Keep it working" becomes increasingly more difficult as equipment becomes more complex — and also, paradoxically, as components become more reliable. In the old days a high percentage of all faults could be traced and cleared by the straightforward process of "valve pulling". Today more and more of the equipment breakdowns can be traced to what are basically mechanical faults. Good mechanical design does not always go hand-in-glove with the ingenious electronics of modern equipment. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

FT-7, 4 mths. old, in excellent cond., with mobile cradle and original box, $340; Kraco 10m transceiver, 24 channel, with VXO, 15W output, in v.g.c., $100. Must sell both these rigs. G. Cooke. Ph. (03) 31 7222, ext. 1919, B.H.

Yaesu FL2100B, 1.2k linear, mint cond., multi-band op., few weeks old, $485; power supply, 12A, very suitable for use with Yaesu FT7B, $80. Ph. (03) 341 5913 Bus.

Yaesu 101B, one owner, plugs, handbook, matching mic., etc, no mods:, $585; ext. VFO FV101B, $135. Ph. (02) 631 7588 Bus., (02) 84 7170 A.H.

Katsumi Electronic Keyer EK-127, $35; Katsumi electronic keyer with memory, MK-1024, $120; two speed, reel, stereo tape recorder, Paros, $65. VK3ZAN, QTHR. Ph. (03) 306 9380.

Yaesu FT250 2m Transverter, brand new, never used, $200; Yaesu YC601 digital readout, excellent cond., $125. Ph. (02) 888 2475.

Yaesu FT-301 Digital Tcvr, fully solid state, 160-10m, 100W PEP output, 2 yrs. old, scarcely used, with FP-301 deluxe power supply containing 12-24h dig. clock and auto CW ident, also with matching FU-301 remote VFO, the lot at $1100, ONO. Must sell. VK3AVE. Ph. (03) 64 2525 Bus., (03) 311 2699 A.H.

Shack Clearance: Yaesu FT901DM with SP901 speaker and YD148 desk mike, 3 mths. old; Icom IC211, as new, complete in orig. pkg., $600, ONO; Yaesu YC355D freq. counter, $100, ONO; CDE Ham II rotator, $100, ONO; microlink ATV 10W Tx, ATV microlink convertor, power supply, 12 el microlink 70 cm beam, BMB 88/70 cm Jay beam, $300 the lot; SP520 speakers, $25. Greg McNamara VK3BIB. Ph. (055) 65 8593 Bus.

Complete RTTY Station — model 19 Page printer, $70; model 14 tape distributor, $20; model 14 typing reperforator, $20; motor and loop supplies, $40; EA terminal, $50; the lot, $170; all in perfect working order. VK3BLK. Ph. (057) 64 1238.

Pye Victor 2m Car Transceiver, 10W FM xtls 37, 50, 51, Simplex 2-8 repeaters, full handbook, $75, ONO. Allen Crewther VK3SM, QTHR. Ph. (03) 388 4406 A.H., (03) 630 5794 Bus.

Video Tapes, ½ in. on 7 in. spools, Scotch brand, $8 ea. VK2ZHM, QTHR. Ph. (02) 406 5338 A.H.

Hammarlund HQ 110 Rx, amateur 1.8 MHz to 54 MHz, AM, SSB and CW, also has variable bandwidth, $250, or best offer; Trio general coverage Rx, ideal for beginner, or for use as a tunable IF, 840 kHz 30 MHz, $190; spare tubes available for both. Contact John Blyth VK3BKT. Ph. (03) 62 4575, ext. 233, Bus., or (03) 288 2346 A.H.

FT75 Yaesu Transceiver, 60W, 5B, matching AC and DC supplies, matching VFO, 12 VXO xtals, mobile mount, clean, excellent working order, $350; second FT75 tcrv, matching AC and DC supplies, HB VFO, 12 VXO xtals, spare tubes, top working cond., $320; sturdy 4B trap vertical, Hustler, with radials, used for 1 month while TH6 repaired, $85; morse key and buzzer on sounding board, $5. VK3AFW, QTHR. Ph. 579 5600 A.H.

Yaesu Mobile Antennas: RSE-2A stub for 144 MHz, RSL-3.5 for 80m, RSL-21 for 15m, and RSE-2 gutter mount base; they work excellently, in good cond., not used much, but want to sell, were $85 for the lot, sell for $60. John Brereton VK5NHB, 27 Kent Ave., Brahma Lodge 5109.

Triband Beam TH3JR, as new, 20, 15, 10m, $140; Uniden 2020 txcvr and ext. VFO 8010, good cond., $600. VK3NMJ. Ph. (03) 789 3129.

Yaesu FL50 SSB Tx, 80-10m, 60W o/p; FR50 Rx, 80-10m, SSB/CW; FV50 ext. VFO for Tx, complete SSB HF station, suit novice, what offers; also Icom IC502 6m SSB tcvr, $150; also Heathkit SB610 monitorscope 1 kW rating, $100. L. White VK4AMF, 30 Oaklands Pde., Brisbane 4169. Ph. (07) 391 6160.

Magazines: Elektor Nos. 1 (Dec. 1974) to 45 (Jan. 1979), missing Nos. 9 and 20, best offer. VK2ZHI, 51 Ormond St., Paddington, NSW 2029. Ph. (02) 31 7573, after 6 p.m.

Kenwood TS120V Transceiver, S/N 912765, in mint cond., only 6 weeks old, $490, ONO. Mike Vale VK1VW. Ph. (062) 48 2348 Bus., 88 8994 A.H.

Genuine Vibroplex Semi-automatic Key, standard "Lightning Bug" model, new in original sealed package, $45, ONO. Ross Treloar VK2BPZ. Ph. (02) 239 5267 Bus.

"Home Braw" Linear Components, tuning capacitors 40-175 pF, 6 kV spacing, power XFMR 2500V 800 mA, many other sundry items, 10m GP antenna Stolle rotator. VK3NXX. Ph. (03) 527 4029 6 p.m. to 8 p.m.

10 MHz Rx xtals for repeater Ch. 1-8, Ch. 3 input Rx and Ch. 40, 49, 50, 51 Simplex Rx (Rx 2 MHz IF), $5 ea. L30142, QTHR.

Complete Collins S Line 32S1 Rx with 516F2 power supply, 75S3B Rx, 30L1 linear with four 527Bs, immaculate and has just been professionaly overhauled, this gear worked over 300 countries, surplus to requirements, ideal for the most discriminating operator. Roth Jones VK3BG. Ph. (03) 848 7945.

Yaesu FTDX400 Tcvr, exc. cond., has matching speaker, PTT desk mic., all HF bands, full 400W PEP, in-built 240V AC power supply, $425, ONO. VK2ZDJ, Griffith. Ph. (069) 62 4937.

Daiwa 2m Rx, 12V DC, 146-152 MHz, full price $40. VK2NSE, Box 64, Quirindi 2343.

10m Kraco, 24 Ch., A1 cond., best offer; 11m Kraco, 24 Ch., as new, best offer; I will modify free if xtals supplied; multi-meter with transistor tester, A1 cond., very little use, $35; Radio Television and Hobbies from 1958-1973 and some later editions, offer. J. B. Stevens VK2NES, QTHR. Ph. (02) 476 1671.

Oscilloscope Serviscope, 3 in., 5 MHz bandwidth, DC coupled, calibrated, little use, very good cond., $150, or consider exchange in part or full VHF Tx or Tcvr, or similar. VK2BDW. Ph. (02) 674 1184.

TH6DXX Beam, new cond., complete with 36 ft. galv. mast, $200; Daiwa speech proc., current mod. RF550, unmarked, as new, $100; RTTY mod. 15 teleprinter, good cond., complete with loop circuit, EA mod. and demod. units, $100. VK4ZT, QTHR. Ph. (079) 73 6580.

Yaesu FT101E, latest model, with AC/DC power supply, unused and as new, $695; Barlow XCR-30 receiver, excellent cond., $195; Dick Smith desk mic., 50k cardiod type, $12. VK3OM, QTHR. Ph. (03) 560 9215.

Kenwood TS820S with CW filter, immaculate cond., absolutely unmarked, kept under dust cover, 18 months old, very little use, in orig. packing with factory standard spares, connectors and manual, $880 cash. Ian Cousins VK5IK, QTHR. Ph. Eudunda (SA) 252.

Barlow Wadley XCR-30 Mk. 2, 0.5-30 MHz continuous tune comm. Rx, A1 cond., serial No. 7147, asking a mere $225. Bruce Meldrum VK2ZOT. Ph. (02) 94 7537 A.H.

Multi 7, sell xtals T & R, new, for Ch. 44, or swap for Ch. 47 or 43. VK3WG, QTHR.

Kenwood TS820S, as new, $950; 5 element 10m Yagi, 20 foot beam, $30; 11 element 2m Yagi, 20 fool beam, $30. Phone Barry (02) 99 4993 after 6.30 p.m.

Antenna Hustler BTV-4 Trap Vertical, 4-10m, ex. cond., transverter 432/144 by "Micro-Modules" Eng., as new, Spectronics digital readout, suit Yaesu FT101, etc., 10m Swiss quad, exc. performer. Ph. (03) 240 1231; A.H. 509 8637.

Thinking of a change of climate? A superb amateur site is available with elevation of 1700 feet and view of entire Gold Coast. It has 360 degrees clear for HF beam and access to 4 repeaters on 144 MHz. Site is level, ready for building and avocados planted. Details Steve Grimsley VK4CQ, 25 Honeyeater Drive, Burleigh Waters, Q. 4220.

Hygain Hy-quad, 2 element triband, unused, cond. as new, $250. Don Campbell VK2DAC, 22 Paul Avenue, St. Ives 2075. Ph. (02) 440 8382.

Power Supply, RCA TV Camera, WP168, solid state regulated metered, max. 350V at 2A, $35; Bendix freq. meter, BC221AK, Aust. version with inbuilt AC power supply, as new cond., $75; Bendix MP22B, large genemotor, 25/28V to 540V at 450 mA, regulated and remote control, with modulator 6N7, 6F6, PP807s, $25; power transformers and chokes, large, $1 ea.; valves, ancient and modern, $1.50 ea. VK3DS, QTHR.

WANTED

Facsimile (FAX) Machine for reception of WX satellite pictures (Tiros-N Meteor and GMS-1), will buy, borrow or lease, or can anyone suggest source for this; please give details style of operation. Chris Maxworthy VK2NDX. QTHR. Ph. (02) 449 6681 A.H.

Prospective Novice wants information, please, from amateurs regarding their experience with commercial aerial tuning units for use with end-fed wires. Richard Jenkins, 88 Companion Cres., Flynn, ACT 2615.

6m Transverter, suitable FT101B or IC502 with lin. amp. FM rig, older valve type OK, g.w.o., rtps. 2, 8, UHF equipment anything considered in g.w.o. VK7WD, 30 Beddome St., Sandy Bay, Hobart 7005. Ph. (002) 38 8432 Bus., (002) 25 3873 A.H.

VFO for FT75B and/or DC power supply, also buy or borrow handbook or any info on Cossor scope 1049 Mk. III. VK2BXW, 209 Maitland Rd., Hexham, NSW 2322.

American Vibroplex, in good working order, by enthusiast CW operator. Write Harry VK2NSR, Box 1084, Coffs Harbour 2450. All letters answered. Ph. (066) 54 1536.

ACI Marine Tcvr or similar, solid state, 12V DC, 2-12 MHz, SSB tcvr with broadband, final stages and continuous freq. coverage. G. R. Hovey VK1HG. Ph. (062) 88 1111 Bus., (062) 82 4485 A.H.

EXCHANGE

USA Amateur planning to visit Australia soon (time is somewhat flexible, having retired) would like correspond with VK amateur visiting USA, about exchanging house, car and amateur gear for duration of visits. Paul Bowden W7PQE, 4207 Kroum Rd., Yakima, Washington, 98901, USA.

STOLEN

Yaesu FT221 2m All Mode Transceiver, removed from my vehicle at Mt. Gambier (SA) on 17th June, 1979; serial No. 6F307750; had Icom IC202 mic. connected (rewired to be compatible); U310 FET pre-amp on RF board; front right-hand catch on top cover bent; DC power cable taken; believed thief comes from Geelong, Victoria; any information to police. Thanks VK5AVQ.

TRADE HAMADS

QSL Cards, Log Books, Contest Sheets — send 20c stamp for samples and prices to Linda Luther VK4VV, PO Box 498, Nambour, Qld. 4560.

Are you on frequency? Be on frequency with DSI. Full range of top quality counters up to 1300 MHz. 0.1 parts per million accuracy. Quik-Kit 50 Hz-550 MHz counter kits, 95 per cent assembled, 100 per cent tested, 12 months part warranty, AC or DC operation, 8 digits ½ inch LED, accuracy 1 part per million. Special introductory price $135, incl. postage. Write for further info or check ads in American QST, Ham Radio, etc. Australian distributors ATN Antennas, Box 80, Birchip, Vic. 3483.

TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hamads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be $10 for 4 lines plus $2 per line (or part thereof), minimum charge $10, prepayable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes. ■

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SILENT KEYS

It is with deep regret that we record the passing of —

Mr. A. R. PETTIFORD	**VK2BAX**
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Mr. J. MOYLE	**VK2OZ**
Mr. M. E. SNEDDON	**L20957**
Mr. G. WILDE	**VK5GX**
Mr. F. R. WILLIAMS	**VK3FW**
Mr. J. BILLING	**L50427**

OBITUARY

Mr. BERT HADDREL VK3BBH

Bert lived in the city until he retired when, for health reasons, he moved to the beautiful little town of Harrietville in north-east Victoria, where he was a fairly active amateur operator. During 1978 he had several trips to hospital and on October 4th last he passed away.

Bert will be missed by his many friends in Australia and around the world and by those in the Ex-G Radio Club in particular.

E. "Sieve" Stephenson VK5ZB. ■

Mr. PAT IRWIN VK4FI

It was with deep regret that we recorded the passing of Pat on 23-4-79 after a long illness.

Pat was born on 27-10-14 on the wast coast of the south island of New Zealand and there he obtained his amateur licence in 1926 at the age of 11.

He served as a Major in the New Zealand Army during World War 2 in the Pacific Islands and was mentioned in despatches.

After the war he remained as medical officer in the Cook Islands and Western Samoa and was looking after some 200/300,000 people. Pat continued to operate his radio during these years.

Ill-health forced Pat to return to New Zealand and in 1960 he came to settle in Australia at Coolangatta.

Pat is well remembered by locals and visitors to the Gold Coast of Queensland for his cheery 8 a.m. "Good Morning Session", which he continued to run almost up to his passing.

All amateurs extend to his wife, Betty, and family their deepest sympathy.

F. Eastick VK4VN. ■

ADVERTISERS' INDEX

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Duncan Baxter, VK3LZ, is the Vicom Customer Manager, ready to offer a cup of coffee and help with technical queries. Duncan is an important member of the Vicom Sales team — famous for friendly personalised service.

IZNIBS —

Why the small print you ask. Well, we figure that advertising sometimes needs a variation from photos and prices Having read the editorial, why not a little relief in a paid advert, while you wait for the tram or train that never comes!

We at Vicom are pretty excited at some of the new projects and lines scheduled for the months ahead. With 4 amateurs in the firing line and 3 others due to take their vows in August, it's difficult not to be otherwise when you see what's coming up. Reaction to the new TONO — 7000 CW/RTTY do-everything-except-keep-the-log has been tremendous and the excitement in seeing hitherto meaningless CW appear on a TV screen is just as lullilling as your first QSO! Any TV will do from 1 to 27 inches. For those wanting to interface for hard copy provision is made and even the log keeping bit can be done if you have a personal computer — it's all there!

On the transceiver side the new ICOM 511 for 6 meters has the opposition licked AM FM SSB, a couple of memories and a scanning function all built in must stimulate the enthusiasm for the next summer season. Apart from that it looks line lined up with the 211 for 2 and the 701 for HF!

Maybe you'll have to get an extension on the operating table — but why not? Drop in and see it all in operation if you're in Melbourne or get the details from your nearest dealer. 73 IZNIBS

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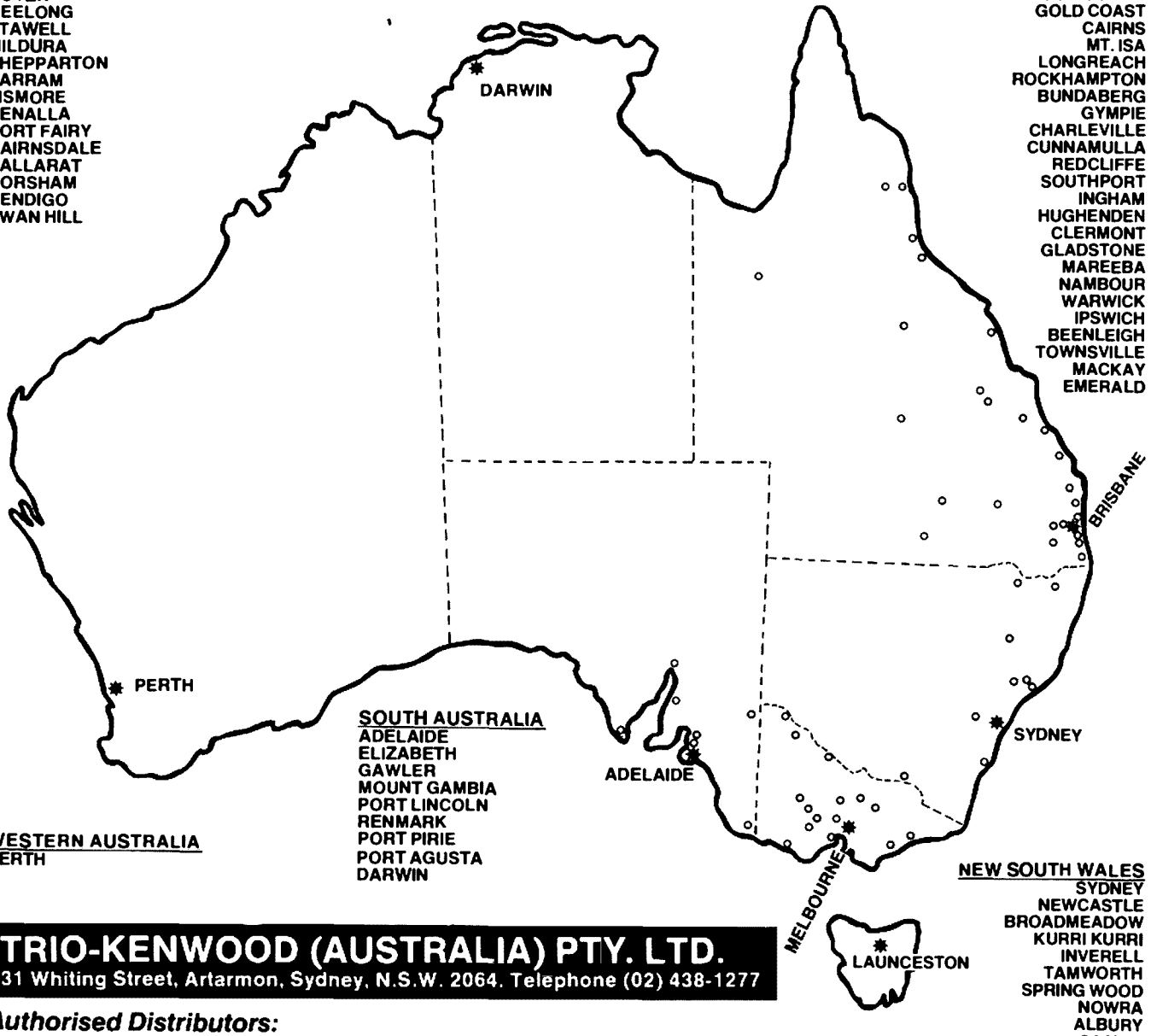

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VOL. 47, No. 9 SEPTEMBER 1979

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- ★ NEW WORLD CRAZE — 10 Mx FM
- ★ REVIEW — THE DRAKE TR7
- ★ EARS FOR THAT DEAF FT101B RECEIVER
- ★ HAM RADIO FOR REHABILITATION
- ★ GETTING INTO JAMBOREE ON THE AIR

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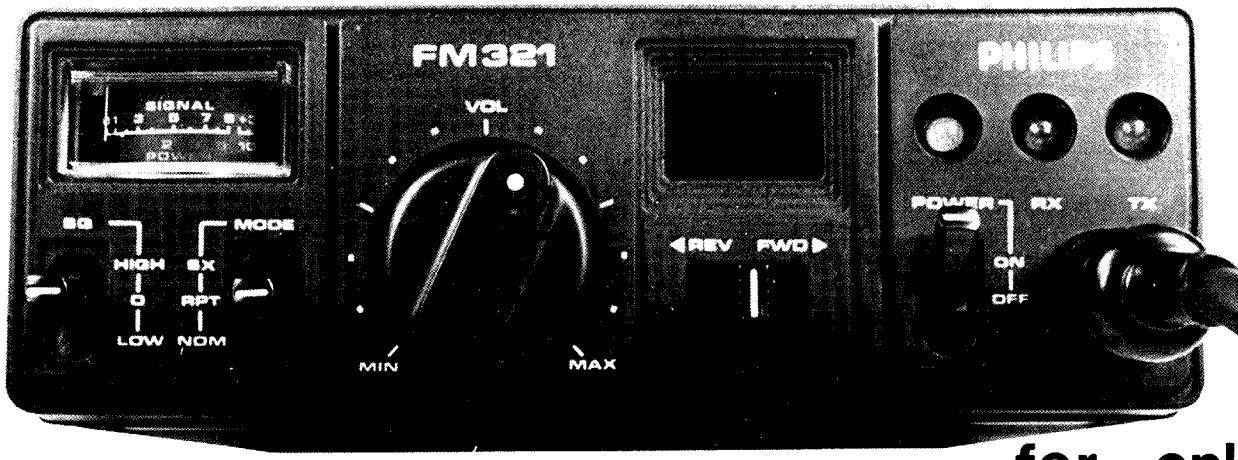

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amateur radio

SEPTEMBER 1979
VOL. 47, No. 9

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Enquiries and material to:
The Editor,
PO Box 2611W, GPO Melb., 3001

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Advertising: Material should be sent direct to P.O. Box 150, Toorak, Vic., 3142, by the 25th of the second month preceding publication. Phone: (03) 24 8652.—Hamads should be sent direct to P.O. Box 150, Toorak, Vic., 3142, by the 1st of the month preceding publication.

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Cover Photo

HAM RADIO FOR REHABILITATION

Left to right: Don Pugh VK6DN, Bruce Jacobs VK6ZAT and Bob Wynn VK6WY discuss amateur radio at the Royal Perth Rehabilitation Hospital — see our special article on page 23.

Photo courtesy West Australian Newspapers Ltd.

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VIC.:
President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. J. A. Adcock VK3ACA
Broadcasts— 1840, 3600, 7135 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (5) repeater: 10.30 local time.
Gen. Mtg. — 2nd Wed., 20.00.

QLD.:
President — Mr. A. J. Aarsse VK4QA
Secretary — Mr. W. L. Gleils VK4ABG
Broadcasts— 1825, 3580, 7146, 14342, 21175, 28400, kHz; 2m (Ch. 42, 48): 09.00 EST.
Gen. Mtg. — 3rd Friday.

SA:
President — Mr. I. J. Hunt VK5QX
Secretary — Mr. W. M. Wardrop VK5NWM
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.
Gen. Mtg. — 4th Tuesday, 19.30.

WA:
President — Mr. Ross Greenaway VK6DA.
Secretary — Mr. Peter Savage VK6NCP.
Broadcasts— 3560, 7075, 14100, 14175 kHz. 28.485, 52.290 MHz. 2 metres Ch. 2 Perth, Ch. 6 Wagin. Time 0130Z.
Gen. Mtg. — 3rd Tuesday.

TAS.:
President — Mr. I. Nicholls VK7ZZ
Secretary — Mr. P. T. Blake, VK7ZPB
Broadcasts— 7130 (AM) kHz with relays on 2m Ch. 2 (S), Ch. 8 (N), Ch. 3 (NW), 09.30 EST.

NT:
President — Dick Klose VK8ZDK
Vice-Pres. — Barry Burns VK8DI
Secretary — Graeme Challinor VK8GG
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal Information:
VK1 — P.O. Box 46, Canberra, 2600.
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h). P.O. Box 123, St. Leonards, NSW 2065.
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Weekdays 10.00-15.00h).
VK4 — G.P.O. Box 636, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HO at West Thebarton Rd., Thebarton.
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (Incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

Slow morse transmissions — most weak-day evenings about 09.30Z onwards around 3550 kHz.

VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 46, Canberra, A.C.T. 2600.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse, 63 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001.
VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP — "DOINGS"
(ACTIVITIES, DEEDS, BEHAVIOUR)

When visiting various Clubs, Zones and attending workshop meetings, I have been struck by the eagerness of a few individuals to DO whatever they can to help in the organising and running of the Club, Zone or events conducted by one of these. In so DOING, they further the spirit of universal friendship that develops through Amateur Radio.

Unfortunately, lately these few, in the VK3 Division at least, have become even less in numbers. I suspect this may be due to decreasing social contact between Divisional members, particularly those who are not also members of a regional club.

The Victorian Division's Council wants to DO something positive and to re-establish a level of social contact between members. One proposed way of doing this is to conduct an ANNUAL VICTORIAN CONVENTION. Old friends will have an opportunity to rebuild links forged in the past and newcomers will be able to meet others of similar interests.

Other Divisions provide similar forums; this requires a LOT of hard work for a SMALL team or a FEW tasks each for a large team.

Do you have a special skill that may help your Division with their social activities? Can you spare a little time to help with the many SMALL jobs that must be done? Your Division could DO with your valuable help; DOERS are very hard to find as it means DOING.

The Oxford dictionary defines a DOER as "one who does things, not a mere talker".

Our leisure activity and the organisations who support it, especially the WIA, are most worthy recipients of your DOING.

Are you a DOER?

ERIC BUGGEE VK3ZZN
Victorian Division President ■

WHAT KIND OF A CLUB MEMBER ARE YOU?

An Oldie.

Some members are like wheelbarrows — no good unless pushed.

Some members are like canoes — they need to be paddled.

Some members are like kites — if you don't keep a string on them, they fly away.

Some members are like kittens — they are more contented when petted.

Some members are like footballs — you can't tell which way they will bounce next.

Some members are like balloons — full of wind and never down to earth.

But some members are like gems — they glow and become more valuable every day. ■

QSP

ARS AND THE FUTURE

Much thought is being given in many places to where the amateur radio service should be in the coming decade — i.e. post-WARC. The Executive of the WIA has this in mind, the main editorial in July AR by VK1DA gives this a highlight, the ARRL in January appointed a Long-Range Planning Committee to review and make recommendations concerning programmes which the ARRL is and should be providing to its members and to the amateur radio service, and the editorial in Ham Radio for June 1979 takes up the theme. The last-mentioned editorial makes the point that amateur radio in the past is like the proverbial "house that Jack built" with rooms added as they required, with light thought to future construction — or indeed to the aesthetics of the architecture. While long-range planning is hardly an exact science, it is possible — states the editorial — to anticipate some of the problems, to perceive certain distant opportunities and to develop appropriate recommendations. In planning, positive results require much effort on a continuing basis by a large number of concerned amateurs. ■

OOPS — WRONG FORD

After Tsuneyoshi Yamano JA5HTP and his wife, Akiko JA5IBW, contacted Gerald R. Ford WA7KYZ in the State of Washington on 28th February, they sent the customary QSL card.

However, the post office, seeing the name Gerald R. Ford, delivered the card to former President Gerald R. Ford in Palm Springs!

After the initial confusion, the card was finally routed to WA7KYZ in Washington — and President Ford also sent a personal reply to the Yamanos in Japan.

After eight years of operation, and 3,600 QSOs the contact with WA7KYZ was the first with a US amateur for the Yamanos.—Worldradio, May 1979.

JA5HTP and his wife JA5IBW are keen 6 metre operators and are well known to VK amateurs.— Ed. ■

900 MHz AMATEUR BAND

According to Ham Radio May 1979, Canadian amateurs may be granted 902-928 MHz on a shared basis later this year in exchange for 420-430 MHz to be assigned shortly to another service. Also mentioned is that international support for new amateur HF bands at 10, 18 or 24 MHz seems to be building up, but warns that even if these are accepted at WARC 79 it will be a number of years, possibly, before present users can be moved out before amateurs could be allowed in. ■

AUSTRALIAN LICENCES

As at 31.3.1979 there were 11,400 amateur licences issued in Australia, of which 5,717 were full calls, 2,973 limiteds and 2,690 novices, plus 20 in other territories. The State breakdowns were 3,842 in NSW, 3,232 in Victoria, 1,481 in Queensland, 1,392 in SA and NT, 819 in WA, 366 in Tasmania, and 248 in ACT. In the two largest States there were 2,035 full calls in VK2, 1,545 in VK3, 871 and 1,027 limiteds and 936 and 660 novices respectively. Out of the total 179,332 CB licences issued 1,084 were for UHF. ■

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Please see main Directory.

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VK2 — Mr. P. B. Card VK2ZBX.
VK3 — Mr. A. R. Noble VK3BBM.
VK4 — Mr. D. T. Laurie VK4DT.
VK5 — Mr. C. J. Hurst VK5HI.
VK6 — Mr. P. J. Savage VK6NCP.
VK7 — Mr. P. D. Frith VK7PF.

WIANEWS

CALLBOOK

By the time this appears in print the 1979 WIA Amateur Radio Call Book should have been on sale for a week or two.

The Call Book Editor is well aware that there will be errors and omissions despite every effort by a great many people (including the P. and T. Department).

Addresses and other details, for WIA members, some 7000 of them, will be correct up to 1st July, with only a dozen or so exceptions. It was not possible, in a publication of this nature, to indicate who are members and who are not. Dissemination, amongst Divisions, of computer printouts, takes care of this. These printouts are provided in call sign, alphabetical, postcode, grade and other formats for both members and non-members and include details of financial status as well.

Thanks to most valuable co-operation from the Department the call sign lists back to 1978 have been incorporated into the WIA computer file. Earlier than 1978 the degree of error and omission increases as the Editor discovered after distributing the 1977 edition. It is known that some 300 non-members' addresses were not correct in October last year because this was the quantity of WARC 79 Fund Appeal letters which were returned to the WIA address (etc.) unknown. A few of these have since been corrected, but unless non-members or their friends send their call sign details to the WIA Executive office there is no way to ensure accuracy.

According to the computer totals there are nearly 13,000 entries in the call book listings. These are on the WIA's file which produced the call sign lists. The full list was processed on to a computer tape which was used by Valentine Computer Services in Melbourne to produce, by phototypesetting, bromides ready for the printer. The phototypesetting machine, a Photon, uses one of a selection of type founts, in conjunction with the data on the computer tape, to feed the Information through a display tube direct on to bromides ready for immediate use. Whatever is on the computer tape is printed out photo-electrically in a few minutes. The speed of such printing seems to be in the order of nearly 1000 lines of call sign data per minute and is greatly superior in quality to ordinary computer printouts of the kind used for the 1977 Call Book.

To ensure the success of this operation a great many tests had to be made beforehand to achieve compatibility for a particular end-purpose. Thanks must go to both Valentine and the Monash ADP centre for their advice and patience during these tests, as well as the printers for valuable advice and assistance in proving the systems along the line.

Little details of all kinds posed problems. An early sample of phototypeset bromide was produced with only 1 pt. of spacing between lines. This made it hard to read each line so a wider spacing was settled on. But a wider spacing reduces the number of lines on each finished page and when you are looking at a web offset print you have to think in terms of 8 or 16 page plates for the final product.

Similarly a close look was made of line lengths. It was eventually possible to keep these down to no more than 80 character spaces. This is a function of the computer programme itself as well as the way in which separate parts of the data are separated from each other. As examples, how much space between the call sign and the person's name and between the name and the address.

Input of information on to the WIA computer file is done monthly — it is, by comparison, a very small file; many experts have said the file is too small for computer work! However, the file takes care of 4 main functions: The Call Book, AR address labels, subscriptions listing and production once a year of subs notices and listings of member (as well as non-members) for everyday use at the Division and Federal levels.

Back to the 1979 Call Book from this digression. The phototypesetting used the smallest type face fount available but even this was found to be too large to fit two columns on to a finished

ADVERTISERS' DONATIONS TO WARC '79

The Federal President wishes to extend grateful thanks to our advertisers for generous donations towards the expenses of WARC representation

MARCH 1979	$
Dick Smith Electronics	500
Vicom International	1000
Bail Electronics	500
Chirnside Electronics	100
Scalar Industries	50
Elmeasco Instruments	25

These are entitled to the use of the WIA emblem and the words: "WARC Amateur Supporter" in their advertising displays.

page without photo-reduction by the plate-maker. Naturally the editor wanted characters as large as possible. Only one column per page would have involved a book containing many more pages than the 1977 edition because of the increase in numbers since then. Options were examined and rejected — smaller pages, cross-wise printing instead of vertical, thinner paper, and so on. Costs had to be kept in mind all along the line. A 10,000 run is not cheap in any language.

A small photo-reduction was eventually agreed on in order to fit two columns on to each page of the existent size, which seems to have found favour by users in recent years. Those who have seen photocopies of a sample of the finished product agree it is readable except by anyone with very poor eyesight. Furthermore, the line format is much preferred to the 1977 edition. The character size is larger than the one in the International Call Books, is similar to that in the UK Call Book and slightly smaller than the type in the ZL Call Book. It might have been even better if upper and lower case could have been used. That is something for the future because it affects the formatting of the computer output itself. Changes to computer programmes cost money even if any particular facility can be provided.

Anyway, most users of the WIA Call Book will surely approve this presentation as an improvement. Constructive comments would be welcome. Indeed, many such comments were taken into consideration after the last edition and will be needed for any bigger and better 1980 edition.

Finally a reminder to members. Please promote the WIA Call Books. It is your money backing them. Dust gathering on unsold stocks earns no money. Up to date, no dust has gathered because there are no unsold stocks of past Call Books — and Magpubs books either, come to that.

It must be confessed, however, there are stocks (not excessive) on hand of old ARs despite every precaution to keep print runs down to the barest minimum. Some months many copies go astray in transit and have to be replaced: Sometimes there are collating errors — half the pages are missing or duplicated: New members in greater than usual numbers (or unfinancials becoming financial) use up the "overs": All these happenings mean you cannot merely print enough only for the quantity of address labels. For some months, since 1972, there are no spare copies on hand, for others there are still stocks on hand — good material for recruiting hand-outs.

MEETINGS

There was one meeting of the Executive during July and one meeting of the Publications Committee. A decision was made to increase the "cover price" of AR from 1-1-1980 to $1.20 per copy

in place of the present $0.90. Basically this affects only direct subscribers, namely overseas readers and local organisations such as Government Departmens, libraries and schools. At the same time a modest increase in advertising rates was agreed; the last increase was in 1975.

EXAMINATIONS

The Victorian Division put forward an interesting proposition that for the purpose of examination exemptions the morse code section should be split into sending and receiving. Thus, any candidate obtaining a pass in, for example, the sending test would only be required to sit for the receiving part at the next examination.

PHOTOGRAPHS

Photographs of amateur subjects are still urgently required for AR.

WARC 79

The all important World Administrative Radio Conference (General) relating to the future of the entire frequency spectrum throughout the world opens later this month. Everybody wishes all amateur delegates and observers at this Conference every success, and in particular the WIA delegates included in the Australian delegation, the Federal President, Dr. D. A. Wardlaw VK3ADW, and the WIA IARU Liaison Officer, Immediate Past Federal President, Mr. M. J. Owen VK3KI.

The Executive wishes to acknowledge with grateful thanks the receipt of the following donations from members towards WARC 79 expenses —

LIST No. 5

VK3ALG	*$3.00*
L50355	*6.25*
VK4ABG	*2.95*
VK3FH	*10.00*
VK3VG	*5.00*
VK3DS (per AR Ltd.)	*50.00*
VK3ADY (per AR Ltd.)	*10.00*
WIA Tasmanian Division NW Branch (per VK7ZOA)	*22.00*
VK2NSA (per Hunter Br.)	*5.00*
VK3BJP	*25.00*
VK3 Fox Hunt Group	*30.00*
VK2NUK	*20.00*
Geelong AR-TV Club (per VK3CM)	*76.00*
VK4ZBI	*5.00*
VK4DW	*10.00*
VK3BRI	*10.00*
VK5 Division (per VK5HI and includes one anonymous donation of almost $900 in memory of the work that the late John Moyle made in 1959 to the Amateur Service at a similar WARC). Includes donations from: VK5FG, VK5AMS, VK5KL, VK5WA, VK5XA, VK5FM, VK5SS, VK5NMQ, VK5HT, L50442, VK5VE, VK5MY, VK5ZAP, VK5JG, VK5EN, VK5RK, VK5NBD, L50363, VK5BN, VK5WP and VK5NL	*1251.60*

It is understood further donations are to be expected via Divisions. ■

Have you sent in your Log Sheets for the

RD CONTEST?

NOTE: You MUST include a Front Summary Sheet as per Rules in July AR, p. 41.

QSP

COMPUTER SHOW

Melbourne's first Home and Small Business Computer show will be held in the Exhibition Buildings from 27th to 30th September, 1979, according to a media release from Australian Seminar Services Pty. Ltd. Resulting from many requests at previous shows, the theme of this show has been expanded to include all small inexpensive computers. ■

CADMIUM POISONING

An item in Pat Hawker's TT in Rad. Comms. June 1979 draws attention to the potential risks of cadmium poisoning by ingesting or inhaling the "woolly" white powder (cadmium salts of organic acids) which sometimes appears as a deposit on cadmium-plated metalwork (screw heads, switches, etc.) in electronic equipment. Take reasonable precautions, he recommends, to remove any such deposits which are due to corrosion — use gloves and swabs damped with water to wipe away all corrosion products. Place these and the gloves in a plastic bag and burn them. ■

SUNFIRE PROJECT

"For over 8 years and at their own expense, High School students living in the vicinity of (the Jet Propulsion Laboratory, Pasadena, California — W6VIO) have worked together to construct a Solar Thermal Electrical Generator for use on Pitcairn Island. These young boys and girls, some of them amateurs, expect to complete the project this month (June) with the generator ready for shipment." "All told the generating system will weigh in at about 11 tons and be able to supply between 5 and 8 kW of power." All that remained to be done was the installation of the 240 individually adjustable mirror facets, the boiler at the point of focus and the generator operated by a steam engine. "The boiler is heated by the rays of the sun focussed on it from all points of the parabolic cylindrical section solar collector." After that money some means must be found to transport and install it on Pitcairn Island.—CO editorial June 1979. ■

GENEVA ITU EVENTS

WARC 79 opens in Geneva on 24th September. Two other events in Geneva during September as organised by the ITU will be Telecom 79, the third of such World Telecommunication Exhibitions, from 10.00-18.00h 20th to 26th September (entrance fee Sw. fr. 10) covering 70,000 sq. m. for nearly 600 exhibitors in 40 countries, and Forum 79 in two parts — Part 1 from 10th to 21st September, covering telecommunication perspectives and economic implications, and Part 2 from 24th to 26th September in two parallel sessions, covering technical matters. Travel arrangements are being handled by American Express. ■

EMERGENCIES

According to Ham Radio June 1979 the volcanic eruption on St. Vincent essentially destroyed conventional communications throughout this Caribbean Island. Amateur radio immediately filled the breach when several VP2s set up a communications centre at police headquarters. Requests for help from the Island's Premier were passed through to Miami via amateur radio, resulting in immediate relief assistance. A request was also relayed to the FCC for third party traffic handling facilities — this was granted in under two hours. ■

2GB AMATEUR RADIO ANNIVERSARY ON 873 kHz

One year has passed since the first amateur radio propagation report was broadcast over 2GB radio.

Three times each night seven days a week for the last year amateur radio enthusiasts have provided the station with the latest radio conditions and news of interesting club meetings and events.

Broadcast after midnight, 1 a.m. and 2 p.m., any listener able to tune into at least one amateur band is able to volunteer to phone a report into the station at least once a week at 10.30 p.m.

If you would like to promote amateur radio to the listening public in this way then contact Sam VK2BVS on phone 407 1066 between 7 and 9 p.m. ■

CURRENT SINK

Denzil Roden VK2BXF
7/169 Herring Road, North Ryde 2113

Designs for DC power supplies of various current capabilities, appear frequently in amateur publications. Constructors often have trouble providing loads in order to test the regulation throughout the design range. This item of test gear provides a solution to such problems.

Though having originated, in principle, during the valve era many years ago, the circuit has apparently not found its way into amateur handbooks. The idea is simple and can be built temporarily to test a "one-off" supply, or is ideal as a club or group project.

The SUPPLY terminals of the load are connected to the corresponding output terminals of the supply to be tested via, if required, a test ammeter. A variable voltage, set initially to zero, is connected to the DRIVE terminals.

With the drive voltage at zero, the load transistors are all turned off and only a few microamps of leakage current is drawn. As the drive voltage is carefully increased, the transistors are proportionally turned on, until the required load current is obtained. With six 2N3055s a drive voltage of about 1.8V will input some 500 mA to the paralleled bases, loading a 13V supply to about 20 amps. A limit of round about 4A collector current per 2N3055 should be observed.

The maximum drive voltage (Vbe) for a 2N3055 is 7 volts, but even as much as half this value is unlikely to be required. The source of drive voltage should be fairly smooth, a lab type bench supply is ideal, any undue ripple on the bases will modulate the load current.

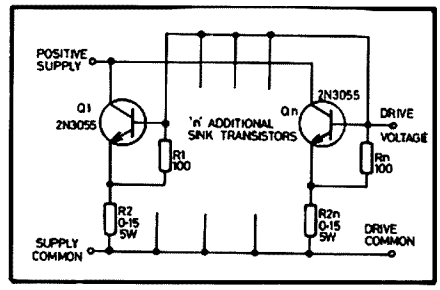


FIGURE 1: Current Sink Circuit. 100 ohm resistors are ¼ watt carbon, 0.15 ohm resistors are 5 watt wire wound IRH ASW5. Transistors should be insulated with mica washers and smeared with silicon grease.

The 0.15 ohm resistors equalise the bias of the transistors, ensuring equal current sharing, they are IRH type ASW5, obtainable from the more professional component suppliers. Otherwise they may be fabricated from resistance wire; electric heater elements are suitable.

The number of transistors may be reduced where lower maximum current capacities are required.

All components can be mounted on the heatsink, with help from a few tag strips. The heatsink should be large enough to dissipate the heat generated, 260 watts for 20 amps at 13 volts, with proportionally smaller heatsinks for lesser powers. Suitable heatsinks can be obtained from Davred Electronics.

A silicon transistor is "too hot" if its case will boil a drop of water placed on it (rule of thumb, or in this case "finger"). If the heatsink is not up to the job, it may be assisted with a forced draft from a fan or from the delectable YLs hair drier.

Wiring should be capable of carrying the currents involved, otherwise the full capability of the regulator will not be realised. Collectors and the common ends of the emitter resistors should be bussed, each bus is made with two parallel lengths of 14 B and S tinned copper wire, supported at the ends of the heatsink on tag strips. The busses both carry the full load current and each collector and emitter connection should be able to cope with 4 amps.

Rather than use a heavy multi-stranded wire such as 100/0076, with which it is difficult to produce neat soldered terminations, the writer uses up to four smaller wires in parallel, giving the same total current capacity but resulting in a tidier job.

With regard to test measurements, erroneous results can easily be obtained, so take care that connections made are adequate and do not introduce unnecessary contact resistance. It pays dividends to make proper connecting leads with suitable terminal lugs. If a current meter is included in the test circuit, allowance should be made for its internal resistance and its resulting voltage drop, e.g., an AVO Model 8 multi-meter used on its 10 amp range drops about 0.9 volts at Full Scale Deflection, while with additional current shunts, lesser drops will occur. ■

TOROIDAL BALUNS

K. Curie VK2OB
24 Beach Drive, Woonona 2517

Practical information about making ferrite-cored toroidal baluns. The details should apply to almost any antenna that can be fed with a balun. Experiments at this QTH were all with quads but of many shapes and sizes.

It is essential when winding a toroidal balun to know the impedance you are trying to match and I would recommend that you beg, borrow, buy (or build) an antenna impedance bridge.

A quad driven element that is over ½ a wavelength from the ground will vary in impedance from about 55 ohms with a .1 λ spacing to the reflector to about 115 ohms with a .2 λ spacing. The director makes negligible difference. The main problem is that proximity to trees, rooftops, etc., as well as other closed loop elements in multi-band quads, all vary the impedance.

It is best, I have found, to have a minimum of 10 turns on the primary winding and most ratios can be made close enough without exceeding 15 turns on the primary. For ease of adjustment the two secondary windings should be wound on first — they must have the same number of turns and I always make them one continuous winding with a large loop halfway that can be snipped later. This keeps the windings intact and also saves the sharp ends from piercing your hands when winding the primary over the top.

To calculate your turns proceed as follows —

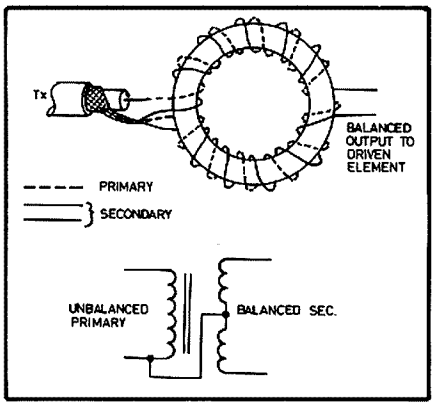
If your impedance is, say, 98 ohms and you want to feed the antenna with 50 ohm coax the ratio of these impedances is 1.96 to 1. As with any close-coupled transformer the turns ratio is the square root of the impedance ratio, thus in this case 1.4 to 1. Then as it is essential to use about 10 turns on the primary the secondary turns would be 14. This means that we would win 10 turns on the primary and 14 on the secondary in the form of two 7 turn windings.

If you have to guess your impedance it is best to leave a couple of extra turns on the primary and check your SWR as you remove them half a turn at a time. If you are working off a ladder or the roof it is wise not to try for a 1 : 1 SWR as it will change when the antenna is at full height.

There are probably many good ferrites available. The one I use is the Mullard FX1588, which is excellent at HF. It does seem to be "running out of steam" at the top end of 10 metres, but results are still good on this band. Wire is not very critical, 14 SWG is what I have used and found that it wraps around the toroid without springing off and slipping. If you use wire from an old transformer heater winding the enamel may not provide adequate insulation, and I would suggest that you layer plastic tape over the secondary before winding the primary.

Once you are happy with the matching, the balun can be coated with silicone rubber or in my case (I have a beach frontage) encapsulated in epoxy resin.

I have run 350 to 400 watts PEP through these baluns without melting candle grease poured on them as temporary moisture shields. I don't know what power they will take, but they will handle any legal amateur power.



SOME EXAMPLES (Turns are practical figures)

Coax	Impedance	Impedance Ratio	Turns Ratio	Turns Primary	Half Secondary
50	50	1:1	1:1	10	5 each
50	75	1:1.5	1:1.2	10	6 each
50	84	1:1.68	1:1.3	14	9 each
50	100	1:2	1:1.414	14	10 each
75	200	1:2.67	1:1.63	11	8 each
50	200	1:4	1:2	10	10 each

LEFT: FIGURE 1.

EARS FOR THAT DEAF FT101B RECEIVER

C. H. Castle VK5KL
29 Turnbull Road, Enfield, SA 5085

How many times have you heard on the air the remark "my FT101B is a little deaf"? My own unit was not deaf but its performance was well down compared with a Drake RC4. Not now!

Always looking to improve the performance, the usual modifications published were tried and found wanting. Determined to find a way, it was decided to improve the signal between the 3SK40 RF stage and the antenna input. No claim is made for the originality of the circuit as shown, but the initiative to wire it up and try it.

The prototype was built on a piece of vero board, 11 x 23 holes, and laid out as Fig. 1.

The vero board is mounted on the top of PB-1181-B by attaching it by four wires to the earth rail and the earth of the PB-1181-B board, as per Fig. 2.

Take the PB-1181-B board out from the FT101B and withdraw the 3SK40 RF stage transistor from its socket for safety.

Lift the end of the 100 pF capacitor C1 that connects from pin 8 to gate 1 of the 3SK40 at the gate 1 end and run a wire from the capacitor to gate 1 of the MPF121. On the opposite side of the board connect a wire from gate 1 of the 3SK40 to the 100 pF output of the BC308. Also connect a wire from pin 14 to the plus input of the added board. Replace the 3SK40 in its socket and replace the board in the FT101B. You may have to re-align the receiver circuits on 28 MHz A, B, C and D. On the other lower frequency bands the pre-selector tuning will take up any difference. If not, re-align all circuits as per instruction manual. The extra gain will

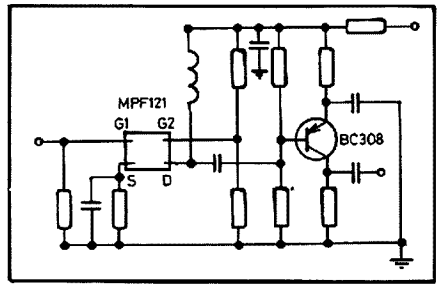


FIGURE 1: Component layout.

mean the "S" meter will need to be adjusted at 14200 MHz as per instruction manual.

If, when you replace the board and switch-on, there appears to be an intermittent fault such as "crackling" or "popping" noises when the board is touched or moved, check the lead between C1 and the gate of the MPF121. Where the lead leaves C1 it passes between two resistors and a capacitor. Part these components so that the lead is clear, does not touch them, and is kept well down near the surface of the board. This should cure the slight regeneration which causes these symptoms.

(Note: The circuit as originally submitted by 5KL showed a resistor across the MPF121 drain coil. Correspondence with the author indicated that this was one of the measures tried to reduce regeneration, but later proved unnecessary. Possibly a higher than normal gain FET may require a resistor here in the order of 220 ohms to 1k.—Tech. Ed.)

In my case, due to the extra gain I find that on 3.5 and 7 MHz the RF attenuator can be used to reduce the gain to that of the other bands and it aids the selectivity on these two bands.

Now sit back and notice the new sensitivity of your receiver and how the signals stand out above the noise level.

Good luck with the modification — Clarry.

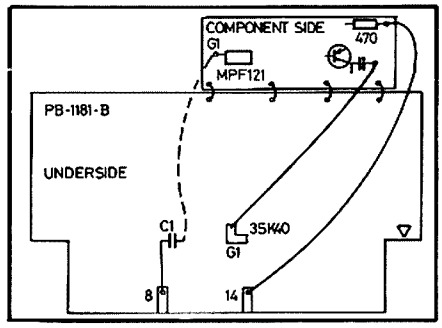


FIGURE 2: Connection diagram.

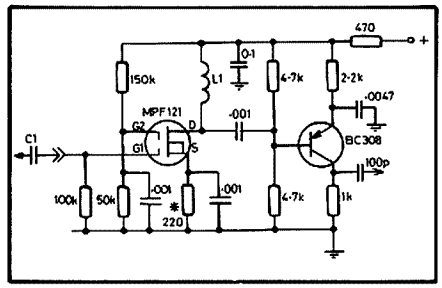


FIGURE 3: Circuit diagram.

L1, 8 turns nylon coated jumper wire close-wound on 5/32 in. dia.

* Can be varied from 220 to 1k ohms. The higher value will drop the gain slightly but aid selectivity. ■

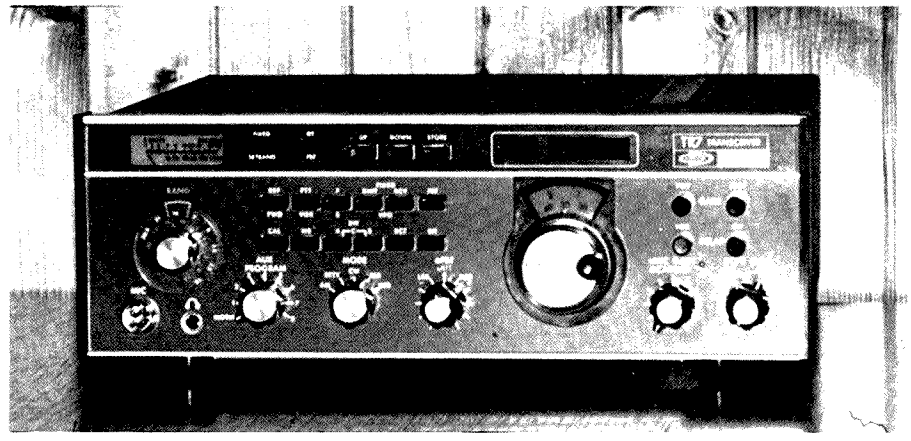
REVIEW: THE DRAKE TR7

Stephen Garner
27 Neerim Rd., Castle Cove 2069

This article is a departure from our normal equipment reviews. Firstly it is not written by our usual reviewer. Secondly it is not a solicited article and we must accept that the author did not have available the sophisticated test equipment required to check the manufacturer's claimed technical performance. The article, nevertheless, does cover the apparent strengths and weaknesses of the TR7 quite well. Even if you are not about to buy a new rig this article makes interesting reading.

The R.L. Drake Co. have recently released their latest HF transceiver, the TR7. This radio is to supersede their old TR4 series and possibly the T4, R4 series of separate transmitter and receiver (the "Twins". The TR7 has taken off very well in the States where at the moment there is a six to eight month waiting period for delivery.

The TR7 with DR7 option (Digital Read-out), TR7/DR7, is the model most Australians will meet, so comments will be restricted to this model.



FREQUENCY COVERAGE

The frequency coverage of the TR7 is the first point of interest. On receive it is a 1.5 to 30 MHz receiver. On transmit it covers all the Ham bands 160 to 10 metres in 500 kHz sections. With the addition of the optional extra, AUX 7, the TR7 enjoys 0 to 30 MHz receive capability, and it can transmit in an extra 8 500 kHz sections which may be placed anywhere from 1.5 to 30 MHz. Alternately the frequency can be crystal controlled, which is probably of some use in commercial applications. So the TR7 will easily handle any extra band allocations, unless WARC 79 gives amateurs more than an additional 4 MHz in the HF band.

The TR7 has a built-in frequency counter which gives a digital display of the operating frequency and can be accessed externally to provide an accurate counter for work around the shack. The unit will count up to 150 MHz which makes it useful for work on VHF as well as HF equipment.

FRONT END DESIGN

The TR7 achieves its frequency coverage capability by a radically new design approach. Most amateur HF transceivers use a single or double conversion technique to get to an IF of between 5 and 10 MHz, where a crystal filter provides the selectivity. The TR7 has broken away from this idea to a new method Drake term Up-Conversion. That is, the signal is converted up to a first IF of 48.05 MHz and then down to 5.645 MHz, where an 8 pole crystal filter provides the selectivity. By this method, Drake are able to provide a 0 to 30 MHz receiver, with no IF gaps, that has the performance of a good amateur transceiver.

As Drake point out in their advertising brochures, it is only with recent developments in solid state techniques that transistorised equipment has been able to meet or exceed the performance shown by that using valves. The area where solid state equipment has failed in the past is in the ability to handle strong signals near to the desired frequency. So the specifications for Dynamic Range and more importantly Intermodulation Distortion (IMD) are rarely quoted by the manufacturers. Rather they are only too willing to tell of the excellent sensitivity of their equipment, an area where transistors excel.

In an effort to provide a "strong" front end, the first active element in the TR7 is a double-balanced mixer with a high level of local oscillator injection. This connects to a 4 pole crystal filter 8-10 kHz wide, then via a second diode ring double-balanced mixer to the information filter, which for voice is 2.3 kHz at 6 dB down and 4.1 kHz at 60 dB down. It is only here, after the selectivity, that Drake place the bulk of their gain.

As a result of this design Drake are able to quote figures for Dynamic Range and IMD of 95 dB and +20 dB respectively, two very impressive figures. None of the figures quoted have been verified by the author but one would hope that even in modern times manufacturers can be trusted to this degree. There is, however, a necessary trade-off between Dynamic Range, IMD and Sensitivity. Consequently Drake are only able to claim a sensitivity figure of 0.5 uV for SSB. This comparative lack of sensitivity would not normally be a problem as background noise is usually above this figure, but conceivably there could be circumstances where this lack of sensitivity would be a hindrance.

ON AIR TESTING

The TR7 was connected "back to back" with the Drake Twins and then to a TH6DXX at 90 feet. Unfortunately on the evening of this test the bands were not very crowded and neither set could be faulted under strong signal conditions.

On weak signals, the audio quality was superior on the Twins while the TR7 appeared to have less background noise. If there was a difference between the two, the TR7 appeared to have a slight edge in hanging on to the weak signals. The difference in audio quality was probably due to the fact that the Twins were used with their matching speaker and the TR7 has a narrower filter and more extensive audio filtering to cut out the "highs".

The results were repeated when the TR7 was run back to back with a Kenwood TS820S at VK2MB, the Manly Radio Club. Once again there were no strong signals on the bands. Under weak signal conditions, however, the TS820S was able to demonstrate its superior sensitivity, being better at pulling signals out of the mud. The audio quality of the TS820 from a hi-fi point of view was superior to the TR7. The narrower filter of the TR7 and audio characteristics definitely make it a communications transceiver rather than one for enjoying the individual's voice in local "rag-chews".

The big test came later when the TR7 was used during the CQ WPX contest. Conditions were good and the bands were crowded with S9+ signals. Here the TR7 really proved itself, and after 4 or 5 hours behind the VFO one could almost feel the crystal filter reaching out into the night.

Not once was there a trace of any signal outside the passband of the filter being received, no cross modulation or IMD.

The TR7 does have a problem with spurious responses. This is probably due to a number of factors; the set Is synthesised, it is a continuous coverage receiver, it uses up-conversion and uses high levels of local oscillator injection (typically + 17 dBm). There are a large number of spurious signals throughout their receiver range, including the ham bands. However, there was only one spurious signal found that moved the "S" meter, and this at 5.645 MHz was S9. These are certainly a nuisance but It is doubtful if they would ever stop a contact being made. The most annoying feature is that they sound like a weak DX station tuning up on air, and one is constantly switching between antenna and dummy load to determine if they are DX or a spurious signal.

TRANSMITTER

The TR7 is solid state throughout, including the PA, which is rated at 250 watts input. The output power was measured and found to fall from 130 watts on 14 MHz to 100 watts on 28 MHz, which means the amplifier is fairly Inefficient. This is probably true, because as it is broadbanded, Drake have used linear techniques throughout in order to keep the transmissions clean. The amplifier chain is all class A except the driver and final. The transmitter is supposedly capable of running "key down, flat out" for 5 minutes, unless an auxiliary fan is fitted, when it is then capable of continuous use. In order to test this the CW key was shorted and the rig left to run for 5 minutes at 130 watts output. The TR7 was easily up to the task, the heatsink was just warm, which is more than could be said about the dummy load.

OPERATION

The operation of the TR7 is extremely simple. In fact the absence of knobs and dials to fiddle with is at first almost frustrating. There is absolutely no tune up on receive or transmit. Power output is continuously variable on both CW and phone.

In fact the rig is almost completely automatic. All that needs to be done Is to select the frequency and push the button. Even the AGC decay times are changed when the modes are changed; this can then be further altered by a front panel control.

The transceiver is very flexible. It Is possible to select any of 4 filters (2.3 kHz is standard, 300 Hz, 500 Hz, 1.8 kHz and 6 kHz are optional) Independently of the mode in use, thus one can receive CW through a 300 Hz filter and transmit voice. By use of the Pass Band Tuning, PBT, it is possible to receive on a sideband and transmit on the other. All interesting features but probably of little practical value.

The PBT is a useful feature in the fight against QRM. It moves the received signal with respect to the information filter and then moves it back on frequency in the product detector. Thus the received frequency remains unchanged while the QRM is antenuated by the crystal filter. In a test, two signals, 200 Hz apart and both S9+, were Injected Into the receiver. By use of the PBT one signal was reduced to an S1 while the wanted signal was unaffected.

CONCLUSION

A number of quick points in conclusion. The TR7 does not have a notch filter, which seems a pity. The hand book basically gives very little information apart from instructions on operating the rig and a basic overview of the theory of operation. It badly lacks a circuit diagram or any servicing details apart from advising that it should be taken back to the dealer should any problems arise.

The TR7 is an expensive rig, but for the amateur who wants the best and is prepared to pay for It, it is worth looking at. The TR7 is not for the ham who only wants to talk to the locals, other rigs available will do the job as well and cheaper. The TR7 comes Into its own, however, in crashing dogpiles, in kilowatt alley on 20 metres, or on 40 metres where the IMD from ½ megawatt short wave broadcast stations near in frequency can render a receiver useless in certain QTHs.

The R.L. Drake Co. have certainly produced a technically interesting transceiver in the TR7. It will be interesting to see if other manufacturers of amateur equipment follow Drake's lead in up-conversion and strong front-end design. ■

NO-BREAK CLOCK SUPPLY

Jim Jones VK8ZJJ

Having lived in areas where the mains are somewhat erratic, I found it necessary to construct a simple no-break supply. This circuit overcame the problem of having to reset the station digital clock every time a mains failure occurred.

INTRODUCTION

A no-break supply is a system In which the supply Is normally taken from the 240 volt mains. In the event of a mains failure, the supply is automatically switched to a standby battery source. When the mains voltage is restored, the system automatically switches back.

The circuit is extremely simple and can be adapted for many other applications.

OPERATION

The operation of the circuit relies on the basic fact that a diode will conduct when the anode is positive with respect to the cathode and has the appropriate forward bias. A silicon diode requires approximately 0.6 volts.

Two diodes are used to isolate the supplies. The output to the clock timing

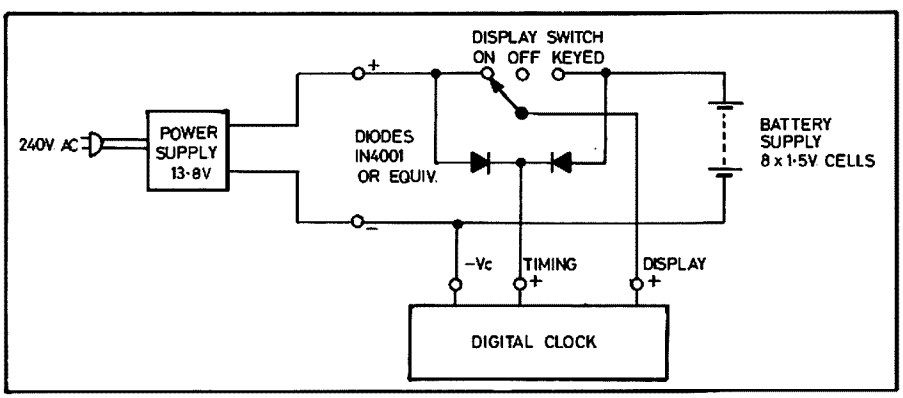


FIGURE 1: Circuit diagram.

circuit is always the higher of the two input voltages. To operate correctly, the voltage from the main supply must be higher than the battery source. If not, the batteries will become the main source for the clock timing circuit.

A key switch has been included in the clock display circuit.

This switch enables the display to be switched on continuously from the main supply, switched off or keyed-on from the battery source. By utilising this facility, the battery life will be extended. In this circuit, the batteries are *not* charged by the main supply.

CONCLUSION

As many of the quartz clocks available have good long term stability, it is advantageous to have a clock supply which has long term voltage availability. ■

160 METRE BAND DX

The late Art Berry VK3CZ

The latter day pioneer of this band, Jack de Cure VK5KO, has been an inspiration to myself and other 160m DX fiends. This article covers some of the aspects of DXing on this band.

My primary interest is DX and the propagation conditions that make DX possible. Real DX is generally only possible when the most Eastern station is calling at his sunrise time. Even then contacts are possible only at certain times of the year when exceptional conditions occur. It is therefore necessary to keep regular vigils at suitable times — the contacts may be few but are both exciting and rewarding.

The receiver used should have excellent selectivity as the 160m band is narrow and, when the Americans and Japanese are coming through, so are the local VKs. The AR88 used here was fine with regard to selectivity but was not nearly selective enough. Nevertheless it provided me with WAC, starting in 1971 and being completed in 1973. The mode used was CW.

What sort of DX can be worked? Well I have been exhilarated by contacts with America and Africa but my most exciting 20 minutes on 160m occurred on December 31, 1973, when the following stations were worked reporting my RST as shown. Times are in GMT (now UTC — Ed.).

Time	Call	RST
1858	OK1ATP	479
1904	G3ZEM	579
1907	G3XVY	579
1911	G3YUV	579
1915	EI8H	579

QSOs with OK1, 5Z4, ZE7, OA8, GM3, VP8, LU5, KL7, VE5, PAO and many W and JA stations have been enjoyed on this band.

Is high power necessary? Apparently not, as G3TR was contacted with only 10 watts used at his end.

Suitable antennae include inverted Vees and verticals. I use a long dipole at 50 feet.

What time should you listen? Europeans are best heard here at dawn during December, January and February. Africans are heard at the same time in June and July. South Americans appear at dusk here in June, July and August. North Americans are heard in the early to late evenings and the Japanese are also audible in the evenings.

Tune 1800 to 1810 kHz for the North Americans, South Americans and the Africans, 1907.5 to 1912-5 kHz for the Japanese and 1825 to 1830 kHz for the Europeans.

Some of the signals are surprisingly strong with many W stations running to S9 plus. Conditions are not as good now as in 1971 to 1974, but good contacts are still to be had. Other amateurs, such as VK6HD, have recently made WAC on 160m so why not you?

(Art was also something of a pioneer on this band having attained what are believed to be the first VK-VP8 and VK-LU5 QSOs on 160m — Ed.) ■

TRY THIS

WITH THE TECHNICAL EDITORS

RUSSIAN 28 MHz DIRECT CONVERSION RECEIVER

Due to the upsurge in the solar cycle and the Russian Amateur Satellites several 28 MHz band construction projects have appeared in the Russian magazine RADIO.

One of these projects is a simple direct conversion receiver using an interesting type of balanced mixer. The balanced mixer was described some time ago in Radio and uses the unusual combination of parallel reverse connected diodes and oscillator injection at half the frequency.

The circuit is shown in Figure 1 and the printed circuit board layout is shown in Figure 2. These are reprints from Radio for December 1978.

No equivalent or coil details are shown due to the difficulty of obtaining exact equivalents. Construction should be possible by experienced constructors able to choose suitable local components. The coils used were similar to the local Neosid and the low pass filter used a small audio toroid. The diodes V4 and V5 are low capacitance types with approximately 1 pF at 0 volts.

In the circuit of Figure 1 the RF amplifier is V1 which is an FET. Audio AGC is applied to this stage by the AGC diodes V2 and V3. L1, C2, L2, C3 form an input filter.

The output of the RF amplifier, tuned by L3 and C8, is applied to the balanced mixer made up of diodes V4 and V5 in a parallel connection with reverse polarity. The local oscillator being applied by C9. The local oscillator is on half the operating frequency and in this case is in the 14 MHz region.

The local oscillator is a fairly simple circuit using V6 with supply voltage stabilised by V7, which is a Zener diode. The oscillator tuned circuit L4, C12, C13 is on 14 MHz. Capacitor C13 of 2-7 pF is the tuning capacitor. A small air spaced variable would be suitable.

The output from the mixer passes through an audio low pass filter made up of L5, C9 and C10. This uses an inductor wound on a small audio ferrite toroid. The cut-off should be 2 to 4 kHz to allow reception of SSB.

The audio amplifier is quite straight forward. The only quirk being resistors R7 and R11, which are adjusted on test. This will apply in any case as direct equivalents are not obtainable locally.

The circuit of Figure 1 uses a mixture of Russian letters and Roman letters, e.g. a capacitor marked C20 47.0 x 15B is really a 47 mF 15VW capacitor.

The circuit board used in the original measured 140 mm by 50 mm. The circuit details appeared in Radio, issue 12, 1978. The author was V. Polyakov RA3AAE. ■

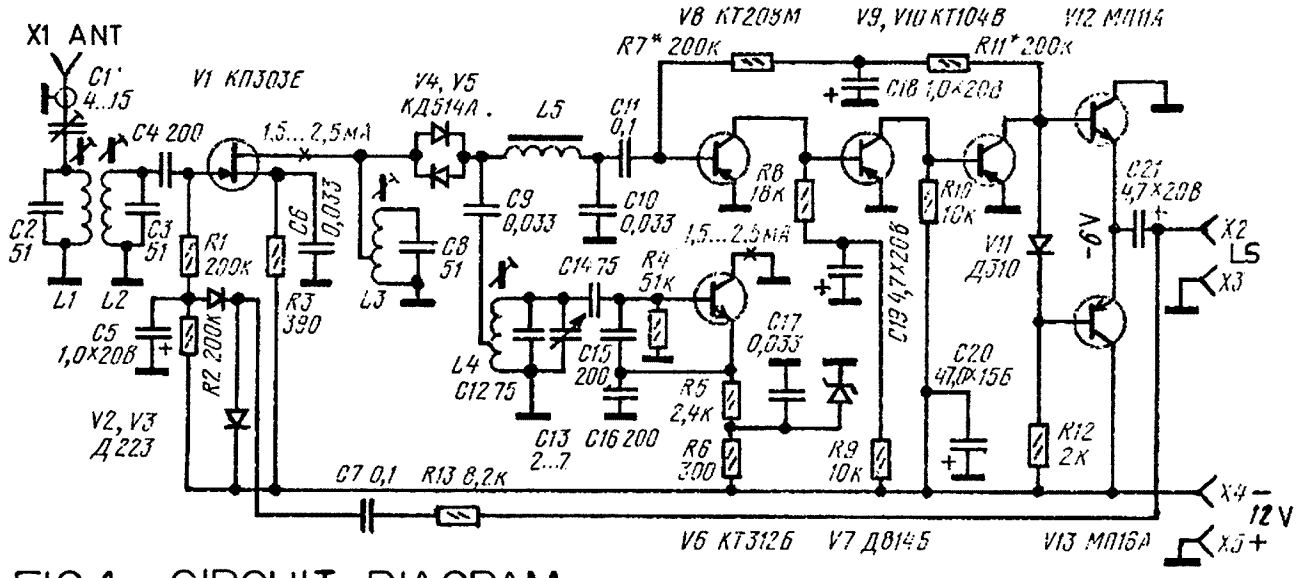


FIG 1 CIRCUIT DIAGRAM

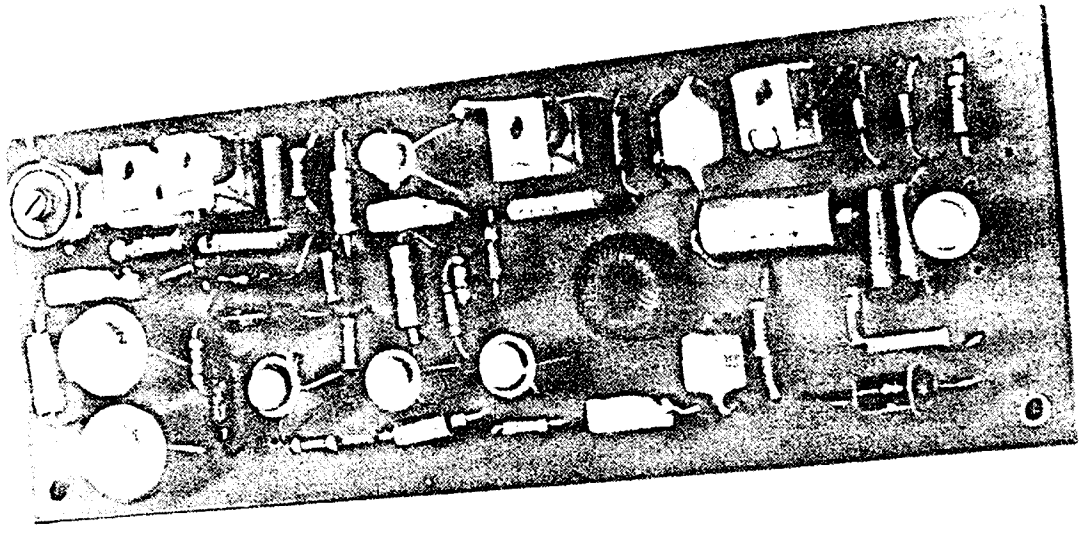
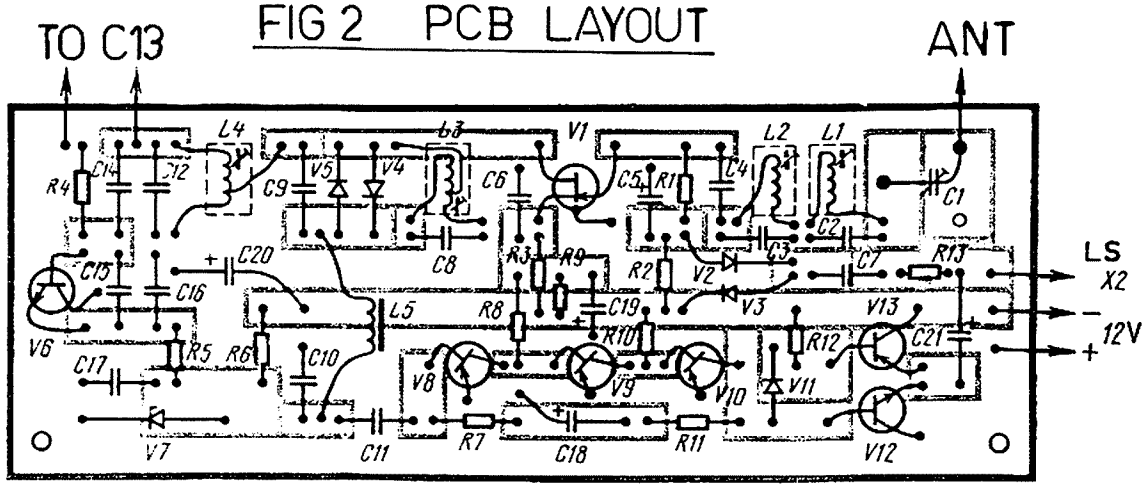


FIG 2 PCB LAYOUT



THE NEW WORLD-WIDE CRAZE OF 10 METRES FREQUENCY MODULATION

Sam Voron VK2BVS
2 Griffith Ave., East Roseville, NSW 2069

Now, with both frequency modulation and channeling techniques available on 10 metres, enjoy the same type of low-noise communications so popular on 2 metres and up — but with the excitement of DX. If you've been missing the fun and excitement of local, national and DX contacts on the high end of 10 metres, let us correct the situation at once. This is the mood of 10 metre FM, recently captured by a US marketing firm promoting the first of a new generation of 80 channel 10 metre FM mobile transceivers.

Faced with the question of how to utilize the top end of 10 metres, in such a way that increased amateur occupancy, many efforts over the last 20 years have failed to stir any interest.

Faced with a wide range of frequencies from 28.0 to 29.7 MHz, our largest HF allocation, most amateurs were content to tune 28.0 to 28.1 MHz for the CW action and 28.5 to 28.6 MHz for the voice action. Internationally 29.3 to 29.5 MHz has come under intense use as a result of the amateur satellite service and nationally 28.1 to 28.6 MHz has seen great use with the introduction of the novice licence.

The growing world-wide interest in the frequency range from 29.5 to 29.7 MHz has resulted from the tremendous amount of activity occurring on this band in the United States. Many of us in Australia who operated on 6 and 2 metres in the early 1970s using modified commercial taxi transceivers can remember the keen tinkering, building and exploring spirit of those operating 6 and 2 metres before the days of widespread commercial amateur gear.

This is the situation which has generated so much interest in 10 metres FM. At present I would estimate that 95 per cent of those on 10m FM are using modified VHF gear in the USA. They see their interests and style of operating as different from those using the same mode on 6 and 2 metres. They like 10 metres FM because "it's different to what's going on on 2m", "there's not the nonsense you pick up on 2", "it's got all 2 has got plus more", etc. etc.

THERE ARE OVER 50 REPEATERS NOW OPERATING IN THE 10 METRE BAND BETWEEN 29.5 TO 29.7 MHz.

One of the enjoyable things I have found on 10 metres FM is that just about every day you can meet up with the same person you spoke to the day before. You certainly get to know quite a few operators by talking through the US repeaters, as well as on 29.6 MHz which is the National FM calling and operating frequency. This is certainly a different experience from 10 metres SSB where just about every DX contact is a new one.

THE AMERICAN 10 METRE REPEATER BAND PLAN

Channel Number	Input Frequency (MHz)	Output Frequency
1	29.520	29.620
2	29.540	29.640
3	29.560	29.660
4	29.580	29.680

Most 10 metre repeaters conform to this band plan with 20 kHz channel spacing and 100 kHz separation between input and output.

10 metre repeaters function in the following way: A signal which is received on the input frequency is transmitted via 440 MHz UHF or via a telephone line to the repeater's transmitter site from where that signal is re-transmitted.

This means that a 10 metre operator in the USA can actually listen in to three frequencies and select the one with the best reception. He can listen to the original signal at the 10 metre input, he can listen to the UHF link or to the 10 metre output. To make contact with USA repeater operators from Australia one can either transmit on the repeater's input and listen to or quickly dial up to the repeater's output or one can listen and transmit on the repeater's output.

All the American needs is a UHF transmitter in his car tuned to the 10 metre transmitter's input and a 10 metre receiver.

CONTROLLING A 10 METRE REPEATER

Most repeaters on 10 metres are open access systems which means that any signal appearing on the input is automatically relayed onto the repeater's output. This means that there is no problem in working into these repeaters from Australia.

The common modes for International working are CW and SSB and these are used much lower in the 10 metre band. Up the top end FM is the in mode and operators are aware of the various simplex and repeater channels. Any SSB or CW operator who ventures into the top end soon finds out about these various frequencies when he hears a mass of heterodynes on certain frequencies. (This is what ± 5 kHz of FM deviation sounds like on an SSB receiver.) In Australia we are restricted to ± 3 kHz of FM deviation on 10 metres, which is so narrow that SSB listeners are able to resolve this as an AM station by zero beating.

The disadvantage of only ±3 kHz FM is that the American and European and Japanese FM operators may ask you to turn up your deviation or speak closer to the mike. However, our regulations once explained means they just wind up the audio gain on their receivers.

The advantage of extra NBFM is that we can use this on 28.1 to 28.6 MHz and work crossmode with the novices, thus interesting them in the techniques of FM.

Only a few of the 10m repeaters require tone access, however because of the growing interest of working into Australia and Europe on FM, repeater maintainers often monitor the repeater's input so that when a DX FM station attempts access, the required tone is transmitted permitting acces to the DX FM operator.

American operators can send controlling signals which will automatically shut down a repeater or which will open a direct line with a local police department or which will link up with another VHF repeater on 6 or 2 metres. It is very interesting just how varied repeater usage can be.

A procedure that had me listening in for hours was the use of the Ten code by an extensive network of mobiles which appeared to be on some patrol or exercise. The snappy and highly organised operating procedure was a delight to listen into.

Not all repeaters operating on 10 metres use FM. Some, called linear repeaters, can

transmit AM, FM and CW, others can re-transmit SSB.

Some of the Repeaters which can be worked daily from Australia are:

CHANNEL 1
(29.520 MHz in, 29.620 MHz out)

WR6BDG — Sierra Madre, Calif. Carrier operated access.
WR1AJF — New Fairfield, Conn.
WR1AAA — Maiden, Mass. Carrier operated access.

CHANNEL 2
(29.540 MHz in, 29.640 MHz out)

WR6AAK — Los Angeles, Calif. Requires 107.2 Hz access tone.
WD4MRW — Tampa, Florida. Closed private repeater.
WRZANW — Fort Lee, New Jesrey, Autopatch emergency powered. Facilities to cross-band into other repeaters, direct access to Police.
WR2AMI — Dallas, Texas.
WR5AOK — Pt. Neches Groves, Texas.

CHANNEL 3
(29.560 MHz in, 29.660 MHz out)

WR6AFB — San Diego, Calif. Requires 107.3 Hz tone to access.
WR6AWR — Santa Barbara, Calif. AM repeater. Req. 1950 Hz to access.
WR0AQE — Boulder, Colorado. Requires 91.5 Hz tone to access.
WR4ATE — Jacksonville, Florida. Carrier operated access.
WR9AKD — Split-Prospect Ht, Illinois. Carrier operated access.
WR3AID — Towson, Maryland.
WR2ABA — Huntington, New York. Carrier operated access.

CHANNEL 4
(19.580 MHz in, 29.680 MHz out)

WR1ACY — Glastonbury, Conn. Civil amateur radio emergency service. Civil patrol, carrier operated access.
WR3AID — Towson, Maryland. FM carrier accessed.

10 METRE CONTROLLED TRANSMITTERS

As well as repeaters there are dozens of remote controlled transmitters which like the repeaters are owned and operated by either associations or in many cases, by individual amateurs.

Remote controlled transmitters are almost the same as repeaters. They are located on a high location, can cross-band and link with other repeaters, can link into the local telephone system (autopatch) or into the law enforcement agencies.

Remote transmitters operate in this way:

You transmit on, say 440 MHz and the remote transmitter re-transmits you onto 29.6 MHz. Anyone on 29.6 MHz is re-transmitted back to you on your frequency of 440 MHz. From Australia it is quite easy to contact the many local communities who operate such remote transmitters.

By transmitting on their 10 metre frequency, an American is able to either receive you from the remote site via 440 MHz or direct on 29.6 MHz and can likewise call you either from his home using 29.6 MHz or via the 440 MHz link which is re-transmitted onto 29.6 MHz. Thus communications can be maintained as selective propagation occurs between these two sites.

One of the most consistent signals into Australia from a remote transmitter is that of WB7CZQ on Stranger Mountain, Washington, which can be switched between two selectable frequencies. 29.6 MHz primary or If In use, the users switch the system onto 29.64 MHz.

GETTING STARTED ON 10 METRE FM

Commercial transceivers covering 70 to 85 MHz or 6 metre modified FM gear can be obtained from between $15 to $35 and modified onto 29.6 MHz.

USA operators using 5 watt modified CB radios have been putting incredible signals on FM. These sets are easy to get onto FM by applying a small part of the audio output to the Varicap diode in the clarifier circuit and disconnecting the audio being applied to the power amplifier stage.

FM reception can be achieved by using an appropriate detector in the 455 kHz IF stage. For receiving wide-band FM the 455 kHz IF can be widened and the filter replaced. Many of the contacts on 10m FM have been with mobile operators using vertical whips.

In Europe there are 15 amateurs in Copenhagen, Denmark, using 29.6 MHz. The operator I spoke to, OZ7IS, only runs 6 watts FM to a ground plane. In Norway it is popular to add the microwave converter MMC28/144 onto a 2 metre transceiver.

This converter, which sells in Australia for $45 will receive 29.6 MHz when your 2 metre receiver is tuned to 145.600 MHz. The idea of hearing world-wide FM on my 800 channel 2 metre FM set is really tickling my mind at the moment. To transmit FM it is quite easy to simply modify an FT200 and FT101B (see previous articles in AR).

The modification of the TS820 is almost identical to that of the FT101B.

Microwave modules in the USA are said to be developing a transverter so that you will be able to transceive on 10m FM using any 2m FM transceiver.

Japanese amateurs as well as the Americans and Europeans, have also been using complete home-made systems as well as USA Army transceivers. Several ex-Military FM sets which cover 29.6 MHz are available in Australia.

Two new commercial 10 watt 80 channel FM transceivers selling for $260 have become available. In Japan a unit called the UNICOM UX502 is in use and in the USA a unit called the COMTRONIX FM80 has also just been released.

Both units use the following 80 channel system. Standardisation to this system will help to make contact with those using these transceivers.

TABLE OF CHANNELS 1A TO 40A FOR 10 METRE FM USERS

Chan A	Freq (MHz)	Chan A	Freq (MHz)
1	28.91	21	29.110
2	28.92	22	29.120
3	28.93	23	29.130
4	28.94	24	29.140
5	28.95	25	29.150
6	28.96	26	29.160
7	28.97	27	29.170
8	28.98	28	29.180
9	28.99	29	19.190
10	29.00	30	29.200
11	29.010	31	29.210
12	29.020	32	29.220
13	29.030	33	29.230
14	29.040	34	29.240
15	29.050	35	29.250
16	29.060	36	29.260
17	29.070	37	29.270
18	29.080	38	29.280
19	29.090	39	29.290
20	29.100	40	29.300

TABLE OF CHANNELS 1B TO 40B

Chan B	Freq (MHz)	Chan B	Freq (MHz)
1	29.310	21	29.510
2	29.320	22	29.520
3	29.330	23	29.530
4	29.340	24	29.540
5	29.350	25	29.550
5	29.360	26	29.560
7	29.370	27	29.570
8	29.380	28	29.580
9	29.390	29	29.590
10	29.400	30	29.500
11	29.410	31	29.610
12	29.420	32	29.620
13	29.430	33	29.630
14	29.440	34	29.640
15	29.450	35	29.650
16	29.460	36	29.660
17	29.470	37	29.670
18	29.480	38	29.680
19	29.490	39	29.690
20	29.500	40	29.700

Note that the range 29.360 to 29.5 MHz is currently used by American and Russian amateur satellites and should be avoided.

Of the commercial amateur sets available the FT901D is the only one which includes FM transceive facilities. The deviation control under the top cover can be adjusted with on-air tests until a total 6 kHz is indicated on the tuning range of an SSB receiver. Adjustment of this potentiometer is quite critical but once attained, you are all set. Existing ground plane and beam antennas can be quite effective up the top end of 10 metres with the use of an antenna matcher. My next experiment will be to work the USA repeaters handheld pedestrian using the new USA Palomar transceiver which will soon be available in Australia and will include FM facilities. ■

EQUIPMENT REVIEW

COMPARISON TEST, KULROD UHF MOBILE ANTENNA TYPE LM-420

Don Sinclair VK3VH
Glen Percy VK3PE

UHF FM mobile is not particularly popular in the Melbourne area and at this point in time with one repeater operating in Melbourne (VK3RAD) and more proposed, it is therefore important to recognise suppliers and their equipment if an excursion to 70 cm FM is to be undertaken.

Antenna supplied by Toowong Agencies, 15 Kapunda Street, Toowong, Queensland. Telephone 370 8785.

TEST EQUIPMENT
Sierra in-line power meter/reflectometer 144-470 MHz insert.

Texscan Corp. in-line stepped attenuator.

Horwood combination reflectometer (field strength) meter 75-450 MHz.

TEST TRANSCEIVER
Converted Westminster UHF W15.

TEST VEHICLE
1978 Falcon panel van, centre roof mount.

The antenna supplied is quite an attractive unit, being made of best quality stainless steel and gave an overall picture of good workmanship. Unfortunately, nowhere in the accompanying instructions did the supplier state the antenna configuration or gain figures. The antenna, however, follows the popular "Ringo" configuration, being three half waves at the base by a small coil. The centre phasing coil is completely weather sealed and enclosed in strong plastic as is the base coil. The antenna is supplied with its own base and connection instructions.

The antenna is not compatible with most commonly used bases, the centre conductor being too long; they can be used however with a slight increase in VSFR.

With the base supplied, an SWR of 1.2 : 1 was obtained and an SWR of 1.6 : 1 was obtained with a Scalar mount. When used with a Scalar mount, the antenna sits high and there is a gap between the bottom of the antenna and the top of the base. This could be overcome by cutting approximately ½ in. off the standard Scalar base. As "Murphy" dictates, this makes your Scalar mount useless for other antennae; this is the case with most other bases. The problem is caused by insufficient depth in the socket at the base of the Kulrod.

Apart from this major difference, the antenna when mounted is quite rigid and although almost 30 inches long does not flex, and at high speeds remains vertical (test speed of 100 km/h).

Instructions with the antenna states a coverage of 420-450 MHz. For a centre frequency of 435 MHz (being the centre of the repeater band) the bottom portion only is to be cut to 9¾ in., the top portion of 15 in. is not to be touched. The bottom section slides from the bottom coil and is cut and locked in again (Allen key supplied). Overall length for frequency of 435 MHz is 30 in.

TESTING
Gain of the antenna was measured using a stepped attenuator and monitoring the limiter current. While VK3PE keyed his transceiver, a noisy signal was obtained with 5 dB of attenuation in the antenna line. This noisy signal was used so as to avoid saturation of the receiver. The 5 dB of attenuation gave a limiter current of 30 uA. The reference antenna used was a standard ¼ wave and Scalar mount.

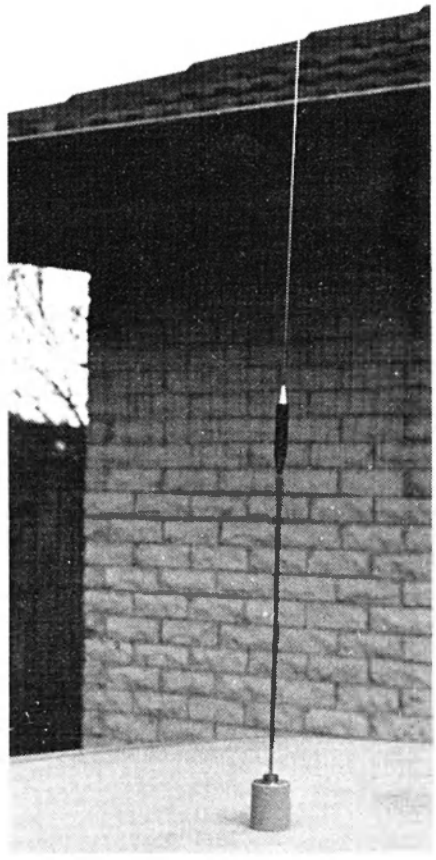
Then the Kulrod antenna and base was substituted and another reading was taken. An extra 3 dB had to be added to bring the limiter reading again to 30 uA. This meant the Kulrod had a gain of 3 dB, which was expected. In both cases 10 ft. of RG58 was used and both antennae had VSWR no greater than 1.2 : 1.

ROAD TEST AND COMPARISON
During a fortnight of use in the author's vehicle, comprehensive testing in low signal areas was undertaken. The Kulrod produced more flutter on receive than the author's usual antenna (Scalar co-linear). At a well known noisy spot on the Ballarat Freeway, the signal both on receive and transmit was down compared to the author's co-linear when working through VK3RAD. This was also the case in other known bad spots.

GENERAL SUMMATION
As a general mobile antenna the Kulrod antenna produces only very fair results, and is not considered a "DX" antenna by any means. The antenna fulfils the requirements of most amateur operators and is definitely superior to a ¼ wave antenna which was the basic antenna used in all the experiments.

No tests were carried out involving "Ski Bar" mounts as this form of mounting, from previous experience, is highly inefficient. Results from any VHF or UHF antenna can only be obtained by good engineering and practice. A good ground plane might be maintained and all soldered connections be neat and tidy. It has become very evident, especially with 5/8ths and co-linears as mobile antennas, that the bigger the ground plane area the better the results.

Sincere thanks are extended to the following call signs — VK3YEO, YOC, AAF, RN, YES, ZKV, EM, YN, AFL, BAF, AHO, AJI for their assistance in obtaining the above details. ■



THE FINAL COURTESY OF A QSO IS A QSL CARD

Cards, cards and more QSL cards. A total of 84,914 QSL cards, an average of over 7,000 per month, passed through the VK3 Outwards QSL Bureau during 1978. There has been an increase in this quantity so far during 1979.

Involved is the preparation of about 100 large and small packets per month, of cards for other QSL Bureaux throughout the world. Not an easy task to ensure an even flow is maintained, the packets are prepared so that as far as possible they arrive safely at their destinations, and postage costs are kept to the minimum.

As Fred Lubach VK4RF, says on page 23 of March 1979 AR, the way some of the cards are filled out cause QSL officers to tear their hair out. Perhaps this is obvious from the cover photo.

Please, oh, please, read Fred's article carefully, and follow the criteria outlined when sending cards through your bureau. In VK3 if you are still not sure, an information sheet is readily available. This sheet also describes the operation of the VK3 Inwards QSL Bureau.

The VK3 Outwards QSL Bureau card sorting racks of the Officer-in-Charge, Roy Prowse VK3XY and part of his radio room, with grandson Darren, an up-and-coming amateur enthusiast.

Your co-operation will make the task of your voluntary QSL Officer so much easier, and allow him more time to work some of the DX stations he sends cards to on your behalf.

From Roy Prowse VK3XY. ■

THE "MUF" IS RISING

By J. F. Hanran VK4JH

The "MUF" is Rising very fast,
'Tis the after effect of a Solar Blast;
It sprays its rays through thick and thin,
While the amateur sits with a sickly grin.
"It won't be long!" he says at last;
Wacko! DX now! Thick and fast.
But the sun grins back and he says for sure,
'Tis only my minor overture;
To 51 I'll go, no more;
To 52 it's an arduous chore.
So the keen boys listen and read the band,
But nought do they hear from a foreign land.
So it came to pass in the "Year of the Yen",
The VKs were working the JAs again;
Once rare JAs came in much too slowly,
In a very short time they became rather lowly;
There were more JAs than a man could work,
"There's better DX!" you'd say with a smirk.
With Channel O gone and 5A at last,
What say we give 50 megs a blast;
No one will hear us that's for sure,
The Amateurs' Principle is much too pure;
" 'Tis Science, and Fact, and Experiment too,"
That's the Amateurs' Code from me down to you.
Now HL and KG were starting to break,
'Twas more than some of the boys could take;
So In sad desperation while scratching their head;
"I'll swear 50 megs will gather the bread."
This was the answer they found at long last,
That contacts on Fifty could come very fast.
Our 28 megs was going full steam,
It's the moulding band for a 50 meg dream;
The chaps up in HL, KG, and CE,
Have from 50 to 54 megs; What a spree!
And the boys down in VK said "OH! What a Pity",
That such rare DX doesn't come to our city.
The Lush Path to Frisco was too long in coming,
Are our predictions the result of an incorrect summing;
If the P and T could be tempted to proffer,
There'd be plenty of fine DX in their offer;
Why worry they said, "It worked once, it's terrific!"
We can use 50 megs to cross the Pacific.
For long the high band remained tightly closed,
You can imagine the problem that this one posed;
"It worked once on Guam, I can't see any reason,
Why it won't work with LU or XE this season."
The predictions were right and they conquered Low Grade,
Contacts with W and XE were made.
As In the days of old when "Pirates Bold" sailed the Spanish Main;
A treasure untold, much greater than gold, came into view again;
The Signal was weak, at first so to speak;
And they listened with sparkling fangs bared;
Then out of the pack, just like a whip crack;
The VP1 was snared.
The feather in the cap or the scoreboard on the wall,
Are all the same Cinderella after the ball;
The Card, The Contact, The Honour, The Glory;
Just put 50 megs it'll tell the whole story.
When the accounting is done and you've worked out your haul,
Remember it's April, and Autumn leaves fall.
You need one to lead, for the others to follow,
What is fashion today is Old Hat tomorrow;
Won't be long now, and the high band will open;
Well! — That's what lots of VKs are hopin';
Then when you work that rare one for certain,
On — "FIFTY-ONE MEGS" — you'll have rung down the curtain. ■

WARC '79

How important are these international general radio conferences of the ITU as they relate to our amateur service? This question has been asked over and over again and has been answered in the pages of AR repeatedly.

Many amateurs clearly understand the importance, the vital importance, of these Conferences as evidenced by all the generous donations from so many to the WARC 79 Fund.

The attitude of "she'll be right" when the time comes is a forlorn hope unless our amateur service efforts are backed to the utmost by all amateurs.

The attitude that the WIA, IARU or some other amateur body will "take care of things for us regardless of whether or not I am a member or supporter" is yet another misconception spawned out of selfishness and perhaps the feeling that the right to criticise any outcome applies equally to those who do and those who do not support the society. "Let them do the work so that we can tear the results to pieces" seems to be a common disease.

Enough of this.

Looking back at the outcome of the last four major ITU general Conferences is interesting insofar as the amateur service is concerned. Out of the Washington Conference in 1927 we got 7.0 to 7.3 MHz and 14.0 to 14.4 MHz as exclusive amateur bands and 1.715-2.0, 3.5-4.0, 28-30 and 56-60 MHz as shared bands.

The 1938 Cairo Conference, for the world other than Europe and the Americas, gave us 7.0-7.2 and 14.0-14.4 MHz as exclusive bands and 1.715-2.0, 3.5-4.0, 7.2-7.3, 28-30 and 56-60 MHz shared. This also applied to Europe except that they lost 3.635 to 3.685 MHz and gained 112-120 MHz as a shared band. The Americas retained all the 1927 bands and gained 112-118 MHz as an exclusive amateur band.

The next conference was the 1947 Atlantic City Conference at which the three ITU world regions came into being. Here in Region 3 we got 7.0-7.1, 14.0-14.35, 21-21.45, 28-29.7, 50-54 and 144-148 MHz as exclusive amateur bands with 1.8-20, 3.5-3.9, 7.1-7-15 and 420-460 MHz shared. Region 1, however, lost the 160m and 6m bands, but Region 2 gained the 220-225 MHz bands as well as 420-450 MHz on a shared basis and 144-148 MHz as an exclusive allocation. The Region 1 allocations were — exclusive 7.0-7.1, 14.0-14.35, 21-21.45, 28-29.7, 144-146 MHz and shared 3.5-3.8, 7.1-7.15 and 420-460 MHz. Region 2 allocations were — exclusive 7.0-7.3, 14.0-14.35, 21-21.45, 28-29.7, 50-54, 144-148, 220-225 MHz and shared 1.8-2.0, 3.5-4.0 and 420-450 MHz.

The next conference was the Geneva Conference of 1959 — WARC 59, at which the late John Moyle VK2JU was an amateur observer with accreditation as a member of the official Australian party. The outcome of this Conference, insofar as Region 3 was concerned, basically summarises the pre-WARC 79 band allocations as being — exclusive bands 7.0-7.1, 14.0-14.35, 21-21.45, 28-29.7, 144-148 MHz, 24-24.05 GHz, shared bands 1.8-2.0, 3.5-3.9, 420-450, 1215-1300, 2300-2450, 3300-3500 (3300-3400 MHz in Region 1), 5650-5850 MHz 5650-5925 MHz in Region 2), 10-10.5 GHz, 24.05-24.25 GHz and a partially shared 50-54 MHz band. Region 1 exclusive bands were 7.0-7.1, 14.0-14.25, 21-21.45, 28-29.7, 144-146 MHz, 24-24.05 GHz, shared 3.5-3.8, 14.25-14.35, 430-440 and SHF shared bands as shown for Region 3. Region 2 exclusive bands were 7.0-7.3, 14.0-14.35, 21-21.45, 28-29.7, 50-54, 144-148, 220-225 MHz, 24.0-24.05 GHz shared bands were 1.8-2.0, 3.5-4.0, 420-450 MHz and upwards as shown for Region 3. One of the higher frequency bands derived from the 1971 Space Conference.

All the above derived from tabulations prepared by IARU Region 1, but do not necessarily apply to every country. For example the 420-460 MHz shared Region 3 allocation at the Atlantic City Conference was never applied in Australia until radiolocation came into being at WARC 59 and we were allocated 420-450 MHz on a shared basis some years later.

The late John Moyle "carried out his assignment on behalf of the Australian Amateur in a manner which can only leave us all feeling peculiarly humble. Even when he returned and underwent a most serious operation, his tenacity of purpose and never-ending interest in Amateur Radio drove him, under extremely uncomfortable circumstances, to write his final report to you . . . the Amateurs of Australia". This quotation is from the editorial of AR of March 1960 in which John Moyle's report was published.

Anyone wishing to know how these ITU conferences affect us should carefully study this report in AR for March 1960 and note that WARC 79 will undoubtedly be even tougher.

For those who cannot refer to this issue of AR check out some of these quotes from John Moyle's report.

"Its (WARC 59) pages of tables and regulations will clearly reveal how much work went into their preparation, but can tell nothing of the drama, the dangers, the tension and the hours of frustration and achievement through which we lived during the long weeks (Aug.-Nov.) of the Conference."

"I only wish every Amateur could have been present at least part of the time. He would have learned about the enormous pressures on frequency space which have literally made portions of the spectrum unworkable; he would have seen how Amateur problems, important though they are to use, are only a small part of the incredibly complicated pattern of modern communication."

"A final result obtained appreciably better than most of us hoped for."

". . . the Amateurs received an excellent hearing at every level of the Conference and a very fair hearing at that."

"But there is a rider that broadcast stations must vacate the exclusive Amateur portion between 7 and 7.1 Mc. Frankly this isn't worth much, because several countries now poaching there announced quite openly that they won't move until given clear channels, of which there are none." ". . . the standard and bitterness of the debates on this matter, the special committees set up to handle it, and the good old duck-shoving that went on, convinced me that high political bands were at work, far beyond any capabilities of mine to influence."

"These conferences are meetings of national delegates, each of which has a vote (only 96 countries in 1959). It follows, therefore, that the first aim is to convince each delegation that the claims of the Amateurs are as strong as those for any other service and thus to secure votes for them. It is far too late to initiate action at the conference itself, by which time most decisions have been made up to this level."

"We fell down because our preliminary work over the years was not good enough, and we were obliged to take drastic action at a late hour." (Lesson well taken years ago for WARC 79.)

"Coming straight from Geneva, where our very future was being battled for, I was astounded and discouraged to find that Divisions had voted against holding a Convention this year (1960)." (An Extraordinary Convention was held eventually.) "All our excellent, and often elaborate, Divisional set-ups will be of little use if we haven't the bands to use them."

"I believe that every Amateur who tacks his licence to the wall must shoulder an inescapable responsibility to his fellow Amateurs and to the Amateurs of the future. If he fails them, they must suffer and may even cease to be." ■

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IC701	HF solid state 160 m 10 m transceiver – $1380.00
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IC22S	2 m fm synthesised transceiver – $299.00
IC280	2 m fm remotable cpu controlled – $450.00
IC215	2 m fm portable inc 1 channel – $229.00
IC402	70 cm ssb portable, 3 watts – $439.00
IC502	6 m ssb portable, 3 watts – $239.00
IC202S	2 m ssb portable, 3 watts – $349.00
IC211	2 m all-mode ac/dc transceiver – $799.00
ICRM3	Remote control unit – $159.00
ICSM2	Condenser-electret desk mic. – $45.00

Speech Compressors & Processors (Daiwa)

RF660	Phasing type, dc, 6dB gain – $109.00
RF440	Phasing type, ac/dc, 6dB gain – $126.00
RF550	Filter type, ac/dc, 6dB gain – $169.00
MC330	Speech compressor – $99.00

Microphones

VM-1	Noise cancelling hand ptt, dynamic, low Z – $10.00

Antenna Couplers

CL67A	Daiwa 1.9 – 28 MHz 500 W pep – $135.00
CNW217	Daiwa incl. SWR/PWR meter, 200 W – $165.00
CNW417	Daiwa incl. SWR/PWR meter, 500 W – $199.00
MFJ901	MFJ. Matches everything 1.8 – 30 MHz – $119.00
MFJ16010	MFJ. Random wire tuner 160 – 10 M – $71.00
MFJ941	160 – 10 M, 300 W, incl. SWR/PWR – $157.00
LAC-895	Leader 3.5 thru 28 MHz – $169.00

Antenna Rotators (Daiwa)

OR7600S	Heavy Duty with controller & mast clamps – $259.00
OR7500S	Medium Duty with controller & mast clamps – $189.00
6 Core	Cable for above (200 m rolls) – $1.00/m

QRP Transmitter (MFJ)

MFJ40T	5w. 40 meter CW (Xtals not included) – $59.00
MFJ40V	VFO unit for above – $59.00

Hand Held Transceiver

AR240	2 meter 800 ch. synthesized, 1.5 w. – $365.00

Daiwa Low Pass Filters

FD30LS	32 MHz, Fc, 200 w., 3 stages – $20.00

Baluns

AS-BL	Asahi 50 ohm for beams – $34.00
BL50A	50 ohm, 4 KW, 1:1 for dipoles – $30.00
BL70A	70 ohm, 4 KW, 1:1 for dipoles – $30.00

Leader Test Equipment

LAC-895	Antenna Coupler 3.5 – 28 MHz – $169.00
LPM-885	SWR/PWR Meter – $89.00
LPM-880	RF Power Meter – $135.00
LDM-815	TR Dip Meter – $89.00
LBO-310	3" Ham Oscilloscope – $310.00
LA-31	Ham monitorscope adapter – $25.00

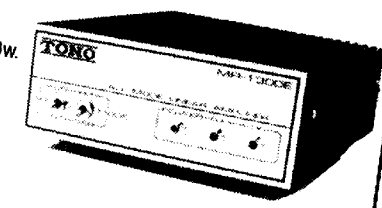
Just arrived!

2m solid state linears

SSB/FM/CW/RTTY

* Carrier operated
* Pre-amp on receive (13dB)
* Two models, 90w and 130w.

From $289



Radio Teletype Terminal

0-7000	Tono RTTY CW/Baudot/ASCii – $839.00

Tubes

6KD6	Finals for Yaesu linears – $9.00
6JS6C	Finals for Yaesu transceiver – $9.00
12BY7A	Driver – $3.75
61468	Finals – $12.00

CW Filters

FT101E	Yaesu – $39.00
TS520S	YG3395 Kenwood – $57.00
TS820S	YG88C Kenwood – $59.00

Morse Keys

HK702	Deluxe Key with marble base – $41.00
HK708	Economy key – $23.00
HK706	Operator's Key – $25.00
MK701	Manipulator (
MK701	Manipulator (side-swiper) – $45.00
PALOMAR	IC Keyer – $149.00

SWR/PWR Meters & Dummy Loads

VC-2	Twin meters 3-150 MHz with cal. chart – $35.00
SWR200	Oskerblock 3-200 MHz, 2/20/200/2000 W – $86.00
SW210A	Daiwa 1.8 thru 150 MHz, 20/120 W, direct – $99.00
SW410A	Daiwa 140-500 MHz, direct reading – $129.00
CN620	Daiwa Cross-needle, 18-150 MHz, direct – $99.00
CN630	Daiwa 140-450 MHz, 20/200 W, direct read. – $135.00
CN650	Daiwa 1.2 – 2.5 GHz, 2/20 W, direct read. – $169.00
LPM 885	Leader SWR/PWR meter – $89.00
LPM-880	RF Power Metre – $135.00
RW-155D	Kuranishi RF Power Metre – $185.00
RW-151D	Kuranishi RF Power Metre – $165.00
RW-1002L	Kuranishi RF watt metre – $139.00

Coaxial Change-Over Relays (Daiwa)

CX-2L	1.8 thru 170 MHz, 100 W pep max – $45.00
CX-2H	1.8 thru 450 MHz, 200 W pep max – $69.00

Kenwood Transceivers

TS520S	HF Transceiver – $635.00
TS120V	Solid state HF transceiver – $530.00
TS120 S	HF transceiver, 100 W – P.O.A.
SM220	Station Monitor – P.O.A.
TS180 S	HF transceiver – P.O.A.

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Coaxial Switches

CS201	2 position, high pwr, to 500 MHz – $23.00
CS401	4 position, high pwr, to 500 MHz – $59.00

Jaybeam Antennas

5Y/2m	5el 2 m, 7.8 dBd gain, length 1.6 m – $43.00
8Y/2m	8el 2 m, 9.5 dBd gain, length 2.8 m – $51.00
10Y/2m	10el 2 m, 11.4 dBd gain, length 4.4 m – $84.00
10XY/2m	10el 2 m, cross yagi, 11.3 dBd – $114.00
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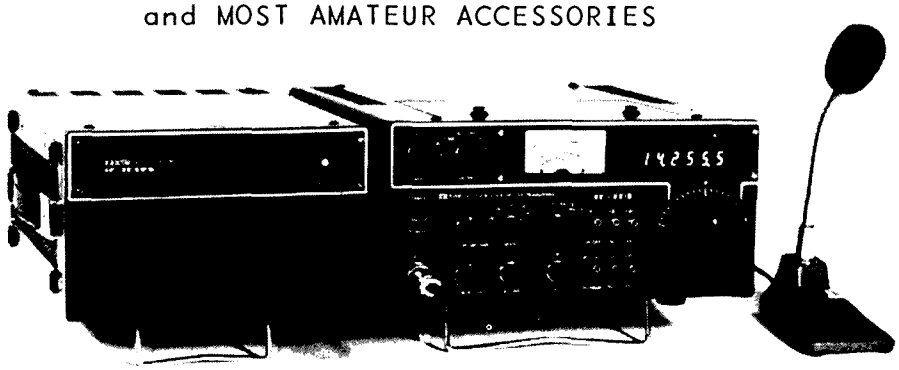

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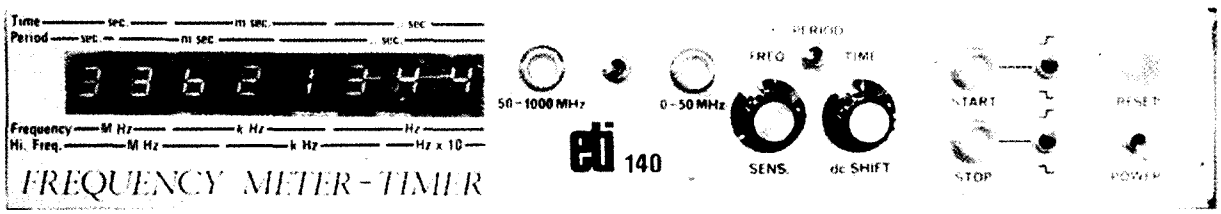

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Time	1μs
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Sensitivity	
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High frequency input	20mV
Time inputs	0V to +3V level shift
Input impedance	
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High frequency input	≈ 75 ohms
Time input	>10k
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Normal input	70 V ac,† 100V dc
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Crystal frequency	
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actual	3999.995kHz
Stability and accuracy	
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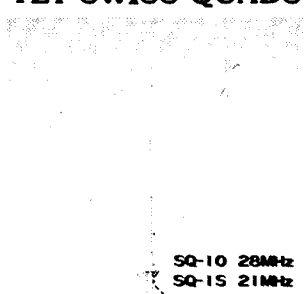

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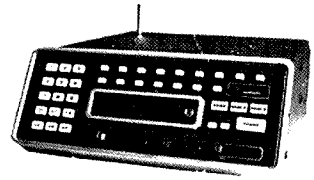

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HAM RADIO FOR REHABILITATION

By Don Pugh VK6DN
Room 5, Ward 11,
Royal Perth Rehabilitation Hospital,
Shenton Park 6008, WA.
June 10th, 1979.

The radio conversation was in no way unusual. "VK6ZAT, this is VK6DN," I said. "How are you today, Bruce? The temperature is going up to 40°C. Sure glad my room is air-conditioned." What was unusual was that I had just broken my neck at the cervical five, six and seven level three days before. Lying in the Intensive Care Unit of the Royal Perth Rehabilitation Hospital, my body paralysed from the shoulders down. Only my arms could move and those only weakly upwards.

The effects were devastating on a person who had been leading an active life of hiking, bicycling, scuba diving and flying. As a Canadian from Toronto who had arrived in Perth in 1977 to teach High School, I enjoyed the sunfilled "Sandgroper" life, and extended my stay from one to three years. In December, 1978, a lift in a car from Perth to Adelaide proved tragic. The monotony of the Nullarbor Plains early in the morning caused the driver to doze at the wheel and the car rolled over. Asleep at the time, I regained consciousness to find myself still firmly strapped in the passenger's seat, but unable to move a single limb. Transferred to Kalgoorlie by ambulance, and flown to Perth by the Flying Doctor Service, my X-rays brought the bad news that my spinal cord was severed and I would be confined to a wheelchair for life.

During registration, I was assigned to Sir George Bedbrook, a pioneer and world renowned authority in the field of spinal injuries. During our first meeting, the topic of amateur radio was discussed and Sir George described his friendship with Jim Rundle (VK6RU), a local amateur. Jim had enabled Sir George to communicate on the air with a South African amateur, who was the director of a large and progressive spinal unit. A call by Sir George to Jim led to the erection of a two metre antenna outside the Intensive Care Unit.

Once the antenna was erected, a nurse was able to hold my portable walkie-talkie and operate the OFF-ON switch. Within a short time I was in touch with my amateur friends. My first contact was with Bruce Jacobs VK6ZAT, an active amateur who is also confined to a wheelchair, due to loss of his legs. After a few contacts with Bruce, it became most apparent that modifications to the system were required, as I could not continue to impose on the busy nurses for any extended time. Discussions between Bruce and another amateur, Bob Wynn VK6WY, a paraplegic who lectures in electronics at a technical college, led to a proposed solution. Bob, with a number of other interested amateurs, built an automatic scanner, which allowed my receiver to lock on in sequence for three seconds each of the ten most actively used frequencies in the Perth area. If any channel was in use, the scanner locked on that channel. If I cared to talk on that channel, all I had to do was drop my arm momentarily on to a sensitive air bulb switch and turn on my transmitter. Hitting the switch again would turn off the transmitter and allow reception of my friends' conversation. The pressure required to operate the bulb was only a few grams, and I had to raise my arm only a few centimetres to clear the bulb, which was the limit of my ability at that time. Due to my weakness, it was possible for me to leave my transmitter on, which would lock the repeater "On", preventing other amateurs from using it. Bob later installed a timing circuit, which cut off my transmitter at the end of three minutes, putting the set back into receive condition. This allowed other amateurs to use the system again.

During operation, the microphone was mounted on a swinging boom fitting into a mount, one of which was fixed to the head posts on each side of the bed. Thus I could talk, whether I was lying on my back or on either of my sides. Since I was turned from one position to another every two hours by the hospital staff, this feature was most important.

During the next six to eight weeks, rigidly confined to bed in spinal traction, amateur radio played an important rehabilitation role. Firstly, talking and listening to my friends on the radio provided a pleasant alternative to watching television at a time when it was impossible for me to read. Secondly, communication with my amateur friends was tremendously supportive, especially when I saw what Bruce and Bob could do, and how they could live a normal, married and productive life, even on wheels. Thirdly, as my condition became known on the air, I was visited by many Perth amateurs. This both cheered me up and encouraged me to persevere in my recovery. Finally, the radio provided me with a link with normal life as it had been before the accident.

In the hospital setting following an accident, quadriplegics at first are unhappy and often depressed, not only because they are secured to their beds by steel calipers embedded in their skulls, but also because they are unable to do so little as roll over, or even to scratch their heads. The psychological need for the continuation of old interests and activities is acute. The ability to carry out easily and successfully an interesting activity such as operating a radio, calling up friends and talking to people of similar interests was, for me, a good way to avoid the depression suffered in the early days by many spinal patients. Yet, much as I enjoyed the contact with the outside world, I regretted my inability at that time to communicate with the other patients. I felt that the availability of suitably modified CB radios, for rent, would permit bed-ridden patients within the hospital to share their experiences and offer mutual support. It could be that the introduction of CB radios for non-amateurs could be an important rehabilitative agent, possibly even superior to rental television, as the patient is actually participating in, and accomplishing, an activity.

After five months in the hospital, I still use the two metre set, though not as frequently as during the early days. Application has been made to establish within the hospital my high frequency radio transmitter. With the establishment of this station, it may be possible to interest other patients in a hobby ideally suited to

those on wheels. Communication by radio with the handicapped of other countries may increase understanding of the nature of the disability, and techniques being used elsewhere to deal with it. Certainly, the hobby has aided my rehabilitation and has given me objectives to work for in the near future, which may be of further assistance.

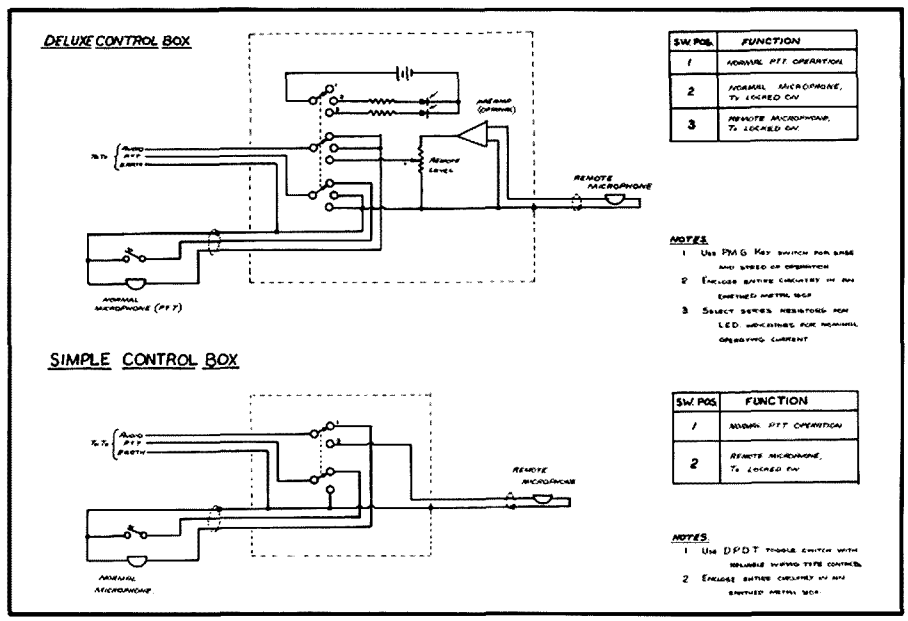
Support in permitting the construction of my radio hobby has been appreciated. The initiative taken by Sir George Bedbrook is symptomatic of the progressive techniques being used by the Royal Perth Rehabilitation Hospital. It is hoped that the use of radio within hospitals will spread. Happier and more quickly rehabilitated patients provide ample justifictaion.

EDITOR'S NOTE

The article, "Circuit Modifications to a Kyokuto Transceiver for Handicapped Operation", by Robert Wynn VK6WY, as referred to earlier will be published in a future edition of AR. ■

GETTING INTO JAMBOREE ON THE AIR

The 1979 Jamboree on the Air will be held from 0000 hr. on the 20th of October to 2400 hr. on the 21st of October GMT. Amateurs all over the world will be assisting Scouts to make contact with each other during this week-end. This article is designed to help previously participating JOTA operators to better prepare themselves, and introduce new participants to some of the "tricks of the trade".



The first thing to do is to contact your State Commissioner for Radio Activities, who will be able to point you at a suitable Scout group. Don't be put off by this impressive title, he is probably an ordinary amateur prepared to do the organising. You will find this man has a team of Area Co-ordinators, one of which you will probably be dealing with direct.

Work out the conditions you are prepared to operate under, for example, the bands you will operate on, the period of operation, and how many Scouts you think you can handle at any one time. In making these decisions, consideration should be given to the expected propagation factors, the terms of your licence and your equipment capabilities.

Ideally you should keep the JOTA weekend free of other commitments as this will allow you to extend your operations if you so desire. When you have a firm idea of what you can and can't do, approach the Scoutmaster with your plans. After talking things over with him, a visit to a Scout meeting is in order, there you can talk to the Scouts about Amateur Radio and your plans for JOTA.

Quite a few Scouts will have had some experience of JOTA, but you must make your talk simple and non-technical. This talk will be quite important as it will allow you to gauge the enthusiasm of the troop and pick out those keen ones who will become your invaluable helpers on the weekend. Important concepts that should be stressed include the difference between Amateur Radio and the CB service, on-air manners and rules, "one-way at a time" communication and how to use a microphone. Follow the talk with microphone practise as this will help to reduce mike fright which will be your largest problem. Further preparation can be done by the Scoutmaster, helping the Scouts to decide what they will say to other Scouts around the world.

Do not forget that most groups will also have Cub packs, Brownies and Girl Guides, Venturers and Rangers; all of these groups can become involved in JOTA. A responsible Ranger or Venturer is a great help with such things as QSLing and supervision of the setting up of the station.

We strongly suggest that you work your station portable from the Scout hall or camp if at all possible. This will save you (and your YF) the worries of having a lot of strangers landing on your doorstep and tramping in and out of your home all weekend. Besides, most amateur shacks are not large enough (or tidy enough) to accommodate this style of operation.

As you are going portable we recommend the use of wire antennas, i.e. dipoles, long wires, or a true G5RV with open feed wire all the way to the ATU. With wire antennas, especially those that are end fed, an excellent earth is essential. The performance of your transceiver depends on a good SWR and so this should be continuously metered.

To keep the hoards of eager Scouts clear of your shoulders a microphone on a long cord is preferable to the standard PTT mike on spiral flex. An even better idea is a microphone change-over box that allows you to switch to a roving remote mike. The device also gives you greater control over what is put to air, as you are able to cut in at any time during transmission. Two circuits are shown below for this style of device, the first being very simple and the other including a pre-amp for those with tiny voices.

Now you have made it to the point of choosing the operating room. Rather than using the main hall, go for a warm but well ventilated space about 15 feet by 12 feet with a large bench of comfortable height, near a window (for poking antenna wires out of). Put you back to the masses and be sure you have a comfortable chair, it could be a long sit. Don't have too many other chairs in the room, perhaps five besides those for your "front line" assistants. Use a rough log sheet and have a large stock of pencils and scrap paper on hand for Scouts to jot down call signs, names and addresses.

The following suggestions have been found useful, but not essential, in the past. Clearly display your call sign and name above your equipment. Also display appro-

priate phonetics and some details of your equipment. Another wall can be covered with a map of the world, using coloured pins to mark where stations have been contacted and a larger marker for the location of the station you are currently in QSO with. There will be no lack of volunteers to take care of this project. Large prompt cards suggesting things to say on the air, i.e. name, age, Scout group, rank, hobbles and Scout activities, will help to combat mike fright; while posters showing Q codes, country prefixes or a display of QSL cards can all help to keep enthusiasm high and encourages interest in Amateur Radio. We discovered early that a DX call book will keep some Scouts amused for hours looking up the address of any call they hear on the air. Pamphlets on Amateur Radio and local radio clubs are very useful, the amateur ranks have been substantially Increased by those who have enjoyed JOTA.

OK, so you're all set up in your perfect station; your next question is probably "How does operating JOTA differ from normal operating?". Start by calling CQ Jamboree, hopefully you will be answered by another Scout station. The bands are definitely more active during this weekend so it won't be long before someone will answer you. Be sure to tune the station well; the Scouts will not be as used to listening to SSB as you are. On the same point, go for a strong stable signal by preference. Keep a contact going for as long as it takes for all the interested participants to find out everything they want to. JOTA is not a contest or a frenzied search for exotic DX. The Scouts want to talk to other Scouts and hopefully we can provide a means for them to do so. DX is an added advantage but if it is hard to copy or it takes hours to find, the onlookers will get bored.

Many non-JOTA stations will be quite interested to talk to the Scouts. Technical topics should be avoided. Try to obtain an idea of the other station's location and anything that may be interesting or unique about his or her area. Remember to keep Scouts involved in the contact. Nothing is more embarrassing than a JOTA station with no Scouts to talk on the air, so always keep about five willing people around the mike, put a lock on the door if necessary!

On the technical side of things, two controls, the mike gain and the clarifier, will become rather useful. Young voices sometimes don't develop much drive so one eye on the ALC meter and one hand on the mike gain control will become the order of the day. Alternatively, the amplifier control on the second version of the mike change-over box will serve quite well. Once young voices get to the other station, the operator there may try to resolve them as an OM, i.e. he will shift frequency. Don't go chasing him up and down the band as he will only shift again. Just use the clarifier, but don't forget to remove it before shifting to another frequency.

QSL cards are an important part of JOTA for the Scouts. Try to get a direct QSL address for each contact plus the name of any Scout group present. Conversely, request two QSL cards unless you don't want one for yourself. The QSL cards can be designed by the Scout group if they wish, as long as you provide them with the necessary basic Information. If the cost of a small batch is prohibitive suggest a rubber stamp to over-print your own cards. The dispatch of direct QSL cards can be handled by a responsible Venturer (or similar), with your handling those to go via the bureau. Remember the limitations on the number of words in the remarks section. Cards will continue to trickle in via the bureau well after JOTA. Don't forget to send these on to the Scout troop, as these will help to keep interest in JOTA alive.

Quite a few ideas have been put together here and a workable division of responsibilities should be devised. We suggest that you get the Scoutmaster or Group Leader to handle information from the Scout Radio Branch, provide the QSL cards, organise *all* camping and catering arrangements and rosters of attendance. You are the visiting amateur, the expert if you like, so don't get bogged down with Scout Association policy or organisation.

The immediate aftermath of your JOTA depends a lot on how long your operate for. If you're only on air for a couple of hours on the Saturday, you'll probably have a room full of Scouts begging you to come back the next day. If your operations go way over the eight hour mark, you will bundle up the coffee stained log sheets, get the boys and girls to dismantle the antennas, bid farewell to the Scout hall and head for the comfort of a hot bath. Either way during the following few days you will no doubt do three things.

(1) You will realise that it was all a lot of fun.

(2) You will decide whether or not you'll be in it next year.

(3) You will make your report to the State Commissioner for Radio Activities.

This final point is very important, and it must be done properly as the State Commissioners will have to have their reports into Canberra by mid-November.

Possible JOTA withdrawal symptoms may include keen Scouts appearing at your door asking to watch you operate, bands of eager log-keepers for the next RD, a Scoutmaster waving P. and T. forms while he talks you into being trustee for the Group's new call sign, or as a final blow, your own youth radio club.

However it all turns out, we hope you will enjoy this year's JOTA as much as we have enjoyed the last six!

CU in JOTA, Greg Brown VK5ZVK, Vicki Brown, operators for the Black Forest Scout Group Youth Radio Club VK5KR. ■

AMATEUR SATELLITES

Bob Arnold VK3ZBB

OSCAR FOR BEGINNERS

Thanks to ARRL I now have a few copies of the revised edition of "OSCAR for Beginners". This leaflet describes the operation of OSCARS 7 and 8. If you would like a copy, please send a 20c stamp to me, QTHR.

SATELLITE NET

From Peter VK4PJ comes the news that a satellite net is now operating on 3630 kHz at 200 EAST each Sunday. Callers will be welcome. Participants already include Charlie VK3ACR and Alan VK2RX.

MODE J AWARD

I realise I have not passed on information published in AMSAT Newsletter and QST on the recently announced Mode J Award. (If you want to keep up-to-date, join AMSAT.) To become a member of "Mode J Club", first complete eight OSCAR 8 Mode J contacts. QSL cards are not required. Just list the call sign of each station worked, along with the date, orbit number and station equipment used. Send this information along with $3 in US funds (a one-time charge to cover cost of the certificate and newsletter) to Mode J Club, c/o Larry Roberts W9MXC, AMSAT Area Co-ordinator, 3300 Fernwood, Alton Il. 62002, USA. A large four colour certificate, serially numbered, will be sent in reply.

If you include a supply of SASE the newsletter will be forwarded, but I guess this requirement will be difficult for non-US residents.

Mode J Club members should be exchanged with your contacts on this Mode and when you collect 50,100,250, etc., contacts, you can apply for endorsement stickers.

Unfortunately, endorsements seem a long way off for VK enthusiasts; we have recorded about 15 stations on Mode J in the past eighteen months. By the way, where are the ZLs — only Ray ZL1BDU is active at the present time.

Remember, If you have a SSB transmitter working on 145.9 MHz all you need is a suitable converter to receive LSB on 435 MHz. The Microwave Modules range (435/28 or 435/144) available from advertisers in "AR" are ideal. It's not very hard!

OSCAR 8

From "HR Report" comes confirmation of a problem experienced with OSCAR 8 on 11th June. On this day it was found that, through low battery voltage, the telemetry was sending meaningless data. The satellite was immediately put into the recharge

HELP
WITH INTRUDER WATCHING

mode for a couple of days to bring the bateries back to normal. Telemetry Indicates there is no permanent damage.

Users of OSCAR 8 are asked to observe telemetry channel 3A and to report any situation below 61 counts. If this observation is made please inform Dave Hull VK3ZDH QTHR.

OSCAR PHASE III

Progress towards the March 1980 launch is reported.

- Seven Solar substrates have been forwarded to AMSAT Deutschland.
- Antenna tests of the 435 MHz uplink antenna are looking good. The crossed Yagi design appears to be satisfactory.
- A second Phase III flight structure has been delivered — this is still unassigned to a launch.
- Tests are being run on the IHU (Integrated Housekeeping Unit) computer to be used in the Phase IIIA spacecraft. This unit has been constructed by W2FPY and W1HDX.
- The Phase IIIA flight transponder is under construction in Germany by DJ5KQ. Input range is 435.14-435.29 MHz, output 145.8-145.99.

OSCAR 7

Maury VK8OB tells me he is active on OSCAR 7, Modes A and B. He suggests that AO7 does not turn on until it is in sunlight, which indicates that the batteries are dead and that the satellite's power comes direct from the solar cells. This is a new theory and could well be correct. The only problem is that due to this erratic situation the transponder in use is unpredictable and it is necessary to search both receiving Modes. From this information it would seem that AO7 is operable on morning passes only at the present time.

PREDICTIONS

	OSCAR 7			OSCAR 8		
Date	Orb. No.	Eqx Z	Eqx °W	Orb. No.	Eqx Z	Eqx °W
1	21928	0053	78	7593	0038	58
2	21941	0148	92	7607	0043	59
3	21953	0047	77	7621	0048	60
4	21966	0141	90	7635	0053	61
5	21978	0041	75	7649	0058	63
6	21991	0135	89	7663	0104	64
7	22003	0034	73	7677	0109	65
8	22016	0130	87	7691	0113	67
9	22028	0028	72	7705	0119	68
10	22041	0112	86	7719	0123	69
11	22053	0022	70	7733	0128	70
12	22066	0116	84	7747	0133	72
13	22078	0015	69	7761	0138	73
14	22091	0109	83	7774	0001	49
15	22103	0009	67	7788	0005	50
16	22116	0103	81	7802	0010	51
17	22128	0002	66	7816	0015	53
18	22141	0057	80	7830	0020	54
19	22154	0151	93	7844	0025	55
20	22166	0050	78	7858	0029	57
21	22179	0144	92	7872	0035	58
22	22191	0044	76	7886	0040	59
23	22204	0138	90	7900	0045	60
24	22216	0037	75	7914	0050	62
25	22229	0132	88	7928	0055	63
26	22241	0031	73	7942	0100	64
27	22254	0125	87	7956	0105	66
28	22266	0025	72	7970	0110	67
29	22279	0119	85	7984	0115	68
30	22291	0018	70	7998	0120	70

RS1 AND RS2

News recently received indicates that RS2 is now out of service.

RS1 will not be used again for communication but will be switched on for short periods to enable telemetry signals to be received during the satellite's pass over the USSR. This Indicates that we shall not hear It again in the southern hemisphere.

ACKNOWLEDGEMENTS

ARRL, HR Report, VK4PJ, AMSAT, VK3ACR, VK8OB.

PREDICTIONS

The predictions for OSCAR 7 should be reliable. Those given for OSCAR 8 may be a minute or so late as I do not have an accurate orbit time to project the predictions two months ahead. Observation will enable you to apply an appropriate correction. ■

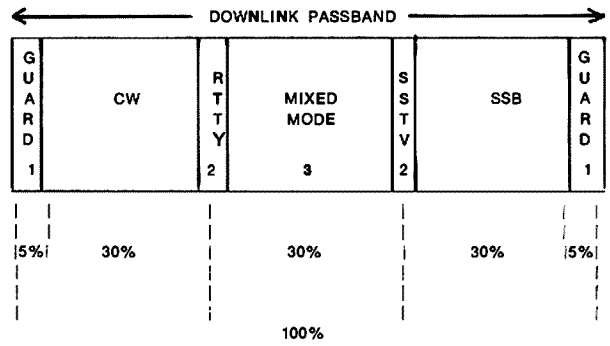
THE SATELLITE USERS' BAND PLAN

As indicated previously, AMSAT have the Satellite Users' Band Plan to which operators are requested to adhere. Some stations in South-East Asia say they have heard Australian stations working through the satellites on frequencies which do not conform to the above plan. Therefore, if you wish to work this DX it is advisable to conform. However, when considering the level of activity from within Australia and New Zealand and the difficulties in working statinos to the North via OSCAR 8 (at least from Melbourne), it Is probably of little Importance. The information taken from the AMSAT Newsletter is repeated for your guidance:—

THE AMSAT SATELLITE USERS' PLAN

This band plan allocates a percentage of the available radio frequency spectrum as seen on the downlink to different modes of communication. The relative amount of spectrum for each mode is thus the same for any transponder in any satellite.

The allocations are as follows:



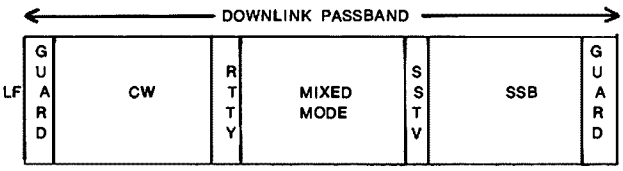
NOTES:

1 Guard Area to avoid interference to beacons. These frequencies are available for Emergency and Bulletin Stations.

2 RTTY and SSTV are placed at the edge of the CW and SSB passbands, conforming to their usage at HF where RTTY is present within the CW space and SSTV is transmitted in the SSB sub-band.

3 Mixed Mode Area. This is recommended for crystal controlled stations, or by Dx-pedition stations, or anyone wishing to work both CW and SSB stations.

This band plan is always based on percentages of the downlink passband. It applies to both Inverting and non-inverting transponders. The allocations of frequency for AMSAT-OSCARS 7 and 8 are as follows:



MODE A	29.4	29.435	29.465	29.5 MHz Guard Channels 5 kHz
MODE B	145.925	145.94	145.96	145.975 MHz Guard Channels 2.5 kHz
MODE J	435.1	435.135	435.165	435.2 MHz Guard Channels 5 kHz
RS	29.36	29.374	29.386	29.4 MHz Guard Channels 2 kHz

NOVICE NOTES

BREAKING

If you saw two strangers engaged in earnest and obviously personal conversation, it stands to reason that you would not butt in unless you had some matter of importance to discuss.

On the other hand, if the same two strangers were lounging about just making casual conversation, then it is probable that they would welcome your company and invite you to join in.

This rule applies generally to breaking into a group and commonsense is the only guide. If you have something to offer in the way of conversation, or desire information on some subject, then wait for a suitable opportunity and drop in your call clearly and quickly, ONCE.

You may be acknowledged briefly or you may not, but in any case wait until a *reasonable time* has elapsed before trying again. If you have no success, then either the group cannot hear you and with overseas stations this is quite possible, or they do not want any other stations in the net. In either case it is pointless to persist.

Remember, IF YOU HAVE NOTHING TO CONTRIBUTE, why bother to break in in the first place.

☆ ★ ☆

HAM TERMS

Handle . . . QTH . . . Break . . . XYL . . . QRZ . . . and QSY are all well known and have been used on the bands for years.

Fine business is a common expression of agreement, however it can be overdone.

Terms such as Negatory . . . Breaker Breaker . . . Ten Four . . . Ten Nine . . . Good Buddy . . . Come On, etc., are strictly CB terms and are never used in Amateur Radio.

Remember, too, that you are not "THE" VK3NNR. You might have been THE Rubber Duck as that is your personal call. On the ham bands VK3NNR is the call of your station and is used as such.

OLD MAN, or OM, is an expression of endearment where an operator does not know another's name. The term has been in use since the early days of radio and is not confined only to Ham Radio. Early wireless operators on ships used it long before phone operation was possible and morse was the main method of transmission.

PILE-UPS

If there is a rare DX station being worked by a local operator it is pretty certain that there will be many other hams waiting on the side for the opportunity to call him.

Assuming that the DX station is holding the frequency he will eventually sign and call "QRZ".

Resist the temptation to call him before you are sure that he is clear with the station that he is working. You might not be able to hear the local operator and an attempt to call will cause QRM and possibly antagonise the DX station.

Dropping your call in just before he signs is sometimes permissible, but is frowned upon. The only exception is when the DX station is a personal friend and you feel that he would like to speak to you, or if you have some information for him.

If you know him, then he will recognise your call and possibly bring you on when he signs with the station he is working, but do not call in this manner more than once. If he does not reply, then it is pointless calling further as he probably cannot hear you over the station that he is working at the time.

The methods of cutting through a pile-up are many, but some are not strictly legal. The following may help. Immediately the DX station calls QRZ, follow up with your complete call clearly and distinctly.

Example: "VICTOR . . . KILO . . . THREE . . . NOVEMBER . . . NOVEMBER . . . ROMEO . . . STANDING BY."

He may remember the "November November Romeo" part having picked that out of the general confusion and call you with "The November November station, please QRZ" . . . this is when you return to him as quickly as possible with your call two or three times. Speak carefully and distinctly as his English may not be good.

However, put your call over and then listen. If others are still calling, wait for a moment for a slight lull then "VICTOR . . . KILO . . . THREE . . . NOVEMBER . . . NOVEMBER . . . ROMEO . . . STANDING BY".

Finally, if he still has not called anyone, drop your call in right at the end just as the pile-up is starting to die down. DX operators sometimes wait for the last station in the pile-up to call.

The main rule to remember is not to make the pile-up worse by calling repeatedly without stopping to listen.

Firstly he may have already called you . . . and if he has called somebody else you are only creating QRM. Wait and try again later.

If he seems to be calling another State repeatedly, then it is probable that the signals from that State are getting to him with greater strength than those in your State. Your chances of a contact are thus lessened. If he is working your friend locally, then it is possible for you to choose a suitable opportunity to let your friend know you are on the side. He may then ask the DX station to listen for your call.

This procedure should be handled with discretion, however, and is not wise in very large pile-ups where many stations are waiting for contact. Rather, this is more acceptable where your friend called CQ and thus holds the frequency, or where there are relatively few stations.

Do not ramble on about trivial matters to a rare DX station. He is not particularly interested in your weather, your equipment . . . unless it is something very unusual . . . or how glad you are to work him . . . he knows that already.

The fifteen and ten metre bands are generally DX bands and if a rare station is on the frequency, exchange the minimum of information and give someone else a go.

He will require your name, QTH and, most important, his signal report. You may ask him how he wishes to QSL, and if you may QSL direct should you wish to do so. You may also ask if he is OK in the latest call book. Thank him briefly for the contact, wish him 73s and go CLEAR and QSY.

If you wish to talk at length to him, there is nothing to stop you sending a letter with your card and arranging a sked for a later date. It is important to remember that with any DX station, rare or otherwise, you should move off his frequency after signing with him. If other stations are calling you may say "VK3NNR is off and clear and will listen 5 kHz down . . . or up . . . for any other station".

In other words, if you answer a CQ, it is his frequency unless he offers you the use of it because he is going QRT.

Always establish who holds the frequency before you rush in to work stations in pile-ups.

If you called CQ . . . then of course the frequency is yours, and when signing you should call "VK3NNR is now clear and QRZ any other station".

Finally, when calling a DX station, don't waste time giving out his call as he already knows it . . . you can do that if and when he calls on you to transmit.

From CQDX Radio Group Handbook — by Trevor Reid VK3NNR. ■

☆ ★ ☆

CQDX RADIO GROUP

The CQDX group members may usually be found in QSO on 28.555 MHz at around 2030 GMT (8.30 EST).

The senior club members usually choose a Friday night and the younger members prefer Sunday nights.

The idea is to promote a "rag-chew" session for those who are not primarily DX chasers and for times of low band activity. For anyone who is tuning around, looking for someone to yarn with . . . the members of our group will welcome a call. ■

QSP

NEW CLUBS

Quickening interest in radio communications means more clubs for amateur radio enthusiasts springing up almost everywhere. Latest in the listings is the Southern Peninsular ARC in the Mornington Peninsular area of Victoria. The inaugural meeting was on 4th June and the Secretary is Bob Whitehead VK3NHA, QTHR in the 1979 Call Book (to be released later this month). ■

CADMIUM PLATING CAN BE DANGEROUS TO YOU AND YOUR RIG

The following article appeared in **Radio Communication** June 1979. Cadmium compounds can be very poisonous if swallowed and most of us would not try tasting any that we found laying around. Yet wouldn't you blow off any dust or white powder you found on your rig? Before you do that again please read the article below. We would like the pleasure of your company a little longer.

THE HAZARD OF CORRODED CADMIUM

A recent Tomorrow's World television programme and many other reports in the media have drawn attention to the potential risks of cadmium poisoning, for example in the vicinity of zinc smelting plants. Much less well known is the health hazard arising from the possibility of inhaling or ingesting the "woolly" white powder (cadmium salts of organic acids) which sometimes appears as a deposit on cadmium-plated metalwork (screw heads, switches, etc.) in electronic equipment. It is therefore advisable to take reasonable precautions to remove any such deposits which are due to corrosion and which tend to occur in equipment that is inadequately ventilated so that heat generated in the unit may cause fatty acids, as found in transformer impregnation and sometimes in the coatings of printed circuit boards, to migrate to any cadmium-plated metalwork.

Cadmium corrosion can be removed provided that the following safety procedure is followed carefully:

Never attempt to blow away the white powder, for instance by using an air jet. Use disposable plastic gloves and open and deal with the equipment in a well-ventilated area. Then, using a swab damped with water, wipe away all corrosion products in the affected area, changing the swab after each wipe in order to prevent any spreading of the powder. Afterwards the used swabs and gloves should be placed in a plastic bag and burnt in an incinerator. Make sure the treated surfaces are clean and dry, and then apply varnish to the area.

Now that's not the end of the bad news. If you keep any equipment in chipboard cupboards, paint the cupboards inside as well as outside. Acidic fumes are released by the binding material or glue in the chipboard and these just love to gobble up cadmium and produce white powdery deposits. Painting the chipboard seals these fumes in. Good ventilation may be another way of preventing the problem. Six months In a new unpainted chipboard cupboard can ruin much of the plated parts of a set. ■

AROUND THE NOVICE SHACKS

Hans VK3NOZ, now VK3BSK, a very well known former Novice, in his shack.

Many Novices will have worked JA2FDX (Fantastic DX). I'm sure they would like to see his photo.

☆ ★ ☆

FEEL FRUSTRATED WHEN TRYING TO LOCATE A FAULT? —

Perhaps this might be the answer, it will certainly cure the fault — for ever!!

(Cartoon courtesy of the Artist, Brendan Akhurst and CB Australia magazine.)

MML 50/25
MML 144/25

25 WATT 50MHz LINEAR POWER AMPLIFIER & LOW DISTRIBUTION PREAMP

25 WATT 144 MHz LINEAR POWER AMPLIFIER & LOW-NOISE RECEIVE PREAMP

* RUGGED 65W DISSIPATION PA TRANSISTOR * ULTRA LOW-NOISE RECEIVE PREAMPLIFIER * EQUIPPED WITH RF VOX AND MANUAL OVERRIDE * L.E.D. STATUS LIGHTS FOR POWER & TRANSMIT * SSB/FM, AM and CW.

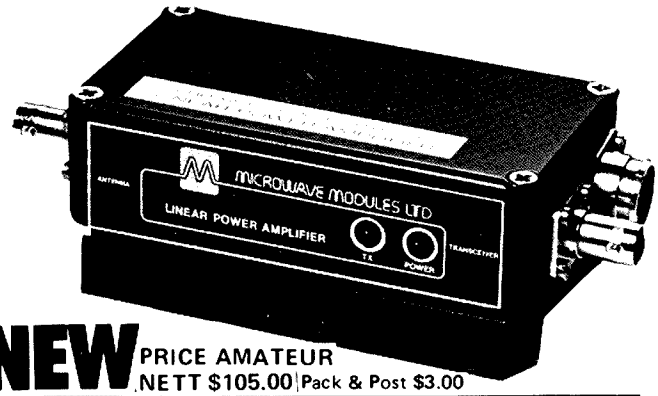
MML144/25 SPECIFICATION

LINEAR AMPLIFIER
Power profile: 25 watts typical output for 3 watts input
Frequency bandwidth: 144-148 MHz at – 1dB
Power requirement: 13.8 volts at 2.8 amps for 25 watts output
Quiescent current : 75mA nominal at 13.8 volts

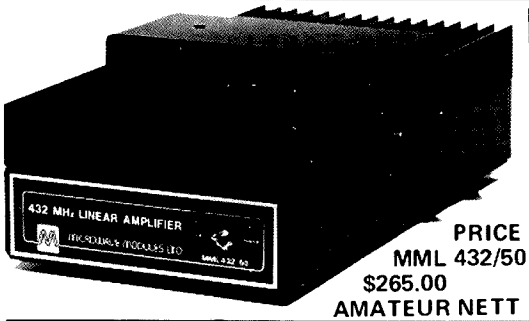
MML 50/25

RECEIVE PREAMP
Overall gain: 10dB typical
Overall noise figure: Better than 2.5 dB
Frequency bandwidth: 50-54 MHz
50-54 MHz at – 1 dB
144-148 MHz at – 1 dB

Weight : 300g
Overall size: 150 x 65 x 47 mm



NEW PRICE AMATEUR NETT $105.00 Pack & Post $3.00



PRICE MML 432/50 $265.00 AMATEUR NETT

NEW MML 432/50 50 WATT 432 MHz LINEAR POWER AMPLIFIER AND LOW-NOISE RECEIVE PREAMP

FEATURES – * 50 watt minimum output, 6dB typical gain * Rugged 145w dissipation PA transistor * Ultra low-noise receive preamplifier * Equipped with RF vox and manual override * Led status lights for power and transmit

SPECIFICATION.

LINEAR AMPLIFIER. **Power profile:** 50 watts typical output for 10 watts input. **Power gain:** 6 dB typical **Frequency bandwidth:** 430-440 Mhz @ - 1 dB **Power requirements:** 12.5 volts @ 8amps for 50 watts output. 13.8V maximum **Quiescent current:** 1amp nominal @ 12.5 volts.

RECEIVE PREAMP. **Overall gain:** 10dB typical. **Overall noise figure:** Better than 3.0dB. **Frequency bandwidth:** 430-440 MHz @ -1dB. **Receive current:** 75mA nominal @ 12.5 volts.

GENERAL. **RF input connector:** 50ohm BNC. **RF output connector:** 50 ohm 'N' type. **Weight:** 4 Kg (8lb. 13oz.) **Size:** 315 x 142 x 80mm (12 3/8 x 5 5/8 x 3 1/8).

MML 144/100

100 WATT LINEAR POWER AMPLIFIER

* 80 watts minimum RMS output 100 watts RMS typical.
* Fully protected against poor load VSWR overheating and excessive or reverse supply rails.
* Equipped with RF VOX and manual override.
* Frequency bandwidth 144 – 148 MHz at – 0.5 dB.
* 10 watts nominal for 80 watts output.
* Weight 4 Kgs. * Size 315 x 142 x 105

PRICE AMATEUR NETT $295.00

MML 432/100

100 WATT 432 MHz LINEAR POWER AMPLIFIER

* 100 watts minimum output 10 dB minimum gain.
* Fully protected against poor load VSWR, overheating and excessive or reverse rail.
* Equipped with RF VOX and manual override.
* Frequency Bandwidth 435 MHz – 15 MHz @ – 1dB.
* 10 watts nominal input for 100 watts output. * Weight 4 Kgs.
* Size 315 x 142 x 105mm **PRICE AMATEUR NETT $435.00**

MMT 432/144'S' LINEAR TRANSVERTER

UTILIZING an IF of 144MHz * 10 WATTS DRIVE of ½ WATT * VOX OPERATED, TWO SELECTABLE RANGES 432-434/434-436 MHz. FEATURES EXTENDED COVERAGE FOR OSCAR 8

FEATURES: High quality double-sided glass fibre printed board * Highly stable zener controlled oscillator stages * PIN diode aerial changeover relay with less than 0.2 dB through loss * Extremely low noise receiver converter, typical 3 dB * Separate receive converter output gives independent receiver facility * Built-in automatic RF VOX with override facility * Built-in 10 watt 144 MHz termination, selectable attenuator for ½ watt * Use of the latest state of the art Power Amplifier transistors provide reliable 10 watts continuous output.

MMT432/144S Price $315 MMT432/28S Price $265
MMT144/28 Price $197 AMATEUR NETT

Features independent TX and RX frequency switching.

NEW READY-TO-OPERATE MODULES AVAILABLE IN THE SALES PROGRAM OF VHF COMMUNICATIONS.

All modules are enclosed in black cast-aluminium cases of 13cm by 6cm by 13cm and are fitted with **BNC** connectors. Input and output impedance is 50 ohms. Completely professional technology, manufacture, and alignment. Extremely suitable for operation via sattelite or for normal VHF/UHF communications.

2 METER MOSFET CONVERTER: Noise figure typ. 2.8 dB. Overall gain typ. 30 dB. IF: 28-30 MHz. 9-15 V 20 mA.
PRICE AMATEUR NETT $47.00

DUAL RANGE 432 – 434 MHz & 434 – 436 MHz Converter. Type MMC 432/28 'S' & MMC 432/144 'S' Input frequency ranges 432-434 MHz (low), 434-436 Mhz (high). I.F. output frequency 28-30 Mhz or 144/146 Mhz. Typical gain 30 dB. Noise figure 3 dB maximum. D.C. Power requirements 11-13.8 volts, 12.5V nominal. Current consumption 50 mA maximum. PRICE AMATEUR NETT: $67.00

1296 MHz CONVERTER; Mircostripline, Schottky diode mixer. IF: 28₁ 30 Mhz or 144-146 MHz. Noise figure: typ. 8.5 dB. Overall gain 25dB. Power requirements: 12 volts DC ± 25% at 50 mA. PRICE AMATEUR NETT: $65.00

VARACTOR TRIPLER 432/1296. Max. input at 432 MHz. 24 W (FM,CW) – 12 W (AM) Max. output at 1296 MHz. 14 W.
PRICE AMATEUR NETT: $74.00

500 MHz COUNTER 6 DIGIT LED DISPLAY. Two ranges 0.45-50MHz, sensitivity. Better 50mV. 50-500 MHz, sensitivity better 200mV. Features low angle AT cut quartz crystal, typical temperature stability of 0.5ppm per degree C. Power requirements 11-15 Volts DC at 300 mA approx. MODEL MMD050/500 PRICE: $175

BNC CONNECTORS – Excellent quality, fully imported from U.K. PRICE AMATEUR NETT: $1.45 each.

CONVERTERS PACK & POST $2.00

AMATEUR ELECTONIC IMPORTS IS THE EXCLUSIVE AUSTRALIAN DISTRIBUTORS FOR THESE PRECISION BRITISH MADE UNITS FROM MICROWAVE MODULES LTD.

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Presenting: A Symposium on 'Future Amateur Communications Techniques'

The 1979 F.A.C.T. Symposium

to be held over the weekend 29-30th September — 1st October in congenial surroundings at Noah's Northside Gardens Hotel
(52 McLaren St, North Sydney NSW)

Following the highly successful and enthusiastically attended 1978 Symposium held in May last year, the organisers are planning another event to stimulate and enthuse. The theme for this year's Symposium will be "Propagation and Circuit Techniques".

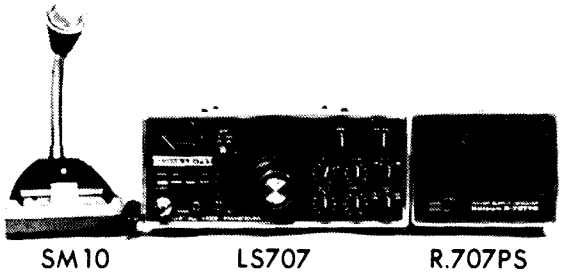
The series of lectures and workshops planned will cover the following topics: The coming solar cycle peak; Propagation research in Australia; Long distance VHF work; Practical SSB equipment; Circuit design and analysis using a computer; Amateur microwaves; Amateur applications of microprocessors; Building and using test equipment. A trade display is also planned.

For a registration fee of only $20 you can enjoy two and a half days of stimulating lectures and discussions from well-known amateurs — lunches and coffee breaks included! Those attending will receive a bound copy of the Symposium 'Proceedings'.

For further information, registration forms etc; contact: **THE FACT SYMPOSIUM ORGANISER**
c/o ETI, 15 Boundary St
RUSHCUTTERS BAY NSW 2011

Organised by Roger Harrison VK2ZTB and a committee of amateurs; sponsored by Ansett Airlines of Australia and Electronics Today Magazine.

NEW NIHON DENGYO RIGS



SM10 LS707 R.707PS

BELCOM LS707

430-440MHz All mode UHF Transceiver
Continuous Band Coverage
All solid State Circuitry
AM, FM, CW, USB and LSB Modes of Operation
Power Output: AM 4 watts
FM, CW 10 watts
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Options —
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HC-1400

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2 metre FM Transceiver
800 channels with 5 KHz Spacing
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LED Display of both Tx and Rx Frequency
Power Output: 25 watts (High)
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STOP PRESS

HANDBOOK — WIA STATEMENT

On Wednesday 15th August - after nearly nine months of negotiation - the text of the new "Handbook" was agreed with the P & T Department. It must be remembered that the Handbook is intended only to set out how the law (in our case the W.T. Regulations) is to be interpreted so far as amateurs are concerned.

Negotiating an up to date interpretation for the Handbook does not mean the law gets changed. This is a much more complex and time consuming job which - as will be explained later - is still being carried on by the W.I.A.

In summary the new Handbook will contain no dramatic changes. Its format has been improved and will (hopefully!) make it easier to understand. As a generality it is less restrictive than the old 1967 edition. There have been no changes to the amateur frequency allocations and none can be expected until after WARC in September 1979.

Power levels for some modes have eased up slightly and all transmitters, irrespective of mode, will - in future - be rated on RF output and not partly on output and partly on DC input as has been the case for the past 12 years. The SSB output allowance remains at 400 P.E.P. but AM and FM now have a 120 watts output limit.

The ambiguities in respect to mobile operation have been removed and a mobile rig will now (officially!) be considered an extension of the home rig. However, if you want to go /M or /P for more than four consecutive weeks you will still have to make representation to your State licensing people.

The general rules governing the setting up of repeaters have been included as have a set of rules for participation in civil emergencies or emergency practices.

The section on distress calls has been expanded to clarify what you should do if you hear a distress call.

Also included in the appendices are sample papers (in the new format) for Novice and (L) AOCP theory examinations.

Not yet reflected in the new Handbook are several issues still under negotiation and which will require changes to the Regulations before they can become effective. These are:-

(a) Act and Regulation changes necessary to remove the existing ban on anyone (not only amateurs!) listening on unauthorised frequencies.

(b) Act and Regulation changes necessary to remove the existing secrecy provisions as they apply to amateurs.

(c) Act and Regulation changes necessary to redefine "emergencies". The existing law only recognises war as an emergency. Civil emergencies and disasters were not contemplated when the present law was drafted.

Negotiations are still in process to make amateur log keeping optional and not mandatory. This does not require changes in the law.

The W.I.A. has already submitted working papers on the above points and - in broad principle - the P & T Department has no objection to the further liberalisation implied by these submissions.

Finally it must be borne in mind that both the Department and Institute look upon this new Handbook as a temporary document only. The changes that may well come from WARC and the long impending changes to the W.T. Act and its regulations will require a further round of negotiations within a year or so.

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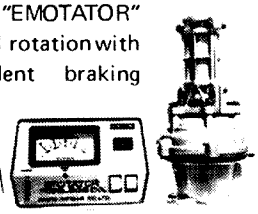

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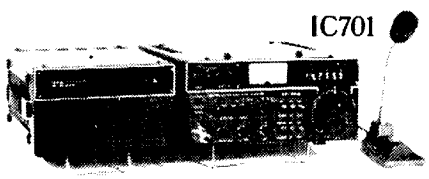

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TS-120S 80-10 M. Transceiver	$POA
VFO-120V Ext. VFO for 120	$148
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BS-8 Panoramic adapter for 820S	$66
AT-200 SWR meter. antenna coupler	$185
RD-300 Dummy load 150 mHz-300W	$79
TR-7625 2 M.-25 W. Digital	$465
MC-10 Hand mic.	$21
MC-35S Hand mic. noise cancel	$26
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20 M. Resonator	$20
15 M. Resonator	$20
10 M. Resonator	$20

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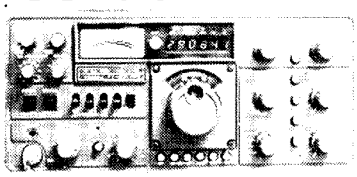

FT-101Z 160-10 M Adj. N/B IF	$765
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FT-901DM Transceiver	$1549
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YD-148 Desk Mic for all Yaesu	$49
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FL-110 Solid state amp. 160-10 M.	$239
FL-2100B 1200 W. Amp.	$585
QTR-24 24 hour world clock	$33
YC-500 Freq. counter	$POA
FT-227R 2M. Digital transceiver	$329
FT-227RA 2M. Scanning digital transceiver	$399
FF-50DX Low pass filter 2 kW.	$40
Optional X-tall filters FT-901, FT-101Z	$59

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VK5LP
Forreston, S.A. 5233

AMATEUR BAND BEACONS

Freq.	Call Sign	Location
50.001	WA6MHZ	San Olego
50.004	PY1RO	Brazil
50.010	HL9TG	Seoul *
50.023	HH2PR	Haiti
50.025	6Y5RC	Jamaica
50.030	KL7CDG	Alaska
50.030	ZS8PW	South Africa *
50.035	ZB2VHF	Gibraltar
50.050	WA1ENX	Maine *
50.050	ZS6LN	South Africa *
50.075	HK3/4	Columbia (repeater)
50.080	TI2NA	Costa Rica
50.088	VE1SIX	New Brunswick
50.091	WA6JRA	Los Angeles *
50.092	W7KMA	Oregon*
50.093	WA8FTA	Michigan *
50.098	K7IHZ	Arizona *
50.100	ZS6HVB	South Africa *
50.101	FO8DR	Tahiti *
50.104	KH6EQI	Pearl Harbour
50.110	KG6JIH	Guam *
50.110	JD1YAA	Marcus Island *
50.110	KH6	Marshall Islands *
50.110	KG6RO	Saipan *
50.110	AL7C	Alaska *
50.500	5B4CY	Cyprus
51.999	YJ8PV	New Hebrides
52.100	VK0BC	Casey Base
52.200	VK8VF	Darwin
52.300	VK6RTV	Perth
52.350	VK6RTU	Kalgoorlie
52.400	VK7RNT	Launceston
52.450	VK2WI	Sydney
52.500	JA2IGY	Nagoya
52.500	ZL2VHM	Palmerston North
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
52.900	VK6RTT	Carnarvon
53.000	VK5VF	Mt. Lofty
144.010	VK2WI	Sydney
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144.700	VK3RTG	Vermont
144.800	VK5VF	Mt. Lofty
144.900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
147.400	VK2RCW	Normanhurst
145.100	ZL1VHF	Auckland
145.150	ZL1VHW	Waikato
145.200	ZL2VHF	Wellington
145.250	ZL2VHP	Palmerston North
145.300	ZL3VHF	Christchurch
145.400	ZL4VHF	Dunedin
432.400	VK4RBB	Brisbane
432.475	VK7RTW	Ulverstone

* Denotes attended operation.

THE MONTH OF JULY

Activity has been somewhat subdued, but this information from David VK5KK will fill you in as to what has happened as we see it from this end.

"DX again relatively quiet from 26-6 to 24-7 across VK1 2, 3, 5, 6 and 7, although some single and double hop Es between those areas plus VK4. Band open to VK2 and 4 from VK5 at 0500Z on 5-7. On 8-7 six metres also open 0000Z between VK7 and VK2. Several VK3s heard on backscatter as well as some VK5s around 150Z. At 0200Z worked ZL1AQJ S2-5. Band shut to VK2 at 0255Z and YJ8PV heard from 0310Z to 0400Z peaking to S3. Also from 0330Z to 0510Z VK4RTL at S9+ but no other station heard except VK4RO. Last signals around 0600Z. On 9-7 similar conditions to VK2 from here around 0430Z. 10-7 to VK4 with Ch. 0 and VK4RTL at 0200Z to 0300Z.

"On 14-7 probably the best Es for July. Band open from 0300Z to 0530Z to VK2 and VK4 with S9++ signals to Sydney for over an hour from VK5. Also VK3, VK7 to VK2 same period. Es backscatter evident. Es was still there to VK4RTL at 0700Z when 49.750 MHz TV appeared. At 0710Z the TV signals peaked to maximum strength with 49.760 also evident as heterodyne. At 0735Z JA8 signals heard on 50.158, lasting for five minutes. Usual Russian logistics junk between 40 and 48 MHz to 0810Z. Last TV at 0753Z. Obviously double hop TEP still getting to 50 MHz in the very northern parts of VK with Es to help it down here. (Who said TEP only worked around the Equinoxial periods?) Normal midday F2 peaks around 41 to 42 MHz at this QTH to the north. Also single hop to Indonesia/Malaysia to 41.5 MHz with military channels around midday. Very consistent.

"On 15-7 ZL TV from 0330Z to 0500Z on 50.750 MHz. At 0420Z worked ZL1AVZ 5 x 1-2! Band also open to VK7 same period, Hobart area. Es not as strong as day before and favouring lower areas this time. Of course the above represents only part of the conditions as only taken from reports in the VK2 Sydney area and here. However, it was a rather late winter peak in Es this year.

TROPOSPHERIC

"Once again things have been hopping! 24-6-79 proved to be a real hum-dinger across the south-eastern part of VK. To start VK2ZRU (at least) worked VK3AUR (?) on 144 MHz, also VK2YHS, and VK2BQJ worked Chris (of EME fame) on 144 MHz also. Chris is located near Millicent in the south-east and the path to Sydney covers about 640 miles (1015 km). As usual, nothing into the Adelaide area from that distance. The closest was probably Griffith earlier on in June to Adelaide. Other contacts may have occurred but insufficient details. Heard also that VK2YHS worked three VK3s from Sydney.

SKYLAB SCATTER!!

"Nothing has had more publicity, apart from domestice troubles, than poor old Skylab in recent years. Being a victim of unpredicted (six years ago) high sunspot count this cycle it just had to come down, where wasn't really known until minutes before. Gordon VK2YHS (ex VK5ZGV) sent a letter to quite a few amateurs proposing an experiment of sorts with scatter if Skylab should begin breaking up and ionize (most probably around E Layer) the ionosphere within normal range to the layer, maximum about 800 to 900 miles. 144.200 MHz was proposed for 2 metres and 52.050 for 6 metres. In the eventual burn-up, that area occurred around the bottom of South Africa towards the Indian Ocean, but by the time it reached VK6 at 1643Z it was low enough to be seen and heard, i.e. too low. Various 52 MHz beacons from VK6 were watched with a chart recorder but nothing more than random meteor bursts, none of which corresponding to re-entry times. Unfortunately re-entry occurred at a dead-time in scatter (on one E hop range) and in the wrong spot, but one cannot say try again! RIP SKYLAB!

OVER THE SEAS AND FAR AWAY

"Well, while we sit and watch winter go by the Northern Hemisphere plods through its Es season. Without reporting irrelevant and inconsequential details, as far as VK is concerned, conditions have been much the same as they were six months ago. Es is generally low key, although F layer DX is prevalent. JA to W6, W7, VE7 and KL7 on 7-7 and 8-7 via Es. It is interesting to note that on 8-7 and 9-7 we had good multi-hop Es. on 13-7 JA to HS1WR (Thailand). Once again, coincidence, good Es in VK on 14-7 and 15-7. Who knows, maybe similar conditions to ZS from VK6 may exist in six months time as they do now between North America and JA from time to time. It only takes activity to find out.

"A letter from WA9AHZ (WA9ZHG/VK2ZDI) reveals he will have 52 MHz gear portable on Norfolk Island from October 1st to 8th and November 10th to 19th. Good luck, Jack." Thanks, David.

AROUND AND ABOUT

From the WA VHF Group News Bulletin comes advice of a new 70 cm repeater VK6RUF now operating on an experimental basis. Input 433.525, output 438.525 MHz. Deviation standard at present 8 kHz but will be extended to 15 kHz once the correct filter has been obtained. The repealer consists of two PYE 460 UHF base stations, temporarily located at the OTH of VK6CU in Bayswater. Five minutes time out is fitted.

I note also the Wireless Hill Museum is to be opened on 13th October. This Museum has received a good deal of help from the VK8 VHF Group and this column congratulates the workers involved.

Also from the same Bulletin is a "Hints and Kinks" item suggesting a means to cool a 4CX250B without spending a fortune on the proper commercial fan! Obtain a Lady Sunbeam hair dryer and use it as the air source. This drier, with a 9 inch impeller, will deliver a blocked discharge head of 1.6 in. water gauge . . . more than enough to cool that expensive and exotic 4CX250B in your linear .The data sheet for that particular tube states a requirement of only 0.6 in. water gauge.

The same Bulletin tells me that work is proceeding on the tri-band beacon to be installed at Cape Leeuwin at the south-western tip of Western Australia. This beacon will transmit carrier plus ident within the 144, 432 and 1296 MHz amateur bands, and will greatly assist those of you who are interested in VHF DX workings . . . I hope you boys will keep me (5LP) informed of progress and particularly the likely commencement date of operation, so we can give the beacon its due listing in AR.

I note the same people who organised the YBOX DXpedition are planning a similar venture to C21, where they will operate C21AA from 10th to 15th August. Although this will be too late to warn any of you, it is hoped we can publish the results of the venture.

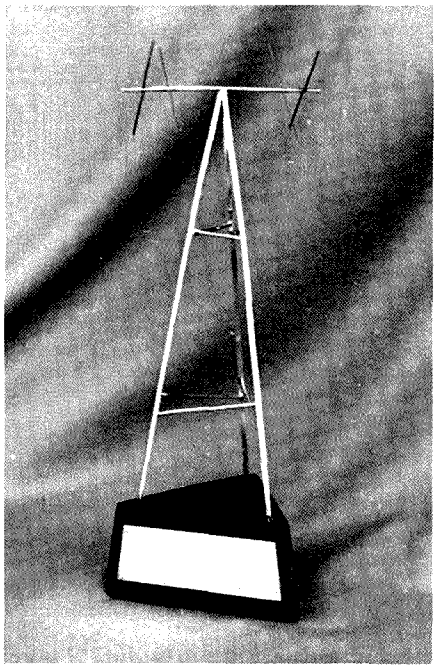
Bill VK2HZ is another we know of who has applied for the SMIRK DXDC 10 countries award. And while on the subject of SMIRK, Ray K5ZMS advises he is working on the establishment of a big trophy to be awarded to the first amateur to confirm 50 countries on six metres! And don't think that is impossible, there are already several amateurs who have worked more than 40 countries, and the way the northern hemisphere is behaving these days 50 is no longer an impossibility. No doubt it will be someone around the Americas who will win the award, as there are so many small prefixes within range.

During late July H44 had been copying YJ8PV and YJ8PD. Ross VK4RO apparently has also been hearing Peter YJ8PD on 50 MHz but not 52, another case where the MUF doesn't rise high enough to make contact.

I note from "QRM" that 432 MHz activity is showing some increase in Tasmania, though mainly confined to Launceston. Kevin VK7ZAH has an 88 element Jaybeam, Daniel VK7DA a home brew stacked 16 element KLM design yagi 70 feet high, and Joe VK7JG uses a 48 element Jaybeam. It is hoped the next few months might see conditions suitable for contacts on that band through to VK5. Unfortunately I have had to reduce the height of my own 16 element KLM type yagi for 432 MHz from 72 to 58 feet to prevent storm damage. The 50 foot tower has been currently holding up a pair of 8 elements on 6 metres, between them an all band log periodic antenna covering 38 to 56 MHz, and above the top 8 element was mounted the 432 beam. The double strength mast was 22 ft. 8 in. out of the top bearing of the tower! All was well until the most recent storms when the mast took on a slight list to starboard, so now it has been straightened, the all band antenna removed to another mast, and the 432 beam placed between the pair of eights. It is hoped this move will allay some of my fears as I watch the assembly swing around in the wind. It may also take an S point of some contacts too, but perhaps that's better than suddenly finding all the antennae up there vertically polarized!

ED ROACHE VHF ACHIEVEMENT TROPHY

The trophy was donated to the Townsville Amateur Radio Club by Ed Roache VK4ZEZ/NER, a very keen VHF operator himself, to recognise North Queensland Amateurs who have demonstrated out-



Ed Roach Trophy.

standing achievement in the field of VHF operation. Ed will be in Townsville for this year's 1979 North Queensland Convention, and will personally present the trophy, which will be awarded biennially at the Convention. This is the first year the trophy will have been presented.

The name of the amateur whose activities have been acknowledged will be inscribed on the trophy, which is made of pure silver on a decorative wooden base. A silver plate on which amateurs' names will appear is attached to the base.

The trophy will be held by the Club in its operating station. However, an appropriate certificate will be given to recipients of the trophy.

GOING SOUTH?

If you are contemplating becoming a VK0 why not take six metre equipment south with you?

The present sunspot cycle has put the possibility of exciting long distance contacts well within the grasp of a VK0 operator.

Amateurs in Australia, New Zealand, Japan and the USA would welcome the opportunity to work you on six metres. Other countries within range are South Africa and the many South American countries.

Certainly you can be besieged by stations eager to work you on any other HF band. But remember that six metres peaks rarely and the coming equinoxes could be the time for you to put VK0 on the six metre map.

Much interesting work remains to be done on six metres and above exploring long distance propagation. Remember the conditions are just about right for some interesting pioneering work on six metres.

Working six metres from a lonely output is no picnic but the rewards are tremendous pioneering new propagation paths. You may even work all continents and that would be quite an achievement.

There may also be new modes to discover and who knows what may yet be achieved.

To aid six metre DX working there is now a liaison net on 28.885 MHz. This would be an ideal spot to arrange schedules so that you could be sure of listeners and could confirm reports of your own transmissions. Without this liaison the contacts from VK-W would most likely not have taken place. So take a rig on 28.885 MHz as well as your six metre rig.

For gear there are many possibilities. The simplest being an IC502 and a suitable linear or maybe a TS700, FT625 or IC511 is more to your taste. A transverter is OK but may be a bind when running liaison on 28.885 MHz.

An antenna may be a hassle but a rugged beam should not be too hard to construct. A spare antenna would be good insurance though.

Help in getting your gear together should be forthcoming from any keen six metre operator and similarly assistance with QSLing should not be too hard to arrange. If you are in a bind don't hesitate to sing out for help. There are many listeners on 28.885 MHz and the keen operators will be only too willing to help.

A good way of getting the six metre beams of the world pointed toward VK0 is to send details of your operation to the SIX METRE INTERNATIONAL RADIO KLUB. SMIRK has a newsletter which publicises such ventures and a letter to the secretary of SMIRK would be well worth while. The secretary of SMIRK is RAY CLARK K5ZMS, and the address is 7158 Stonefence Drive, San Antonio, Texas 78227, USA.

Remember the possibility exists for six metre contacts and there are many stations right round the world who have never worked VK0 on six metres. If you are going there then you are in a unique position to put VK0 on the six metre map.

Overall activity in the south has been limited this month, there seems no point in prattling on, so I propose closing the notes now and leaving space for someone else with better things to say. August, however, should see some improvement in the six metre scene anyway, and September of course should really see things humming. Until than, the thought for the month: "Nothing lays itself open to the charge of exaggeration more than the language of naked truth."

73. The Voice in the Hills. ■

FURTHER SMIRK MEMBERS

The following are SMIRK members who are in the current listing in addition to those listed in May AR.

JA1KXT	3042	JH3CGS	3089
JE1OXB	3140	JH3JWW	3011
JE1QBC	3052	JH3OKY	3012
JI1TQH	3081	JR3OKY	3012
JJ1CKD	3027	JR3LSE	3053
JJ1HKK	3091	JH4SOJ	3076
JJ1OGP	3124	JH4SSP	3093
JJ1RAP	3136	JH4WEU	3050
JJ1SHW	3080	JA5WWY	3134
JJ1SQZ	3099	JH5BYX	3059
JK1HCE	3039	JR6OST	3097
JK1NUH	3082	JR6OTM	3115
JK1OVI	3073	JR6SVM	3043
JK1PEC	3022	JR6TCT	3094
JK1RWC	3063	JA7FVA	3122
JK1UPA	3026	JA7KYW	3077
JL1CSD	3138	JA7NVF	3028
JR1FTJ	3139	JA7ROK	3074
JE2KCR	3049	JH7XDU	3084
JE3KKC	3051	JH7XWA	3075
JF3BTR	3038	JA9QYC	3078
JF3DWO	3054	JA9WRM	3029
JF3NUX	3092	JA0PHR	3135
JF3OLO	3045	JA0SZX	3010
JF3PQD	3071	ZL1AVZ	3131
JF3SRA	3114	VK2BMX	3120
JF3WNR	3037	VK3AUI	3041
JF3XEX	3044	VK3AWY	3023
JG3AVO	3137	VK3NM	3067
JG3DDX	3123	VK4ZJR	3003
JG3EFC	3072	VK5AVQ	3005
JG3FFP	3013	VK6ZCC	3119

Compiled by Lionel Curling VK3NM. ■

20 YEARS AGO

SEPTEMBER 1959

It was about twenty years ago that the first Bass Strait Ferry went into service. Not slow in coming forward, Max VK7MX described some of the sights to be seen at the VK7 end of the journey. Naturally Max suggested that the portable gear should go along.

While on the subject of portable gear the revised rules of the National Field Day Contest were published, along with an Editorial comment on why we should all be in it.

September was a good month for technical articles. Tropospheric propagation at VHF was discussed by Alan Elliott VK3AEL.

Bud Pounsett VK2AQJ described a high tension power supply with a variety of protection and control circuitry incorporated.

Simple Sideband. A multi-part article by Lester Earnshaw ZL1AAX covered all aspects of SSB circuit design. This one, an all-band heterodyne unit.

How Good Are Your RF Chokes? Hans Ruckert VK2AOU showed the methods for designing, testing and winding your own RF chokes. Excellent reading now as then.

Meet the Other Amateur and His Station featured Andy Roudie VK3UJ, complete with AR88 receiver and transmitter with Geloso VFO.

In his second article for the month, Hans Ruckert looked at the possibility of using 12 volts of high tension on standard receiving tubes.

Build your own 14 inch TV set. O-PLUS were advertising a complete kit with easy to follow instruction manual. The price, only $200. Times have changed. ■

INTERNATIONAL NEWS

CHINA AND BANGLADESH

IARU Headquarters has the news that there is a newly-formed Association of Radio Sport in the People's Republic of China. Officers of the Society were elected in Peking during March 1979. In the same issue of the Calendar there is news of the formation of the Bangladesh Amateur Radio League.

TONGA

The Amateur Radio Club of Tonga was elected as the 105th member of IARU. Two more Societies have applied for IARU membership. These are the Cayman Radio Society and the Fiji Association of Radio Amateurs. ■

QSP

Ex-G RADIO CLUB

The ExG Radio Club, Australian Chapter, is managed by Steve VK5ZB, QTHR. This club is for amateurs born in the UK and living abroad. Local nets are at 12.00Z on Monday and Friday on 14.344 MHz, 10.00Z on Thursday on 3.622 MHz, and 04.00Z winter (05.00Z summer) on Saturday on 14.346 MHz. This is their 20th anniversary year. ■

BLUE BOTTLES AND RED FACES?

Wonder how many amateurs got their national news and music on 40 metres one sunny morning in the last week of June. Gentleman providing this unusual service apparently left home in a hurry with rig and mic. switched to transmit. Much consternation when he returned for lunch and found XYL with domestic receiver running full bore alongside the Tx! ■

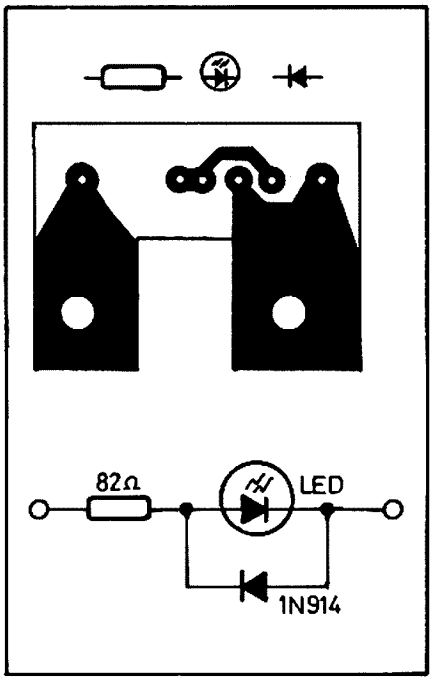
Join the I.W. net at 2300Z on Thursdays on 14165 kHz when you have intruder information.

TECHNICAL CORRESPONDENCE

The Editor,
Dear Sir,

I refer to the "Soldering Hint" in Novice Notes at page 30 of the March issue.

I have been using the dial lamp across the secondary of the Scope transformer for some time, and have found it very helpful. The only problem that I have encountered is that it is very fragile and easily smashed, particularly when I have to take the iron to the job instead of the other way around. I am now using a LED in the circuit below, mounted on a PCB which fits over the 3.3 volt connecting screws on the transformer. (My transformer is the A-R with the vertical separator.) The PCB was coated with resin after etching then the areas around the mounting holes were tinned to give good electrical contact. The dip in brilliance of the LED is not so pronounced as with the globe, but it still occurs.



Circuit and PC Board.

Incidentally, don't say to yourself (as I did) that the transformer puts out 3.3 volts, therefore a "3 volt" torch globe is suitable. It burns out very quickly.

Yours sincerely,

J. D. Laidlaw VK3ZTA. ■

☆ ★ ☆

Dear Sir,

Many of the TVI filters available are of unknown quantity. In ascertaining which one I should purchase I undertook some insertion loss measurements on the Drake TV-42-LP (model 1605) filter. This unit is stated by the maker to be a four section filter with a cut-off frequency of 43.2 MHz with a rating of 100 watts. I enclose a copy of the results as I believe they may be of interest to other amateurs. Although the measurements were not taken at the rated power all inductors are air-cored so there should be very little variation in performance.

I have now used this filter for quite some time and have had no interference problems. I live in a TV fringe area and the amateur antenna and TV antenna share the same tower and coaxial lines.

Yours faithfully,

Malcolm R. Haskard VK5BA.

INSERTION LOSS MEASUREMENTS ON DRAKE FILTER TYPE TV-42-LP

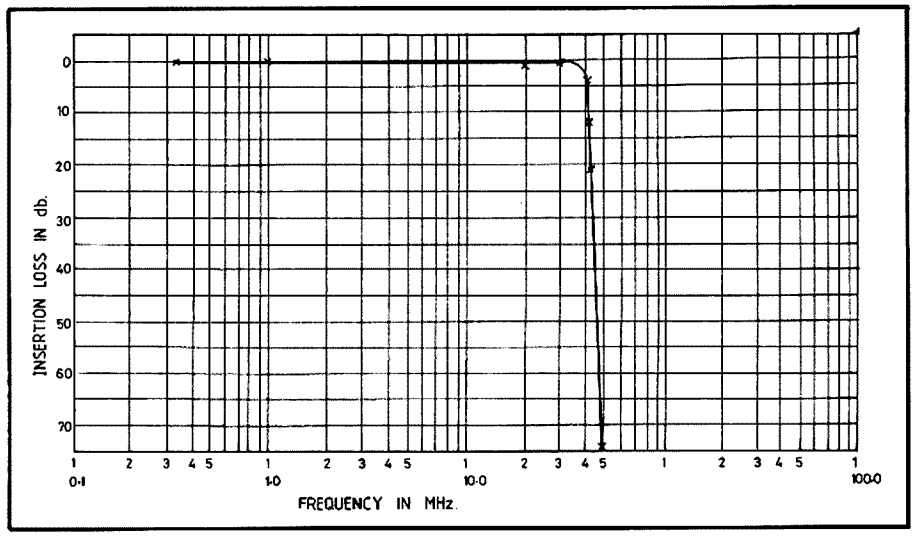
Equipment used: Tektronics constant voltage generator, type 191; Termaline 50 watts, 50 ohm load, type 8085; Voltohmyst with crystal probe, type 2A 56074; Hewlett Packard RMS voltmeter, type HP 3400A.

Results: A 2 volt signal was fed from the 50 ohm output of the generator into the filter which was terminated with the load. The voltage, V, across the load was measured and the insertion loss calculated from:

Insertion loss = 20 log (2/V) dB.

Frequency MHz	Insertion Loss dB
0.35	0.0
1.0	0.0
3.0	0.08
10.0	0.08
20.0	0.18
25.0	0.66
30.0	1.18
34.5	0.38 (peak)
35.0	0.39
40.0	1.84
42.0	3.40
43.0	12.0
44.0	21.6
50.0	74.6
Greater than 50	Too great to measure

■



GRAPH

SUPPORT OUR ADVERTISERS

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

PO Box 404,
Casino 2470, NSW
21st June, 1979

The Editor,
Dear Sir,

I take the opportunity to extend to you my gratitude for placing our "Worked Australian State Police" Award in your magazine. The Award has really taken off and has been nick-named the "Flatfeet Award". We hope to make a donation to the Australian Cancer Society shortly, as a result of profits made from the Award, and we will inform you of the date. You may like to put a paragraph or two in the magazine.

73. Lance Ferris VK2NVF,
Member WIA, WASP Charter Member.

Editor's Note: Yes please, Lance, let me have the details of the donation in due course.—VK3UV. ■

The Editor
Dear Sir,

"INTERNATIONAL CORRESPONDENCE"

Like possibly many of you have considered doing, I once looked into the matter of importing some amateur radio equipment direct from overseas.

Without commenting specifically on the advisability of such action I would, however, like to share with you the benefit of one of the replies received to my series of enquiring letters.

I can assure you that this is a true case. In fact the editor may care to authenticate this, as I have forwarded to him in confidence a photo-copy of the letter which, under the particular firm's letterhead, reads as follows:

"Tokyo: 22nd October 1978
Dear: Mr. Ian J. Hunt.

We thanking you for your letter on your dated of 16th, Oct, Which we received recently on this

letter, However, we shoudl it replying to you on this matter, We was shipped with his excess bagagge clam to shipped from us, But, that's the moment which was lucky to got the unit, Then, We shipped to him. Except, When it this moment, very hard to get the unit of the mentioned. TRIO TS-520D with External VFO, We are very still those units are shortage, Therfore, when it will be getting those unit, Even we don't know when.

So, we should replying to you in this matter as same moment to our agent in Sydney, as foollowin you, So, Please contact with him, May could be should take care of this moment and much recommendable to advicing from him.

We sorry about your requirement, Except we couldn't do hundred per cent with your requesting in this moment, as so much we regreting with you. Even the Mr, XXX telling to you the Hows about the supplying to unit in Japanese situation, Should new it this happen, So, we would like to be understanding this matter. Much thanking for your fine cooperation and trying to understanding in this case.

Best Regarding Yours.
(Signature)
Tokyo, Japan."

I did finish up purchasing the equipment from an Australian agent and was quite satisfied as a result.

Whilst the above letter is no doubt most amusing to us, just ponder as to how you would manage to write a business letter to someone in Japan "In Their Own Language".

Ian Hunt VK5QX.

EDITOR'S NOTE:
Yes, Ian, the letter is genuine, and I thought I was having trouble on 15 metres!!—(VK3UV). ■

The Editor,
Dear Sir,
I cannot keep this piece of good news to myself, so here is a challenge to find a younger member of the WIA than Associate Member Ian Wesley Foster, of Nicholson, age three weeks!

When I heard the news that this much desired Jnr. Op. had safely arrived, I asked his proud father, Ian Snr. VK3ST, "Has he joined the WIA yet?".

Reply, "Not yet, but won't be long".

So yesterday, upon a visit to the shack of VK3ST to see the nice little fellow, Ian Snr. produced the membership application form with cheque attached, with a request — please second it.

So it will go to the Council on Wednesday 30th, and there's no doubt they will accept our youngest member.

In a few years time I predict the lad will be our youngest Novice!

Yours faithfully,

K. V. Scott VK3SS. ■

The Editor,
Dear Sir,
I refer to the mention in the Federal tape broadcast from VK2AWI on Sunday, 8-7-79, concerning paper quality and costs of AR.

I would agree with Bill Roper's remarks about polished paper and would suggest that paper of the quality used in the 60s was quite suitable with a cover of polished paper.

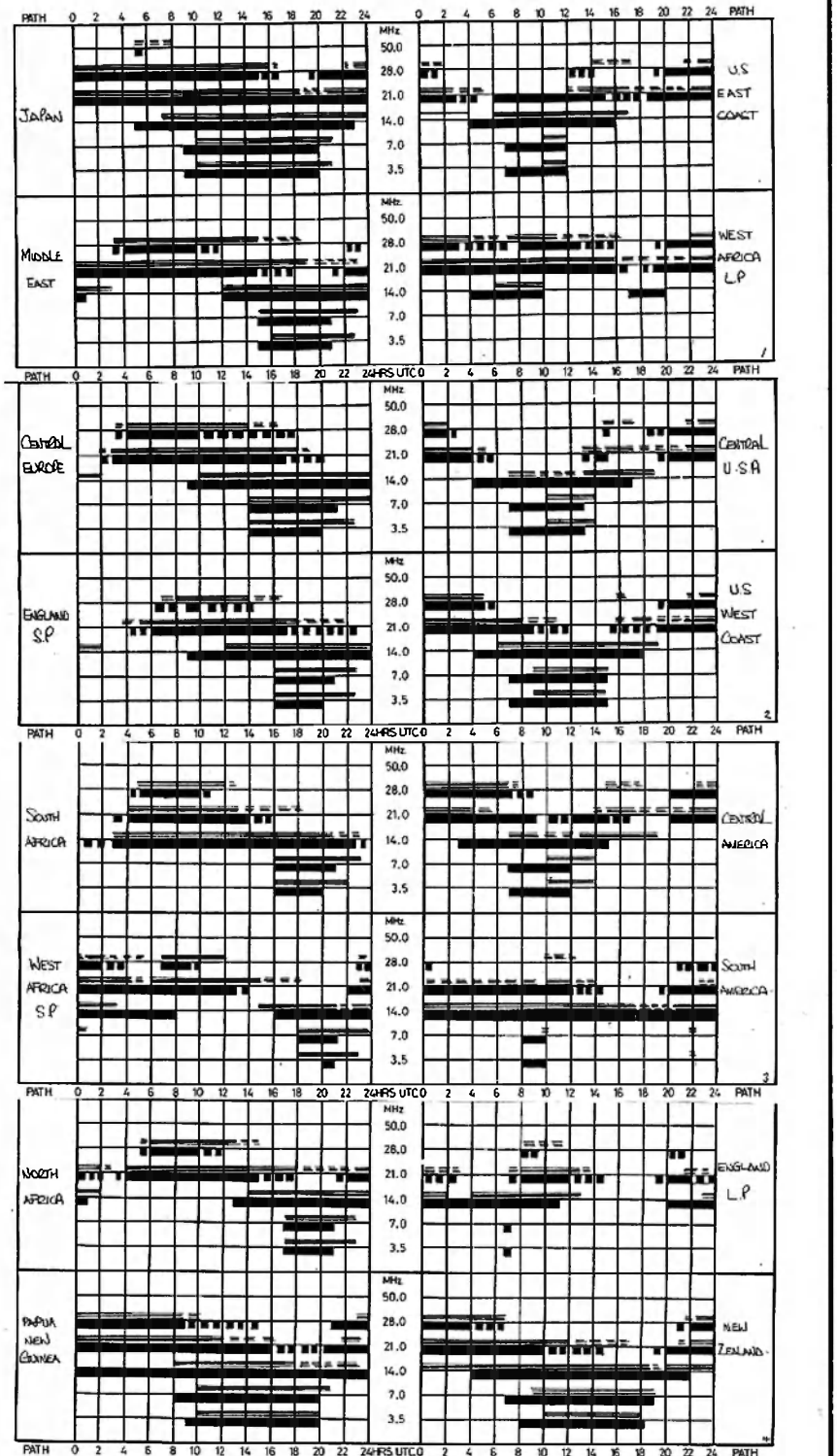
I would also suggest that the envelope is also an unnecessary expense, witness the number of publications now using a simple wrapper, which must cost less than an envelope. After all, AR usually arrives doubled in half anyway.

Allan V. Bull VK2FB.

EDITOR'S NOTE
Different paper is now used for inside texts. Most members appreciated an envelope for AR instead of the wrapper used several years ago. Perhaps a re-appraisal may now be nesessary. What do other members think? ■

IONOSPHERIC PREDICTIONS

Len Povnter VK3ZGP/NAC



AMATEUR RADIO — VIDEOCASSETTES

Is your Club or Group looking for high class promotional material for amateur radio?

Ask your Division for the loan of videocassettes in colour. Titles available now are:—

"Amateur Radio the Natural resource of every Nation" (6 minutes).

This was specially produced by VK5KG, the Federal Videotape Co-ordinator, for the CCIR Seminar in Sydney.

"This week has 7 days" (25 minutes).

ARRL films (60 minutes in all).

"ATV in Australia 1978" (30 minutes).

"VK5 ATV History" (30 minutes).

"VK5 — official opening of Burley-Griffin Building" (60 minutes).

"G6CJ Aerial Circus" (90 minutes). On special loan ONLY.

Also, a service exists for copying any of these titles (except G6CJ Aerial Circus) on your own cassette — you pay postage both ways.

CLUBS — Why not start your library now, write to your Division or direct to VK5KG.

NOTE — Educational tapes are now being considered but please wait for an announcement in AR.

YOU AND DX

Mike Bazley VK6HD
8 James Road,
Kalamunda, W.A. 6076.

The one advantage I have in writing this column is that I can express my point of view first! With the approach of summer the band becomes full of stations swapping numbers, on certain weekends the phenomena is on Phone and CW simultaneously. The contest season approaches! No I'm not against contests, in fact I get a lot of pleasure from them; mainly because it brings stations on to the LF bands who normally would not operate on those frequencies. My gripe is that a major Phone or CW contest takes over the bands completely. I do beleive the contest organisers have a duty to see that their contests do not spoil the activities of non-contestants. For example, I would suggest that no CW contestant should operate above 14050 kHz or no Phone contestant should operate outside 14150 to 14250 kHz. Could the VK/ZL contest organisers be the first to set the trend with band frequency limits for their contests?

DX NEWS, RUMOURS, FACT AND FICTION

Listening around the bands one hears a lot of rumours. If you are like me you make a note of the call and date and hope that some of these rumours do materialise. Looking back over the past 20 years, some countries become easier to work, others harder, but all DXCC countries eventually turn up. So if you hear an unusual call, work it, or if you think that the BY is not genuine, work it. I always remember the first time 7GIA came on the air, he was branded a pirate, until the QSLs started to come through. With doubts in mind the following notes are offered on a "perhaps" or "wait and see" basis! Rumours, fact and fiction.

VE3FXT will be travelling to Burma in December. Call sign unknown but a licence to operate on a spot frequency is likely. The frequency? 21,225 kHz. George is supposed to be working in Burma for the next two years up to the end of 1982. If this one materialises it will take a much needed country off the wanted list.

CE0ZN has been worked/heard on 14195 and 14025 around 2300 GMT onwards.

9U5AN still QRV Burundi, around 14220/225 kHz. QSL via OZ9DX. Has been heard at 0030 GMT and also at 2030 GMT.

Do not write China off the DX map. Lots of visits to BY are, and have been, made by amateurs recently. There are behind the scenes moves to try and get a club on the air. Plans are similar to those that brought YI1BGD on to 20 metres. Patience will be rewarded!

Dave Schoen N2KK and Scotty Meadows K5CO plan an extensive series of operations in the Indian Ocean and African areas starting later this year and running for about three months. Dave, who holds licences F0CGP, FR0CGP, FH0CGP and 3V8KK, will be signing J28 in the CQ CW DX contest and will then move to Reunion FR7 around December 1st. It is anticipated that K5CO will join N2KK at Reunion and, depending on available transport dictating the order of stop, it is hoped that activity will be possible from FR7/G, FR7/J, 3B7, 3B8, 3B9, FH8 and D68. Dave already has written permission from the French Government for operation in this area. There are plans for plenty of activity, especially on 40, 80 and 160 metres.

Do you object to paying the Post Office money for the renewal of your licence? If you do then do not go to live in the Seychelles. Licence renewals are currently 82 dollars US per annum!

Rumour has it that a VE3 station should be operating from TN8 during the month of September. Suggest one keeps checking those DXpedition frequencies.

701, VS9K and 8Z4 are all rare countries and are on most people's wanted list. Rumours have it that a group of Europeans intend to activate one of these spots during CQ Phone contest, i.e. October, possibly following up with another spot during CQ CW contest. I'm keeping my fingers crossed as I need all three!

It is reported that V5ABK has permission from the government in CR3 land to operate from Guinea-Bissau for two weeks in December and that he will be there from the 1st December. Apparently all formalities have been completed and it only needs the operator and equipment to get this one active. QSLs via G3LQP.

You never know where Erik SM0AGD will show up from next. Last time heard Erik was satisfying the hungry hordes from SM0AGD/XW8 on 20 and 15, CW and SSB.

September 30 will see the end of the KZ5 prefix from the Canal Zone. After that date ex KZ5s will have to apply for a HP licence. Another country lost.

The special prefix of GT was being used by Isle of Man stations during July to mark the 1000th anniversary of the Isle of Man Parliament. QSL information: substitute GD for GT, i.e. GT4BEG is GD4BEG.

Don't ignore those LF bands. I do not know how conditions are in the East but here in the West 80 CW has been providing, on some occasions, pleasant DX surprises at sunrise and sunset. Whilst listening on 40 SSB Peter VK6NFX has been noting such goodies as C6ANR, CT2CQ, OK3TAB/D2A, D4CBS, EA8OZ, FM7WS, K7CA/HC1, HI3JEI, HH2T, TU2AH, VP2MAY, XT2AT, 3A2EE and 5N0AAS. Just to name a few from his list, all 7070-7100 kHz, 2300 to 0100 GMT.

Conditions on the LF bands should really improve during September/October; be prepared! An inverted vee antenna can really work wonders.

Rumours again. A group of VEs and Ws have applied for permission to operate from St. Paul Island (the VE one), some time in the future. A suggested date is the CQ Phone contest in October.

For the DX chasers on 160 metres, Russian stations are now permitted to operate in the frequency range 1850 to 1860 kHz. UA3CD, 3CH, 3DNB and UT5AB have all been reported as being worked by G stations. It is also reported that there is activity from UF6, UG6, UJ8 and UP2 stations on this band. Best time of year for VK to QSO this area should be around January or February at our sunrise.

The HF bands have also been providing some useful DX. Murray VK4KX reports working/hearing SSB, CE0ZN, VR1BE/KH1, KH6CW/KH7, XF4MDX, ZD7HH, 4U1UN, 9K2DJ/8Z4 (Abdul ORV only for 24 hours QSL via home QTH), and on CW FP8HL, FG0DDV/FS, VR3AR (28 MHz), XF4MDX (28 MHz) and 3B6CD.

CR9AJ, Torres, has now left Macao and is back in Portugal as CT1ADP. This means that CR9 will now be without a resident amateur.

YI1BGD is still being reported as active between 14200 and 14250. Either around 0730 or 1400 GMT. By the way, has anyone received a QSL from YI4SC?

Many thanks to those people who advised 6HD of the QSL information of FG0DYM/FS7. This one is via W3HNK.

KP4AM/D QSLs are now being received and this one has had the approval of the ARRL. Also reported as being received by some of the lucky ones are the 1S1 DX QSLs.

Nets again! 6HD is not a regular check into nets, generally preferring to chase DX on the CW mode, but the amateurs who enjoy their hobby through net operations should be allowed to do so. Even if I'm not completely in favour of nets I most emphatically do not agree with the actions of certain stations who deliberately cause QRM on the net frequencies by swishing VFOs, playing recordings of the Russian Jammer or other such means. If stations wish to congregate in nets, why shouldn't they? Those who do not agree with nets must agree that by bringing a large group on to one frequency it is reducing the QRM level on the rest of the band. It is suggested that if you have strong views on this subject why not put those views on paper and send a letter to the editor of this magazine.

Thanks to VK3NDY, VK4KX, VK5WV, VK6AJ, VK6CT, VK6LK and VK6NFX, also to G. Watts News Sheet, The Long Island DX Bulletin, and The West Gulf DX Bulletin. My deadline for the November issue is September 24th. 73 es DX Mike K6HD.

QTHs YOU MAY HAVE MISSED

A7XAH — via DJ9ZB.
CO7RCB — Box 52, Camagugy.
D4CBS — Box 101, Praia.
FG0DDV/FS — via W2QM.
FH0OM — via DJ1TC.
FK8CR — via W7OK.
FK8DD — Box 3040, Noumea.
FM7WE — via K4FJ.
FP0PV — via WA2PVV.
FR7BU — Box 32, St. Paul.
FW0WW — via W9GW.
GT6UW — via G6UW.
HC5EA — via K8LJG.
HK0BKX — via WA6AHF.
IH9ZYP — via I8YGZ.
J3ABP — via K5KG.
JA8AQN/JD1 — via JA8JL.
JF1IST/7J1 — via JA1HQG or JA1NRH.
JW7B — via LA1QK.
JY8BF — via K4BF.
OY5J — via WA3HUP.
TG4NX — via WD8MOV.
VP2MBS — via VE1ASJ.
VP2MX — via VE1ASJ.
VR1BE — via N6ADL.
XF4MDX — via XE1OX.
YS1RRD — Box 32, San Salvador.
ZB2EY — via DL5NJ.
ZD8RG — via K8VIO.
ZF2CN — via WB4AXN.
3B6CD — via 3B8CD.
3B8BZ — Box 467, Port Louis.
3D6BW — via K2IJL.
5B4HF — Box 4180, Nicosia. ■

OKINO-TORISHIMA DXPEDITION

The Okino-Torishima DXpedition had 5500 QSOs with 70 countries over four days of operation. Originally a ten day operation was planned but due to very heavy seas and dangerous conditions the operation had to be limited to four days.

The operators returned to Japan on 23rd June after four days of operation. The operation was under difficult conditions as can be seen from the photographs.

Sort of makes even the worst VK Field Day look like a picnic.

Information provided by S. Hara JA1AN, President of the JARL.

In due course an 8 mm film of the DXpedition will be edited from film taken. ■

MAGAZINE INDEX

Syd Clark, VK3ASC

CQ February 1979
The Federal Arc Transmitter; Watt's Current; Eavesdrop on RTTY; Repackaging the GLB Synthesiser; Electrical Shock; The Viking 5; Adding 160 Metres to the Heath SB-220; All About Kits: Tools and Equipment you'll Need; A 1935 Style DX Tx for Twenty Dollars or Less; QSL Cards, Part 2; The Ins and Outs of the Washington Scene; Confessions of an XYL; Communications a New Concept in Education and Community Services; CQ WW WPX/SSB Contest.

CQ MARCH 1979
RF Power Transistors and Amplifiers — Their Care and Feeding; More on the All-Band Antenna Tuner; Understanding the SWR Meter; The MFJ-484 Grand Master Memory Keyer; The W3GNO Loop Antenna, The K7WA Loop Antenna and the WB5QGI Sloper; Antenna Design and Construction Guidelines for the VHF/UHF Amateur Bands; A Power Meter that Says "Watts the Difference"; Save a Life — With CPR; Comments on FCC Docket 20777 (ASCII and Amateur Radio); Amateur Radio Helps Run the New York City Marathon; Across the US with Two Metres.

CQ April 1979
Wideband Modulation (WBM) Techniques; Build Your Own MP-80 Morse Code Keyer, Pt. 1, Basic Theory of Operation; A Breadboarding and Interconnection Scheme; A Solid-State 3.5/7 MHz VFO for the K8EEG Viking-5 Transmitter; The Yaesu FL-2100 Linear Amplifier (Review); All About Kits, Part IV, If It Doesn't Work; RF Power Transistors and Amplifiers, Their Care and Feeding, Part II — Servicing and Trouble Shooting; Antennas: The K6VQ Antenna Tuner and the UA3IAR Quad; A Compact 4 x 4 Array for Home or Field Day Use; Mobile Autopatch Operation — Safety First; 1978 CQ WW DX Contest High Claimed Scores; 9 Projects for Under $9; The DJ is a Robot; A Data Retrieval Program — In Basic.

HAM RADIO February 1979
Two-Metre FM Power Amplifier; Solid State Antenna Position Display; Phase Coherent RTTY Modulator; Charging Nicad Batteries; Crystal Oscillators; Semiconductor Curve Tracer; New Approach to the Noise Blanker; Causes and Cures of Power-Line Noise; Digital Techniques: Gate Structures and Logic Families; Field-Strength and Volt-Ohm Meter; HT-37 Improvements; TTL Logic Probe; Code Speed Counter.

HAM RADIO March 1979
Small Beams; Voltage Tuned Oscillator; Operation Characteristics of the 555 Timer; Receiver Digital Display; 1-MHz Oscillator; Matching Grounded-Grid Tubes; The Key-Toggle; IF Transformers; Updating the HW-2036; The Dasher; Passive Phase-Shift Networks; Cabinet Construction; Digital Circuits: Propagation Delay and Flip-Flops.

RADIO COMMUNICATION March 1979
The "Fiver" Converter for "Four"; The G4DCH Direct Conversion Receiver; Two Demountable Beams; Solar Cycle 21 — Progress and Prospects; Extending the Facilities of the Experimental Self-Tutor for Morse Code; The Cornwall Raynet Emergency; UOSAT — Britain's First Amateur Spacecraft.

RADIO COMMUNICATION April 1979
Reception and Processing of TIROS-N Weather Satellite Telemetry (Part 1); A Diode Matrix Channel Numbering System; RSGB Band Plans (VHF); International Beacon Project — UK Beacons.

73 February 1979
Five-Chip Auto Ider; The Vacationer; Tone Decoder Improvements; The All-Wrong Power Supply; The Hardhearted RF Detector; Custom-Designed Power Supplies; A Touch of Class; How to Bury the Coax; Mobile Antenna Ingenuity; Impedance and Other Ogres; The Active Filter Cookbook; A Rock-Solid AFSK Oscillator; Pulser Plus; Oh, My Poor Quad; A Self-Contained, Fully-Automated, Transistorised Fuse Tester; Don't Get Burgled; Power x 2; Experimenting with Tones; Synthesise Your Ash Tray; Attention, Satellite Watchers; Batteries Dead; How to Nab a Jammer; This Station Plays Beautiful CW; The Cure for Migraines; An 8080 Repeater Control System; The Cosmac Connection: Part 2; Learning the Code; Books for Beginners; The Two-Metre ECM Caper; I Love My Ten-Tec; A $5 Phone Patch; The Filter Follar Revisited; Build an Economy Sener Checker; Alaskan Adventure; The Last DX-pedition; An Audio Morse Code Memory; The Amazing Active Attenuator; A Single IC Time Machine; Car Battery Charger; Immortality for Vacuum Tubes; The Hot Mugger X1; Build the Mini-Probe.

73 March 1979
RAM Scan Your KDK; The NCX-Match; The Memorizer Goes to MARS; Build a Hybrid Capacity Meter; Power Plus; Reaching for the Top; Universal Alarm Circuit; Exorcise Those Unwanted Frequencies; 10c Mod for the 22S; The 10-GHz Cookbook; Legalised ASCII, The Quad-S System; Brew Up a Beam for Two; Keyboard Serialisation; Ignition Noise and 2m FM; An 8080 Repeater Control System; DX Fantasy; Try a Log Periodic Antenna; New Coax Cable Designations; The Micro Magic Pi Designer; A Better Micoder; Winning the QSO Name Game; A New Approach to NICAD Care; On the Razor's Edge; Tips for VOM Users; Chamber of Horrors; An Intelligent Scanner for the HW-2036; Trickle-Cost Trickle Charger.

73 April 1979
A Speedy Spinner Mod; A Variable Bandpass Active Filter; What About an Active Antenna; Help for the Hearing-Impaired; Try a Bi-Loop Antenna; Simple RTTY IDer; Tales of Speech Processing; PTT for Ten-Tec's Linear; Disaster Preparedness; Comfort Mods for the Mark II; An 8080 Repeater Control System; The Micro Duper; An 8080 Disassembler; Antenna Bonanza for 10; Lightning; Build a CW Memory; Wire Wrap on a Budget; Compact Continuity Tester; Who Needs SSB; 12 Volts, 5 Amps, 3 Terminals; Has Anyone Seen OSCAR 7?; Tricky QSK; Make Life Easier; The Heath/Kenwood Connection; An 8-Element, All-Driven Vertical Beam; CW with a Nordic Flair; House Hunting for Hams.

73 May 1979
CB to 10; PROM IDer for Longer Call Signs; The W7GAQ Key Collection; Proper FM Transceiver Adjustment; Dual-Band Smokey Detector; The DXer's Secret Weapon; Foiling the Mad Kerchunker; Trends in Surplus; An 8080 Repeater Control System; RTTY Transceive for the KIM-1; Keyboard Konvenience; DXCC in One Sitting; A Low-Cost Circuit Board Holder; User Report: The IC-245; The History of Ham Radio — Part VIII; Improving the Sabtronics 2000; Turn Signal Timeout.

BREAK-IN January/February 1979
Diode Channel Switching for Pye Cambridge Transceivers; TV Power Transformers for HV Supplies; Radio Direction Finding; Line Oscillator Interference; Modifications to Wellington Walkies; A 3 to 9 Volt Regulator; Microprocessors; A ZL's Visit to USA; Conference 1979 — Upper Hutt; IARU.

BREAK-IN May 1979
Almost as Much for Evan Less; Capacity Measurements at Two Metres; Oven Stabiliser; The ZL1BCG Synthesiser; What's Happening at Our Club; 48,100 QSOs in 1978; How to Get Wet in One Easy Lesson; NZARC Conference 1979; Rules for 1979 Memorial Contest; 1979 National Field Day Results; The Novice Licence — Dream or Reality.

CQ May 1979
RF Power Transistors and Amplifiers — Their Care and Feeding, Part 3 — VHF/UHF/ Microwave Radiation; A Multi-Mode Beam for CB and 10 Metres with an Option for Two Metres; Build Your Own MP-80 Morse Code Keyer, Part 2 — Construction; Cranium Queries; Jumping Jupiter; Sabtronics 2000DMM Digital Multimeter; Antennas:—More About Monster Quads; 1978 CQ WW DX Contest High Claimed CW Scores; Reflections and Recollections; Comm Centres Bantam Dipole; Time Signals from Down Under.

CQ June 1979
Getting the Most Out of Schematic Diagrams, Part 1; An Introduction to Slow Scan Television; The World's First Integrated Circuit; Build Your Own MP180 Morse Code Keyer, Part 3, Conclusion; DX Antennas for 40 and 80; In Focus, Computers and SSTV; A *Versatile Step* Attenuator; The LPQ Mk. V, A Low Profile Quad for 10, 15 and 20 Metres; Learning the Morse Code, Part 1; W6VIO's SSTV Pictures of Jupiter and Its Moons go Around the World; Support Your Local Dealer; QRP; 1978 Milliwatt Field Day Results; RF Output Power Measurements, Part 1.

HAM RADIO April 1979
40 Metres Receiver; CW Operator's PAL; Calculator-Aided Propagation Predictions; Deluxe Memory Keyer; Bandpass Filter for RTTY; Audio Amplifier for the R-4C; The Verti-Loop; Interesting Solutions to the Jammer Problem; Variable-Frequency Audio Filter; Transceive and Split Operation with the TR-4/R-48 Combination; High-Performance 432 MHz Converter; Impedance Measurements Using an SWR Bridge; Digital Techniques: Flip-Flop Internal Structure.

HAM RADIO May 1979
Quads vs Yagis; Impedance Bridge Errors and Corrections; Broadband Reflectometer and Power Meter; New Approach for Measuring SWR at High Frequencies; Folded-Umbrella Antenna; Broadband 80-Metre Antennas; Matching Complex Antenna Loads; Different Multi-Band Antenna System; Two-Metre Mobile Antenna; Sloping 80-Metre Array; Measuring Antenna Performance.

QST May 1979
Versakeyer, A Multimode Paddle Keyer; An Experimental VMOS Transmitter; Build a Broadband Ultralinear VMOS Amplifier; A VMOS FET Transmitter for 10 Metre CW; A Novel Way to Mount a Rotary-Beam Antenna; Novice Questions and Their Answers; Extra Special Extras; Mountaintopping, Midwest Style; The RV Service Net System; Stamps Reflect Growth of Amateur Radio; The Care and Feeding of Repeater Traffic Nets; The Not-Ready-for-Prime-Time Traffic Handlers; Results, 32nd ARRL VHF Sweepstakes; Rules, 1979 IARU Radiosport Championship; Field Day Rules; June VHF QSO Party; Armed Forces Day Tests; The 65th Anniversary of ARRL; FCC Extends Grace Period for Renewal to Five Years; The Safari Ends. What Have We Learned in Africa?; They All Wear White Hats.

RADIO COMMUNICATION June 1979
Improving the FT101; The Yaesu FT7 HF Transceiver — Review; Measurement of Antenna Radiation Resistance and Reactance; A Compact Prescaler for VHF; A Multiband Dipole for the HF Bands.

SHORTWAVE January/February 1979
Antennas — The Weak Link, Part 7; RAE Q and A; A High Frequency Converter; The Law of Murphy; Constant Deviation Compressor for a Two-Metre Transmitter.

RADIO ZS January 1979
Vapour Ignition Hazards can be Controlled — HSE; A Visit to the Far East; What Effect Will CB Have on Ham Radio? ■

FROM THE OVERSEAS ADS

Trio Kenwood have released a dual-band 2 metre and 70 cm transceiver the TS770. This is a multimode transceiver on the lines of the TS700 and TS600. Features include dual VFOs, digital readout and scanning as well as the two band coverage.

FDK have a new 70 cm transverter, the MUV430A.

Icom have a 432 MHz *version of* their popular IC280. This 432 MHz rig is called the IC370 in Japan.

Alinco have a range of towers, power supplies and linear amplifiers. The linear amplifiers give up to 50 watts output and are available in both 6 and 2 metre models This should mean some bigger signals from Japan in the coming openings. ■

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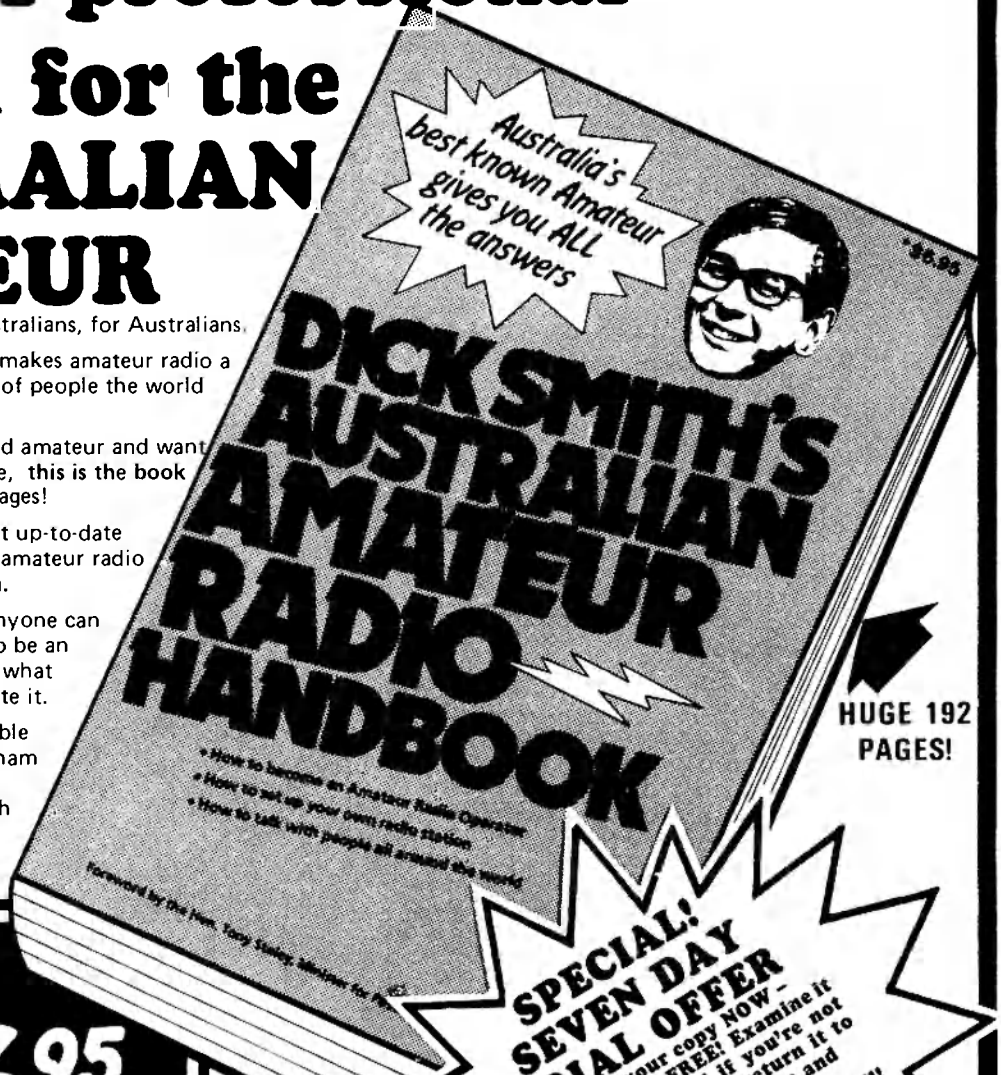

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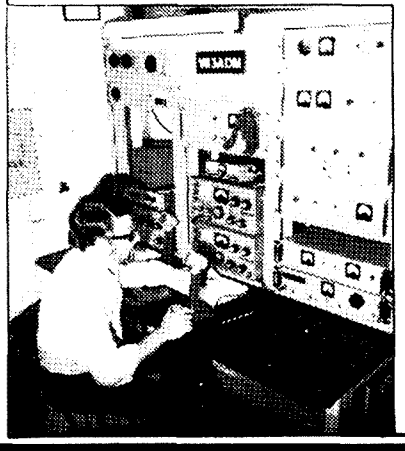

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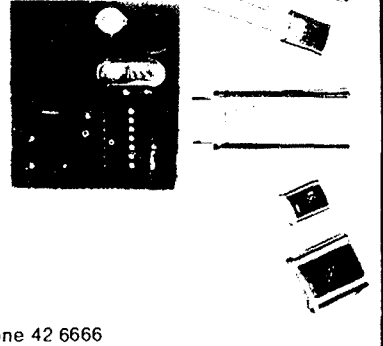

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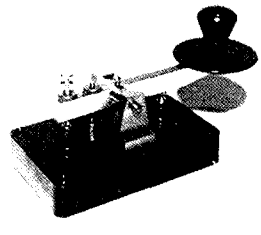

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  Memory Scan allows you to monitor three different memory channels. Program Scan provides scanning between two programmed frequencies. Adjustable scanning speed. Auto-stop stops scanning when a signal is received, in all modes. Auto-start restarts scanning after a pre-set interval.
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  Built-in 240V AC and DC power supplies. Convenient Dial Lock switch for mobile operation. Easy-carry handle. Effective Noise Blanker to reduce outcoming pulse noise. IC-SM2 high quality stand microphone is suitable for fixed station operation. Powerful audio output, 2 watts at 8 ohm, for easy listening even in noisy surroundings.
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* **ACCESSORY CIRCUITS**
  ICOM's original effective Noise Blanker to reduce pulse noise. AGC selection to reduce QSB effect. RIT circuit to shift the receiving frequency without effecting the transmitting frequency. Includes voice control unit for smooth VOX operation. ICOM's famous bandpass tuning to improve selectivity in the receive mode. RF speech processing in the transmit mode for that extra 'talk power'.
* **BACKED BY VICOM**
  90 day warranty and technical/spares support.

IC551 Specifications: ☐General. Number of Semi-conductors: Transistors 51. FET 13. IC (includes CPU) 30. Diodes 114. ☐ Frequency Coverage: 50 — 54MHz. ☐ Operationable Temperature: — 10°C — +60°C (14°F — 140°F). ☐ Frequency Stability: Less than ±500Hz after switch on 1 min to 60 min, less than 100Hz per 1 hour after 60 min, and less than ±1KHz in the range of — 10°C to +60°C. ☐ Antenna Impedance: 50 ohms unbalanced. ☐ Power Supply Requirements: 13.8V DC ±15%, negative ground, or 117V/240V AC ±10%. ☐ Power Consumption: Receive at min. audio level DC 0.9A AC 35W. at max. audio level DC1.1A AC41W. Transmit in SSB/CW modes DC 3.3A AC 98W. in AM mode DC 3.0A AC 92W. in FM mode DC 3.3A AC 98W.
☐ Dimensions: 111mm (h) x 241mm (W) x 311mm (D). ☐ Weight: 6.1 kg. ☐ Transmitter. Emission Modes: A3J SSB (USB/LSB). A1 CW. A3H AM. F3 FM. ☐ RF Output Power: SSB 10W PEP (1 — 10W adjustable). CW 10W (1 — 10W adjustable). AM 4W (0 — 4W adjustable). FM 10W (1 — 10W adjustable). ☐ Modulation System: SSB/AM Balanced modulation. FM Variable reactance frequency modulation. ☐ Max. Frequency Deviation*: ±5KHz. ☐Spurious Emission: More than 60dB below peak power output. ☐ SSB Carrier Suppression: More than 40dB below peak power output. ☐ SSB/AM Unwanted Sideband: More than 40dB down at 1000Hz AF input. ☐ Microphone: 600 ohm dynamic or electret condenser microphone. ☐ Receiver. Receiving Mode: A1 (CW), A3J (USB, LSB), A3H (AM), F3 (FM). ☐ Receiving System: SSB/CW/AM Single Superheterodyne (Triple Superheterodyne when Pass Band Tuning unit is installed). FM Double Super heterodyne. ☐ Intermediate Frequency: SSB/CW/AM 9.0115MHz. (When Pass Band Tuning Unit is installed: 2nd IF: 10.75 MHz, 3rd IF: 9.0115MHz). FM 1st IF: 9.0115MHz, 2nd IF: 455KHz. ☐ Sensitivity. SSB/CW/AM Less than 0.5 uV for 10dB S/N/N. FM More than 30B S+N+D/N+0 al 1 uV. ☐ Spurious Response Rejection. Ratio: More than 60dB. ☐ Selectivity: SSB/CW/AM More than ±1.1KHz at — 6dB. Less than ±2.2KHz at — 6dB. (When Pass Band Tuning Unit is installed: less than 1KHz at —6dB). FM more than ±7.5KHz at — 6dB. Less than ±15KHz at —60dB. ☐ Squelch Sensitivity: SSB/CW/AM 1 uV. FM 0.4uV. ☐ Audio Output Power: More than 2 watts. ☐ Audio Output Impedance: 8 ohms.

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AWARDS COLUMN

Bill Verrall VK5WV
7 Lilac Ave., Flinders Park, S.A. 5025

Here is a summary of WIA Awards issued during the period 1st January, 1979, to 30th June, 1979, and the top DXCC scores, new members and amendments as at 30th June, 1979.

WAVKCA AWARD

Cert. No.	Call Sign	Cert. No.	Call Sign
744	PA0MOD	763	9H4L
745	JA3BRB	764	JE2CGR
746	JA3CMD	765	DP2UU
747	JA6RIL	766	JA3FEG
748	JA3XRC	767	JA7ZP
749	JE1CTA	768	JH1IAQ
750	JF1SEK	769	JA5PUL
751	UL7CT	770	JA3VXH
752	UA0NH	771	JA4BCW
753	UW0MF	772	JA3DXD
754	UA0LS	773	JA6OTW
755	F9KP	774	JA4ESR
756	JA6WW	775	JH2CJW
757	JA7WMO/JA1	776	JH0CAZ
758	JA2UYS	777	OK3JW
759	JA3CSZ	778	YU1NEO
760	JH1QOJ	779	JA2IDN
761	G3GSZ	780	JH8JIB
762	JA6RIL		

WAVKCA (VHF) AWARD

12	VK2ZHF	13	VK2ZAY

WAS (VHF) AWARD

126	VK7MC
127	VK2ZBD
128	VK3AWY, plus 7 additional countries.

Amendment:

123 VK2BYX (ex VK2YDY), 12 additional countries.

VHFCC AWARD

100 VK2ZAY

HAVKCA AWARD

40	UA6-108-33	42	UA3-142-1
41	UA9-154-549	43	UB5-065-177

DXCC — TOP LISTINGS

PHONE

VK6RU	318/359	VK4RF	292/300
VK5MS	315/355	VK4PX	290/304
VK4KS	313/343	VK4VC	288/297
VK6MK	309/344	VK3JF	282/292
VK5AB	302/330	VK7DK	279/292
VK6LK	297/310	VK4AK	273/280
VK4FJ	296/331	VK2AAK	269/281
VK3AHO	295/326	VK3ACD	269/281
VK2APK	294/313	VK5WV	269/279
VK4UC	294/306	VK3AMK	269/276

CW

VK2EO	310/346	VK4KX	259/270
VK2QL	303/340	VK3YD	251/281
VK3AHQ	300/331	VK3RJ	247/272
VK3YL	295/325	VK3TL	242/260
VK4FJ	292/333	VK3KS	236/254
VK2APK	284/304	VK3JF	209/222
VK3XB	273/300	VK5RX	203/231
VK4RF	272/291	VK4DO	201/224
VK3NC	262/297	VK7LZ	200/229
VK6RU	259/296	VK4SD	187/206

OPEN

VK6RU	318/359	VK4UC	297/310
VK4KS	313/347	VK3AHO	295/326
VK4SD	310/339	VK3JF	294/312
VK6MK	309/344	VK2SG	294/311
VK2VN	303/336	VK3XB	279/306
VK3YL	303/333	VK4AK	274/282
VK2APK	302/329	VK3TL	273/293
VK4FJ	301/343	VK3ACD	269/282
VK4RF	301/323	VK3AMK	269/276
VK4PX	297/315	VK2AHH	268/292

DXCC — NEW MEMBERS

PHONE

Cert. No.	Call Sign	Tally
173	VK3OT	200
174	VK6VW	100
175	VK9AC	110/113
176	VK3AKK	243
177	VK3DS	128/133
178	VK3NDY	121
179	VK6NAN	101

CW

103	VK3NDY	121
179	VK6PY	101/103
104	VK3AYO	107

OPEN

168	VK3NDY	122
169	VK3AVO	99/101
170	VK6NCD	101

DXCC AMENDMENTS

PHONE	Tally	OPEN	Tally
VK5WO	226/243	VK5WO	257/279
VK3GB	189/206	VK7BC	228/230
VK3DU	150	VK3AXQ	138/142
VK6HE	241/243		
VK4CZ	258/264		
VK4PJ	173/176		
VK6NCZ	134		
VK2APW	200		

Good hunting. ■

WICEN

Ron Henderson VK1RH
Federal WICEN Co-Ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

PLANNING A WICEN EXERCISE

The starting point for any activity is an aim which must be specific, concise and achievable, e.g. to exercise the Bungendore WICEN group in formal message handling.

Having due regard for local terrain, weather, numbers of operators expected and equipment available, it is next best to select a time, duration, location and frequency band for the exercise. For example, 0900 to 1300 Sunday, using 2 metres VHF along the Molongolo River. From this a scenario can be painted, it need only be a paragraph or so, to portray a possible situation in which your group may become involved, i.e. river flood height reporting.

The exercise director or controller can now ghost out a sequence of events covering the proposed exercise duration and devise exercise traffic, often as pre-printed formal messages with associated release times.

Consideration should also be given to administrative matters such as publicising the exercise to members, meals, and Radio Inspector clearances (see him early to determine his needs!).

Briefings can be given either at a central site before moving out or on the air. Briefing should be thorough and include enough information to allow each outstation to draw up a net diagram complete with call signs and locations.

Personal experience has shown that a 6 to 8 station net with inexperienced operators can handle 3 to 4 "send" messages per station in a half day using 2 metres FM simplex in good operating conditions.

In conclusion, do not forget the post exercise debrief or "wash-up", this must be held as soon as possible yet with ample time allowed for individual comments. Consequently it is often best not to hold it straight after the exercise, but a few days later, possibly as a "social" (coffee house) gathering. Do not neglect the AR publicity aspects and keep your divisional WICEN co-ordinator informed of your activities.

FEDERAL NET ACTIVITIES

As a result of failing interstate communications arising from the Telecom employees' industrial action in mid-July a Federal WICEN network was activated. The net reported in for about a week and tested both SSB and RTTY communications each evening at 0800Z.

Activities in the States differed from State to State, but at least one State WICEN group was placed on standby by their emergency authority, the police.

Whilst little traffic was passed, possibly only one or two messages, the regular tests demonstrated WICEN's capabilities which were advised to the Natural Disasters Organisation, our liaison link with the emergency communications committee set up by the Prime Minister and chaired by Senator Guilfoyle. Obviously the lack of traffic was due to the Government policy of waiting until serious breakdowns were evident before invoking emergency services. Despite this, WICEN has demonstrated its ability to meet a request if needed. Thanks to all operators who reported in each evening.

NATURAL DISASTERS ORGANISATION ANNUAL EXERCISE

The annual Natural Disasters Organisation exercise, COMCOORD 2, will be held over the period 7th to 9th November, 1979. The exercise scenario includes a cyclone in Darwin and an earthquake in Adelaide.

Preliminary discussions with NDO suggest that WICEN may be involved on the 8th and 9th November, and that activations in Adelaide and Darwin will be without warning.

To avoid confusion in other States not involved, ACT WICEN will be on listening watch for the duration of the exercise. States not involved may monitor the exercise but should not involve their local counter disaster authorities. State WICEN co-ordinators will receive a newsletter containing further details in due course. ■

CONTESTS

Wally Watkins VK2DEW
Box 1065, Orange 2800

CONTEST CALENDAR

September:

8/9	EUROPEAN PHONE CONTEST
15/16	SCANDINAVIAN CW CONTEST
22/23	SCANDINAVIAN PHONE CONTEST
22-Oct. 10	"STRADIVARI" CONTEST

October:

6/7	VK/ZL/OCEANIA PHONE
13/14	VK/ZL/OCEANIA CW
13/14	RSGB 21-28 MHz PHONE
20/21	RSGB 7 MHz PHONE
27/28	CO WW DX PHONE

November:

3/4	RSGB 7 MHz CW
24/25	CQ WW DX CW

STRADIVARI CONTEST

Artistic certificates and special valuable prizes will be awarded to amateurs who submit written confirmation for contacts with amateur stations located in the district of Cremona.

Period: From 0000Z 22nd September to 2400Z 10th October, 1979.

Bands: 80 through 10.

Modes: Phone and CW.

Call: Phone, "CQ STRADIVARI CREMONA"; CW, "CQ STR CR".

Only one contact with the same station on the same band on whichever mode in the same day allowed. Contacts with the same station on whichever mode and in the same day are allowed on different bands at least one hour later than the previous contact on other band.

Score: VK stations, two points for each valid contact and double score for 28 MHz contacts.

Certificates will be awarded to VK stations scoring at least 30 points.

A special and valuable prize will be awarded to the station with the highest score in Oceania.

Confirmations to: ARI, Sez. Di Cremona, Box 144-26110, Cremona, Italy, not later than December 31, 1979, and consisting of station reporting log — serial No. (start 001), time, date, call, band, RS(T), of each contact. One QSL card for each contacted station and 10 IRC. ■

AROUND THE TRADE

VICOM RELEASES COMMUNICATIONS COMPUTER

Vicom has released the latest in microprocessor technology with the Tono Theta-7000 communications computer, specially designed for the Amateur Radio Operator.

The computer offers facilities for both transmission and reception of RTTY, CW and ASCII, plus video output for monitoring, and a parallel port for a hard-copy printer.

Firmware provided includes the usual housekeeping, cursor and scrolling functions, plus the ability to interface with another microprocessor unit.

Information can be recorded and played back using an external tape recorder which adds to the flexibility of the unit.

A spokesman for Vicom said that sales of the Theta-7000 had exceeded all expectations. "The Tono is packed with features and tricks not previously available with other units. A number of enterprising amateurs are using the units to completely control their ham shack functions," the spokesman said. The Theta-7000 retails at $739 and is available throughout Australia and New Zealand from the distributors, Vicom International Pty. Limited and their dealer network. ■

NEW 6 METRE ALL MODE TRANSCEIVER

ICOM have just released the export version of the 6 metre all mode transceiver. The IC551, as it is called, follows in the tradition of the IC211 (2 metre) and the IC701 (HF) in that it is the same size and appearance but with increased facilities.

The ICOM IC511 covers 50-54 MHz and the export versions to Australia will have the optional FM and passband tuning units installed. Modes covered will be FM, SSB, AM and CW, with the dual VFO system as used in the IC211 and 701 part of the package. Memory is provided (three frequencies) and a scanning function with variable speed can be switched in to cover the whole band.

Power output is a nominal 10 watts.

Price is expected to be around $800 and enquiries on availability should be directed to the Australian distributors, Vicom International Pty. Limited, 68 Eastern Road, South Melbourne. Phone 699 6700. ■

SCALAR HF BAND AMATEUR MOBILE ANTENNAS

A new range of mobile antennas for use in the HF amateur band 80-10 metres has been announced by Scalar Industrise.

The new Scalar HF resonator system consists of a radiating support mast section topped by one or more screw on resonators, covering the 80, 40, 20, 15 or 10 metre bands. When used alone the mast section serves as a quarter wavelength antenna on either the 6 metre (model SC6M) or 2 metre bands (model SC2M).

Mounting a single resonator on top of either mast converts it into a quarter wave resonant, top loaded vertical antenna. Individual resonators cover each of the 80m, 40m, 20m, 15m and 10m band and are user adjustable to resonant frequency by means of the tuning spikes.

The addition of a triband attachment (model SC1015) at the top of either mast enables conversion to automatic duo-band or triband operation.

The SC6M mast is manufactured of high grade aluminium, anodised. It is designed to fit on a heavy duty base, having a standard 3/8 in. x 24 TPI female thread.

The SC2M mast fiits on either a roof or ski bar mounted base or guttergrip type base, having a 5/16 In. x 26 TPI male thread.

Further details may be obtained from Scalar Industries Pty. Ltd., 20 Shelley Ave., Kilsyth, Vic. 3137. ■

NEW GREAT CIRCLE MAP

GFS Electronic Imports have just announced the release of a new Melbourne Centred "Great Circle Map". The map, measuring 33.5 x 43 cm, allows the user to obtain bearings on the shortest distance to any place in the world.

By laying a ruler on the map the correct bearing, in degrees, for pointing an antenna to a particular country is given. Also the shortest distance, in miles or kilometres, can be read at the same time.

For more information, contact the publishers, GFS Electronic Imports, 15 McKeon Road, Mitcham, Victoria 3132, (03) 873 3939. Price is $1.00 plus 75 cents post and packaging. ■

HOME COMPUTER WINNER

Kevin Reville of Frenchs Forest, NSW, winner of the Dick Smith "Win a Computer" competition held during the recent Home Computer Show, Sydney, receives his prize of an Exidy "Sorcerer" Personal Home Computer from Dick Smith.

Kevin, a computer consultant, is also a part time lecturer in commercial data processing at Sydney technical colleges. The "Sorcerer" will assist Kevin in class room demonstrations and for processing student programmes. ■

IMARK NOW IN MELBOURNE

As from August 1st, 1979, Imark Pty. Ltd. will be situated at 167 Roden Street, West Melbourne. The new phone number will be 329 5433.

The change in location from country Ararat is planned to coincide with the release of the Sawtron 880 UHF CB transceiver, the "New Generation" SBE 27 MHz CB transceivers, the NDI 2 metre and the Belcom 43-440 MHz amateur transceivers.

All Imark products will be on display and (where practicable) set up to work. For this reason retail customers are also welcome and there will be some opening specials available for early birds, too.

Imark are well known for their comprehensive range of Japanese transistors, diodes and ICs, as well as CB spare parts. These will be still available in the usual prompt fashion by mail order as well as being available direct from 187 Roden Street, West Melbourne.

While Imark's interstate customers will receive the same prompt service they have become accustomed to, Victorian trade customers and dealers will find the new location very convenient. Furthermore, Melbourne retail CB and amateur customers will welcome another supplier in their midst, as they are well known for their "shopping" habits. ■

HAPPY BIRTHDAY

R. H. Cunningham Pty. Ltd. is celebrating its 30th anniversary this year. It was founded in 1949 by Bob Cunningham following retirement from the RAAF. The company has become known as one of the leading electronic/electrical distributors of components and professional audio equipment in Australia.

Bob is known to many readers as VK3ML.

Many amateur stations in the 1950s used Geloso and Eddystone equipment supplied by R. H. Cunningham.

R. H. Cunningham Pty. Ltd. has decided to concentrate all its efforts in the professional audio market. Effective from June 4, Rifa Pty. Ltd. has taken over the marketing of Cunningham's non-audio product lines which include Bulgin, Eddystone, Sonnenschein, Stettner and Q-Max.

Jim Cunningham, managing director, said "the decision to specialise in audio follows the success of the Sennheiser product range covering dynamic headphones and microphones, RF radio mikes, infra-red cordless headphones, condenser microphones and test equipment.

"The Swiss made Neutrick XLR-twpe audio connectors introduced only one year ago have had tremendous acceptance, and are now in wide use throughout the audio industry."

Dowkey/Kilovac coaxial and vacuum relays, together with Vltavox loudspeakers and microphones, remain an important sector in Cunningham's marketing programme. ■

SHORT FORM ANTENNA CATALOGUE

A short form catalogue describing Australian made VHF and UHF base station antennas has been issued by Antenna Engineering Australia of Kilsyth, Victoria.

The condensed information covers simple ground plane and vertical dipole antennas, to high gain omni-directional colinear arrays, dipole arrays, yagis, corner reflectors and mounting hardware. Individual data sheets fo all new models will be available.

Copies are available on request from Antenna Engineering Australia, PO Box 191, Croydon 3136. ■

QSP

GLASS FIBRE WAVEGUIDES

It is not possible to reproduce in full an article in the May 1979 issue of the Telecommunication Journal, but a few extracts are interesting. Light, being an electromagnetic wave of the same kind as radio waves, has an information transmission capacity of 100 Gbit/s — enough for 1 million digital telephony channels. Research by Drs. Kao and Maurer in the 1960s, following the discovery of the gas laser, led to the production of glass fibre waveguides of two glass materials with different refractive indices known as the "step-index fibre". Other types were then developed with a refractive index continuously variable from the core centre to the periphery — "graded-index fibre". At the present time there are glass-fibre systems working with a transmission capacity of 44 Mbit/s and systems for 274 Mbit/s are planned, all with an attenuation below 1 dB/km at the specified wavelength. A small quantity of silicon replaces a large quantity of copper and also results in lighter and more flexible cable immune to external electromagnetic disturbances. Another item in the journal reports a new 15.4 km link public telephone network link in W. Germany using cable about 7 mm thick consisting of a pair of glass fibres with a diameter of 0.1 mm. Up to 480 telephone calls can be transmitted simultaneously and separately. The June 1979 Proceedings of the IREE Australia is devoted to optical fibres. ■

DIVISIONAL NOTES

VIC. DIVISION NOTES
VK3BWI, BROADCASTERS

PHOTO 1

PHOTO 2

PHOTOGRAPH 1

The smiling face of Dale VK3AAE adorns the studio (?) of VK3BWI. Dale is a regular announcer and contributor to the Victorian Division Sunday morning broadcast. A member of the Frankston and Mornington Peninsula Radio Club, Dale is very active as the Publicity Officer and always presents an interesting and informative segment for the broadcast.

PHOTOGRAPH 2

Paul Higgins VK3BEK at the VK3BWI console. Paul, himself an announcer on Melbourne commercial radio station 3MP, is yet another contributor to the Victorian Division broadcast. Paul's professional manner on air guarantees a well-oiled broadcast. The call sign VK3BEK may be familiar to listeners on 160 metres, as Paul is a keen 160 metre AM operator, along with a host of night owl stations. ■

GEELONG RADIO AND ELECTRONICS SOCIETY

At the recently held Annual General Meeting the following office-bearers were elected:—

President, A. Chalmers VK3NOR; Vice-President, R. Tippett VK3NMF; Secretary, R. Francis; Treasurer, W. Erwin VK3WE.

General Committee: W. Bond VK3BWS, M. Fenton, K. Vriens VK3AFI, R. Wheller VK3NOF, G. Wilson, L. Wilson.

Special Officers: Syllabus Officer, G. Wilson; Librarian, R. Trevor; Publicity Officer, K. Vriens VK3AFI; Store Officers, G. Wilson, W. Bond VK3BWS; Caterers, Ladies' Auxiliary; Auditor, L. Wilson; AF Officer, B. Mahon; CB Officer, C. Blues; RF Officer, R. Wheller VK3NOF; Equipment Officer, R. G. Green VK3AYQ.

According to the recently adopted constitution, the new office-bearers will remain in office for a period of two years.

The printed circuit board equipment is used a lot, and the addition of materials and facilities for members to produce their own art work and negatives has created even further interest.

Project building activity is very high at present, with projects varying from a touch oscillator, a remote digital control unit to an IC22S channel scanning unit.

Novice and advanced classes (free to enrolled members) are run on Monday nights from 1900 to 2100 hours.

Club meetings are held on Thursday nights at 2000 hours. Visitors are welcome.

The Society's rooms are located at the Belmont Common. For further information write to: The Geelong Radio and Electronics Society, PO Box 962, Geelong, or ring (052) 93337 or (052) 21 3658. ■

COMMERCIAL KINKS

With Ron Fisher VK3OM

3 Fairview Avenue, Glen Waverley 3150

This month two very simple modifications for two popular transceivers, the FT-7 and the FTDX-401/560.

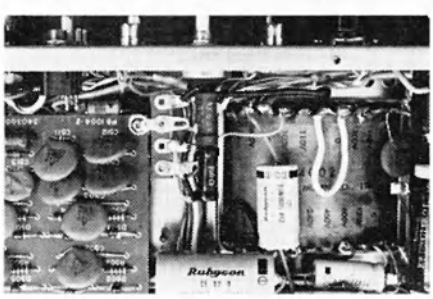
LET'S START WITH THE FT-7

Allan McKercher VK7NAT has come up with an idea that should please CW operators. As FT-7 owners will know, the CW side tone level can only be adjusted by means of the internal preset control. With Allan's modification the side tone level can be varied with the normal AF gain on the front panel. Here is how to do it:

Remove PB1648 (AF unit) and remove R617 (100K). Connect a small .047 ceramic capacitor between pin 10 and pin 11 of this board. This allows the side tone to be fed to Q603 via the AF gain control. Next readjust the side tone preset VR701 (PB1622A) to about the 11 o'clock position. It is now possible to turn the side tone up or down with the normal AF gain control.

NOW TO THE FTDX-401

One of the main problems with this transceiver (in my opinion) is the high noise level of the cooling fan. I put up with this for a long time but finally enough was enough. The solution proved simple: A series resistor was all that was needed. The AC supply to the fan comes off the power transformer primary winding and is easily accessible. After some experimentation a value of 700 ohms was settled on. This appeared to make very little difference to the amount of air being moved but it dropped the pitch of the motor noise to a very acceptable level. The photo shows how the resistor was mounted or as in this case two two resistors in series. A single resistor would need to be rated at five watts.



The next edition of Commercial Kinks will return to our old friend the FT-200 for an interesting AGC modification. ■

SPECIAL NOTICE TO "AMATEUR RADIO" READERS

In the June issue of "Amateur Radio", an advertisement appeared for Dick Smith Electronics on the inside back cover.

We have discovered that the advertisement is not valid as the artwork is over 13 months old. This is not the fault of Dick Smith Electronics but an oversight by "Amateur Radio" production staff.

The correct advertisement as should have appeared in June is in this magazine.

Dick Smith Electronics have suffered considerable embarrassment over this error and would like us to point out on their behalf that publication of the ad was completely beyond their control.

We apologise to any readers who may have been misled by this unfortunate error.

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1979 Call Book.

FOR SALE

Crystals, suit Ken KP-202, five commonly used 2m FM European channels, Simplex S0, S21, repeater R5, R6, R7, $15. VK8SU/1, Box 1231, Canberra City, ACT 2601.

Drake T4X SSB/CW Tx, 200W input DC, matching AC power supply, Dyn desk mic, Drake R4A Rx with accessories of full short wave band xtls, Drake noise blanker, Drake CW filters, Drake MS-4 commun spkr, Cushcraft vertical HF antenna cable and RG8U connectors all supplied, $675 full price. All equipment in mint condition. James VK2JO, GPO Box 5076, Sydney 2001, NSW. Ph. (02) 36 7756 A.H., (02) 389 7786 Bus.

SM220 Monitor Scope with BS-8 adaptor (new), $380; Swan 240 with ext VFO, AC and DC supply and spare set of valves, $200, ONO. Bruce Beresford VK2RT. Ph. 520 7838.

Complete Icom Station: Icom IC 701 HF SSB Transceiver, IC 701 PS power supply, IC RM3 remote control unit, IC SM2 desk mic, only 4 months old, the lot for $1500 cash; IC 502 6m Txcvr, 4 months old, hardly used, as new, $220, ONO; IC 202 2m Txcvr, c/w Oscar xtal, little used, as new, $220, ONO; 6m linear, 2 x 6146A, 90W from IC 502, $50, ONO. VK2ADS, "Barcoo", Tambar Springs 2381. Ph. (067) 44 1749.

Frequency Meter, BC221, complete with original frequency charts and hand book, also additional circuits for use with BC221, all excellent condition, $50, ONO. T. Ogden VK2VDC. Ph. (063) 42 2873, after 6 p.m.

Standard C146A Hand-held FM Transceiver with nicads (no charger) and channels 40, 50, R4, R5, R8, new condition, $150, ONO. Reg VK3KK, QTHR. Ph. (03) 652 8110 Bus., (03) 469 4200 A.H.

Video Display Board as per EA article, $120. N. Osborne VK3YEI/2, 76 Monaro Ave., Kingsgrove, NSW, or c/o ph. Melb. (03) 90 6424.

Galaxy III Triband Tcvr, v. good cond., new filter, orig. pwr. supply, mic. and manual, $230, ONO; HW-32A 20m monoband Tcvr, coil and xtals for 80 and 40m if wanted, h/duty pwr. supply, needs work, best offer. VK3AQD, QTHR, or Ph. (03) 459 6445.

FT DX 500 CW Filter, $350; FT101 80/10m AC and DC/DC conv., $400; some spare tubes and manuals; both sound cond. Gordon Bracewell VK3XX. Ph. (03) 876 2448 A.H.

2m FM Base Station, MR10C, $30; also 2m MR3B carphone junior with transistorised power supply and crystals, $30. VK3BLR, QTHR. Ph. (03) 874 3583.

Kenwood TS600 6m Transceiver, very little use, perfect cond., $550; Pye 739 base Tx/Rx, solid state with 6/40 final, xtals for ch. 40 and 50, $75. VK4ZRF, QTHR. Ph. (07) 349 1488 A.H., (07) 225 4477 Bus.

Transformer 1500, 1250, 1000 750, 500 CT, 500, 750, 1000, 1250, 1500V, 500 mA, FIL 2.0V 10A, 5V 3A, $35; 668/866A rectifiers for above, 4-off, $20, ONO; sockets and 2 x 50,000 ohm 120W bleed resistors, free if all taken. Allen Crewther VK3SM, QTHR. Ph. (03) 386 4406 A.H., (03) 630 5794 Bus.

6m Transverter 6/40 final VK3 Rx converter, part built, $40; CDE AR-22L rotator, unused, $60; multiple lengths coax, UR67, etc., plus box N type connectors, $20. VK2YCS. Ph. (02) 44 3141.

Drake R4A HF Rx, ham and Int. SW freqs., 500 kHz bands, NB and .4, 1.2, 2.4, 4.8 kHz filters; Drake MS-4 speaker, owner's manual, in exc. cond., $575. James VK2JO, GPO Box 5076, Sydney 2001, NSW. Ph. (02) 36 7756.

KW2000E Tcvr, 160-10m, like new, $500, ONO; FT7 with FP-4 power supply and crystal for 28 to 28.5, 3 mths. old, $450, ONO; transverter, 11 to 80m, works well, $40; YD-844 desk mic., $30. Must sell. Ph. (052) 75 2421 after 6 p.m., or write 54 Spruhan Ave., Norlane 3214.

Multi-Palm II hand-held 2m Transceiver, repeaters 2, 3, 5 and 8, Simplex 40 and 50, as new cond., also nicads, charger and leather case, $230, ONO; Johnson Viking 10m transceiver, 20W PEP, 26.300 to 28.620, never been mobile, as new cond., $120, ONO. VK3BNJ. Ph. (03) 743 6708.

Deceased Estate: Collins 32 S1, updated freq. spot fac., complete with 516 F2 240V AC PS, 75 S1 110V with trans., all hand books and cables, plus 14 new spare tube types and 2 new 6146 finals, $950; Collins MM1 hi imp. mobile mic. and plug, $50. VK3CP, QTHR. Ph. (03) 859 2614.

FT620 6m Transceiver, 50-54 MHz coverage, good cond., recent Tx and Rx check to spec., LO board improved, $300. VK4ZZI, QTHR. Ph. (07) 224 6875 Bus.

Barlow-Wadley Rx, needs new whip aer., $130; IC215 FM portable, ch. 40, 50, R2, 4, 6, 7, 8 and reverse 6, $199; IC202E SSB portable, 144 to 144.6, plus Oscar, $199; xtal filters, 10.7 MHz, 10 kHz, B/W, 6 only at $5 posted. VK3YIX, QTHR. Ph. (050) 24 2104.

FRG7 Comm. Rx, as new, $230; Leader LSG 11 sig. gen., $50; Sanwa 501-ZX multi-tester, $50. VK3MU, QTHR. Ph. (03) 82 2747.

Selling Surplus: TWA base 6/40 Rx out. AWA sig. gen. with atten. 120-300 MHz, 2m 20A, 6m 10B with xtals, goers, hand-held Lafay Rx FW 140/175 Mhz, BC 221 calib. with book, B26 rough, 2 x 813 and a 6/40, new, consider any offers. VK2AEM, QTHR. Ph. (02) 871-8183.

ETI DG640 Software Controlled VDU, perf. working cond., with some software, $110, ONO; also ETI 630 VWU kit, have nearly all components, $80; dig. freq. readout for IC22S, in perf. order, $20. Graham VK3YLA. Ph. (03) 669 4329 Bus.

Swan 700 CX SS-16B Special, 700W PEP SSB transceiver, comp. with matching AC supply, special 16 pole filter and spare final tubes, mint cond., $850. VK5FR, QTHR.

Transceiver, Yaesu FT-620, 52-54 MHz, SSB, AM or CW, 240V AC or 12V DC, and Yaesu V7-75 voice controller unit, also 6 el. yagi, $425, ONO. Ph. (02) 521 3652.

Monitor Scope, bargain, Heathkit SB610 kit, complete with all manuals, factory packed and unused, victim of XYL's clean-out ultimatum, $200. VK3ATR, QTHR. Ph. (03) 336 1054.

IC700R Comm. Rx, solid state, 3.5-29 MHz, sensitive, selective easy interface to Tx, controls — tune, band, preset, RF gain, AF gain, mode (AM, ANL, SSB, CW), RIT, S meter, 9 MHz xtal filter, many other features, immac. cond., photos avail., $250, ONO. VK2BTM, QTHR.

AWA Teleradio 60A Tcvr., provision for 5 ch. in range 2 MHz to 10 MHz, AM, transistorised except for driver and 6146 final, runs off 12V DC, suitable for conversion to 160m without xtls, $100. VK3APL, QTHR. Ph. (03) 870 3715.

WARC 79 Convertible Transceiver, FT75 HB VFO, 11 crystals, suit novice, $320. 4BTV with radials, $85. SB500 2m transverter, $150. VK3AFW, QTHR. Ph. (03) 579 5600 AH.

Icom IC21A Deluxe Base Station, 2m FM Txcvr, Simplex 40, 50, 51, 53, repeaters 2, 3, 4, 5, 7, 8, $175. Matching DV21 phase locked digital VFO, $150; or $300 the pair. VK3ARZ, QTHR. Ph. (03) 232 9492.

Hallicrafters HT37 SSB Tx, 80-10m, very good condition, little used, also handbook and circuitry, $150. VK3MB, QTHR. Ph. (03) 707 2254.

Cushcraft ATB-34, $275; ATV-4, $105; CDE Ham 3, $225; Collins KWM-2, PM-2, 312B3, CC-2, $1895; Drake R4A, MS4 spkr, SW xtals, CW filt., $575. James VK2JO, GPO Box 5076, Sydney, 2001, NSW. Ph. (02) 389 7786 work, (02) 36 7756 home.

WANTED

Star SR550 Handbook and schematic diagram required urgently please, willing to pay any cost. Write F. Freemantle, PO Box 100, Yeronga 4104, Brisbane, Qld.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. E. C. READING	VK2LT
Mr. F. A. VARRUTHERS	VK2PF
Mr. B. SCETRINE	VK7BI

Daiwa 144 MHz Mobile Rx, must be in good cond., details to L30997, QTHR. Ph. (053) 35 9031.

Old Copies of "Radio and Hobbies" (before 1952), also copies of Amateur Radio (before 1947). VK3BCC. Ph. (03) 561 1151.

Galaxy 5 Txcvr. Price and details to Reg Bulman VK4YL, Box 238, Malanda, Qld. 4885. Ph. (070) 96 5131.

Kenwood TS600A 6m Transceiver in working cond. Write to Reg VK3KK, QTHR, or Ph. (03) 652 8110 Bus., (03) 469 4200 A.H.; all letters answered.

Circuit Diagram or any other information on a Plessey B47 38-56 MHz transceiver, will buy or photostat the original and return immediately to sender; Plessey B47 38-56 MHz transceiver in any cond., to be used for spare parts. Lionel VK3NM, QTHR. Ph. (03) 88 3710 home, (03) 568 2733 Bus.

TRADE HAMADS

OSL Cards, Log Books, Contest Sheets — send 20c stamp for samples and prices to Linda Luther VK4VV, PO Box 498, Nambour, Qld. 4560.

TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hamads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be $10 for 4 lines plus $2 per line (or part thereof), minimum charge $10, prepayable. Copy is required by the first day of the *month* preceding publication. This will *mean* that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes. ■

ADVERTISERS' INDEX

SIDEBAND ELECTRONICS IMPORTS

P.O. BOX 23, SPRINGWOOD, N.S.W. 2777
WAREHOUSE 78 CHAPMAN PDE., FAULCONBRIDGE
TELEPHONE (047) 51-1394 A.H. (047) 54-1392

WE SURRENDER DICK! But show us some quarter, please. Buy more of our Hy-gain antennas (we have ample stocks of most lines) — you can even buy at our retail prices and re-sell at your advertised retail prices and still make a handsome "backyarder's profit" on the deal! As a reputed "Multi-shop millionaire" of advertised 'umble backyard beginnings, why do you continually knock the little bloke, Dick! 'Ave a 'eart Mate!

Signed B. AKYARD DEALER No. 1

NOTE — Our prices are set as low as we can sell at and still remain in business. We are unable, therefore, to adjust our prices if we are undersold. All we can say is, "Good luck to them."

ROY LOPEZ

HY-GAIN ANTENNAS

TH6-DXX 10-15-20M 6-el yagi $275
TH3-MK3 10-15-20M 3-el yagi $240
TH3-JR 10-15-20M 3-el yagi $160
18-AVT/WB 10-80M vertical $110
204-BA 20M 4-el Tiger Array $200
2M 5-el yagi w/balun 6'3" boom $25
2M 8-el yagi w/balun 12'5" boom $30
BN-86 balun for beam buyers $20

HY-Q (USA) 50-ohm 1KW balun $15
HY-Q (USA) multiband 10-80M dipole kit, wire, balun insulators, spreaders, etc $45

ROTATORS & CABLES

All rotators now come with bottom brackets and control-indicator boxes wired for 28V AC operation
KEN KR-400 medium duty $110
CDR BT-1A light duty 4 position push-button programmable $90
CDR Ham III heavy duty $175
CDR tail-twister extra H.D. $225
KS-065 stay-thrust bearing 1¼" to 2½" masts $25
RG-58U coax cable, per yard 30c
RG-8U foam coax cable, per yard 80c
8-cond. rotator cable, per yard 60c
⅞" H.D. VHF/UHF coax, per yard $3
Cable cutting & packing, per length $1.50

ACCESSORIES

Voltage regulator 18V AC input 12V DC 3A output $23
240/18V AC transformer $10
5 meter RG-58U coax cable with PL-259 one end $2.50
Mobile bumper mounts ⅜" 24 thread $5
Mobile gutter mounts ⅜" 24 thread $3

TRIO-KENWOOD PRODUCTS

TS-520S 10-160M transceiver ..... P.O.A.
TS-120V 10-80M 12V transceiver ..... P.O.A.
TL-922 10-160M linear amp $1100
All further Trio-Kenwood accessories and transceivers at competitive prices

CO-AX CONNECTORS

PL-259-SO-239-cable joiners ea. 75c
Right angle & T connectors, ea. $1.50
GLP right angles RG-58U to SO-239 w/lock nut and cap, ea. $2.50
Double female connectors, ea. 80c
MLS right angles RG-58U to PL-259, ea. 90c
In-line mike sockets 3 & 4 pin, ea. 75c
Mike sockets 3 & 4 pin, ea. 75c

YAESU MUSEN PRODUCTS

FT-7 10-80M 12V DC transceiver $400
FRG-7 .5 to 30 Mhz receiver $300

NOVICE SPECIALS — TRANSCEIVERS

10M Sideband SE-502 USB/AM 15W PEP-240V AC 12V DC-inbuilt SWR/RF meter 28.3-28.6 mhz-clarifier tuning transmit and receive $125
10M Universe 224-M USB/AM 15W PEP 12V DC 24-ch. 28.480 to 28.595 mhz, 5-khz steps-clarifier tuning transmit and receive $100
CONVERSION CRYSTALS for amateur licence holders — set of 8-crystals to convert 23-ch. 27-mhz CB units to 28-mhz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above — CRYSTALS and instructions $40

KYOKUTO FM-2016A 800 channel 2 meter FM transceiver with 4-channel memory & scanner $360

All Prices are NET, ex Springwood, NSW, on a pre-payment with order basis. All risk insurance is free of charge, allow for freight charges by air, road, rail or postal, excess will be refunded. Prices are subject to change without prior notice. All orders cleared on a 24-hour basis after receipt of order with payment.

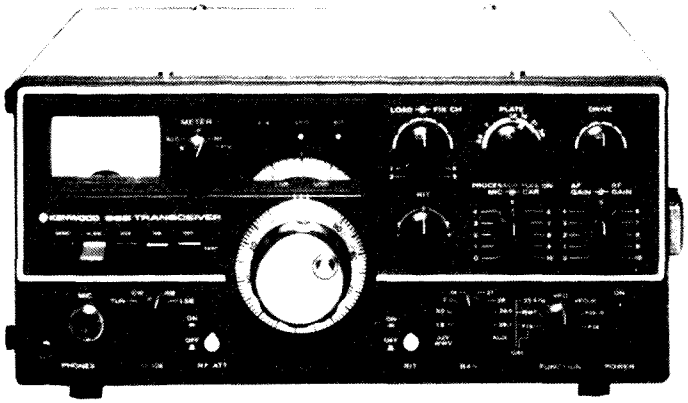
Arie Bles (VK2AVA) Proprietor **Roy Lopez (VK2BRL) Manager**

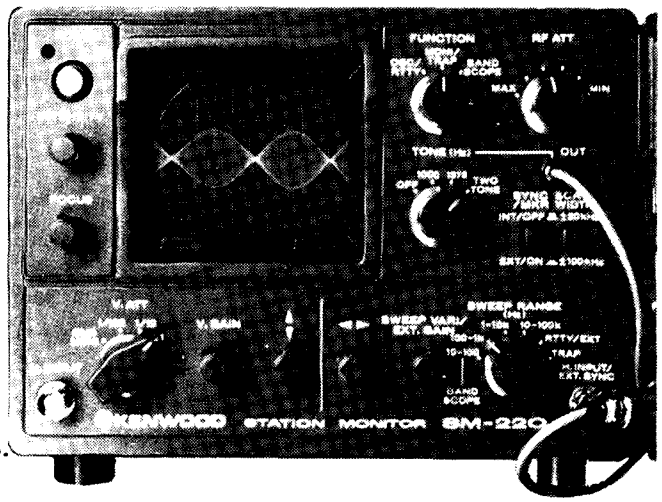
4 GREAT STARS

KENWOOD

TS-520S 1.8 to 29.7MHz SSB TRANSCEIVER

Amateurs throughout the world acclaim this rig which was specially engineered for the serious enthusiast.





SM-220 Station Monitor

Provides efficient station operation and also serves as a high-sensitivity, wide frequency-range oscilloscope for various adjustments and experiments.

TS-700SP 2 METER ALL-MODE TRANSCEIVER

The feature-packed design of the TS-700SP puts you on SSB, FM, CW and AM. The AC and DC power supplies are built-in which allows you to operate just about anywhere.

TS-120S 3.5 to 29.7 MHz SSB TRANSCEIVER

Ideal front panel layout gives simple operation for all users — novice or advanced, fixed station or mobile. A marvellous combination of high performance and low cost.

TRIO-KENWOOD (AUSTRALIA) PTY. LTD.
31 Whiting Street, Artarmon, Sydney, N.S.W. 2064. Telephone (02) 438-1277

Authorised Distributors:

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VOL. 47, No. 10 OCTOBER 1979

FEATURED IN THIS ISSUE:

- ★ SSB TRANSMITTER FOR 13 cm
- ★ ROOF RACK ANTENNA FOR HF
- ★ RIGID COAXIAL LINE
- ★ REVIEW — TONO 7000 COMMUNICATION COMPUTER
- ★ WARC 79 & THE AMATEUR SERVICE IN REGION 3

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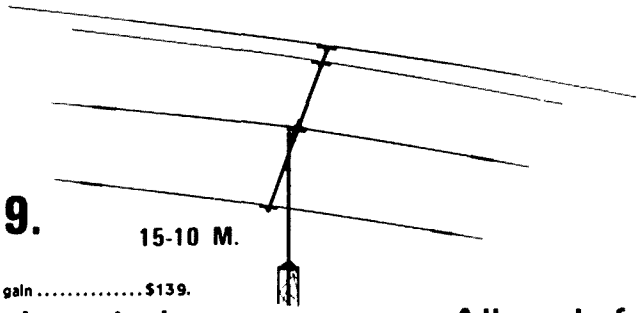

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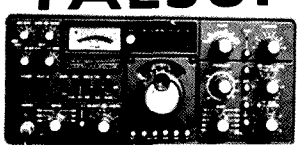

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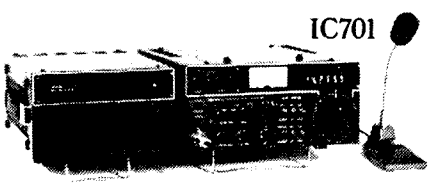

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Cover Photo

WHEN OOTs MEET

When two OOTs eyeball, for the first time after more than 40 years since their first QSO, there's an awful lot of sentiment, nostalgia and not a little emotion in the scene — and, in the case of Bill Pickard G8KP (right) and Al Shawsmith VK4SS/ex VK4SA (left), a small bit of personal history was made.

When they OSOd, way back in 1939, the contact was Bill's first VK4 and Al's first G8 — two firsts. They subsequently never kept skeds but did QSO again on occasions after WWII. Now Bill, during February, has paid a visit to all his Ham cobbers in Down Under and, at Al's QTH in Brisbane, they swapped back their original 1939 QSL cards, which each had sent to the other prior to WWIII. Not something that's done every day of the week after forty years. They are pictured here, in the swapping back ritual, in Al's vintage wireless museum, where the same type of rigs they both used, i.e. MOPAs at 25-50 watts, are on display.

Needless to say, the topic was on past events and DX doings. Both are brass pounders: G8KP obtained his licence in 1936 and VK4SS in 1935. Bill is FOC — First Class Operators' Club — and Al is HSC — International High Speed Club.

G6KP/VK4AKP has now returned home but wants it put on record that he and his good YF Elsie were overwhelmed with Sunshine State hospitality by the VK4 boys, who rolled out the red carpet and gave them the VIP treatment — which only goes to prove that AR is the Prince of Pastimes.

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VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP — WARC 79: THE LAST LEG

As you read this I will be in Geneva as a member of the Australian delegation to WARC 79.

Over the past three years much has been written in amateur journals about this Conference. It would have been apparent to all that the amateurs of the world were not taking this Conference lightly. Least of all those in Australia.

The amateurs were probably one of the first groups to start moving in their preparation. Over three and a half years ago the WIA was invited to attend the meeting convened by the P. and T. Department for the purpose of setting up the Australian Preparatory Group to prepare for WARC 79. I attended that meeting and have attended every meeting since.

The world-wide co-operation and co-ordination between the member societies of the IARU under the leadership of the President, Noel Eaton VE3CJ, and reinforced by the three Regional Associations has led to a reasonably unified and consistent case for retention of frequencies, to the addition of new bands to improve the HF family of frequencies and to give the Amateur Satellite Service more reasonable access to the spectrum.

Do not think all this just happened. It is in fact due to the very hard work of a nucleus of dedicated amateurs who have sought advice and conferred together in order to become as knowledgeable as possible so as to apply that knowledge to the best advantage.

At home here in Australia the strong financial support of the amateur community has enabled us to provide two members of the Australian delegation. This support again shows the importance with which the Australian amateur views the Conference.

The preliminary phase is now over. Let us hope the results of the Conference may come up to our reasonable expectations, as well they might. Naturally we will be pushing Australia's proposals as hard as possible, which in the amateur field, I feel are very reasonable.

Again my thanks for your support at this vital time.

DAVID WARDLAW VK3ADW
Federal President. ■

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WIANEWS

AMATEUR ADVISORY COMMITTEE

Apart from WARC 79 and the Handbook, one of the many aspects of amateur radio currently being subjected to close scrutiny is the Amateur Advisory Committee Service.

In the pre-1939 era, when rigs were home constructed, operators generally prided themselves upon putting out good quality clean signals and recognised the need to observe the rules of good operating habits and procedures. The amateur service was self-regulatory; any poor quality signals or persistently sub-standards of operating behaviour were corrected by other amateurs in a friendly and co-operative spirit. Basically, the number of offences were very small because there were not many licensed amateurs. Anyone who ignored advice and became a habitual offender deserved everything coming to him if his licence was suspended or cancelled by the Administration.

After World War 2 the numbers of amateurs increased, especially from the ranks of Servicemen exposed to radio during the war. In this period the Amateur Advisory Committee emerged as a buffer between officialdom and amateurs. Nevertheless, the on-air practice of friendly advice to those amateurs putting out poor quality signals, etc., continued. Has this practice since fallen into disfavour because of the Advisory Committee being in existence?

In recent years there has been another great influx into the amateur ranks, this time of CB and other operators, coupled with the introduction of the Novice licence. Probably the great majority of newcomers genuinely take steps to learn what amateur radio is all about and genuinely make every effort to conform. However, in any human society, there does exist an element of non-conformity, and the point is that if there were only a handful of these people in the amateur service of years gone by, today there must be 5 or 6 times as many because of the increase in numbers of licensed amateurs.

Without any Amateur Advisory Committee, offenders would find themselves having to answer "please explain" letters direct from the official spectrum policeman — the P. and T. Department. It is reasonable to suppose that a persistent offender would soon receive stronger citations until sooner or later stern disciplinary measures would be taken. It is to the Departmental officers' credit that serious measures have been few and usually only after everything else has failed.

The question being asked today is whether we as amateurs can self-regulate ourselves so as to avoid the need for official citations. Not because we wish to reduce Departmental work but because we recognise the benefits flowing from taking care of ourselves and safeguarding our hard-earned privileges. After all, the USA, the UK and other countries get along without Advisory Committees as such.

In some States, Amateur Advisory Committees fell into abeyance due to Departmental staff and other difficulties. Did the amateurs in those States suffer any harm from direct exposure to "the policeman"? And the questions mount up.

EXAMINATIONS

There was a meeting of the Joint WIA-Departmental Committee on 22nd August at which a number of subjects were discussed. It appears that having introduced multi-choice examination questions the Department intends to review the examinations area of their work. Nobody can forecast what the outcome will be in terms of more frequent exams, increases in fees and general streamlining of procedures. It appears that the Departmental attitude to the issue of licences to visitors has toughened as the result of recent occurrences. No longer will photocopies of home licences be accepted and visitors will have to prove their bona fides. This hardening of attitude will also flow into the field of reciprocal licensing affecting intending residents. Reduced licence fees for pensioners is a subject still with the Minister despite agreement as long ago as 1976 — please see WIANEWS in AR for December 1976. Conditions tor the installation and management of repeaters at long last appear to be resolved — negotiations on this subject have been going on for several years — please see WIANEWS in AR March and April 1976.

SUBSCRIPTIONS

At the Executive Meeting on 14th August there was a long discussion about the level of the Federal part of subscriptions in 1980. The level has been unchanged for three years mainly due to the rise in membership exceeding the ravages of inflation on expenses. These inflationary trends will soon eat away our slender reserves unless something is done about it, especially as economies are already stretched to the limit. It was found that the expenses in producing AR had risen dramatically this year. This was not apparent at the time of the Federal Convention.

FEDERAL QSL

Approval was given for the appointment of Nell Penfold VK6NE to take over the Federal QSL Manager's work, being relinquished after some 30 years by Ray Jones VK3RJ. The 1979 Federal Convention had recorded a sincere vote of thanks to Ray for his great many years of service to WIA affairs.

GENERAL

Also approved was the composition of the Federal RTTY Committee, consisting of VK2ABH, VK2AOE and VK2BVJ. Another post to be filled later in the year is that of Federal Intruder Watch Co-ordinator on the retirement of Alf Chandler VK3LC. Hopefully a volunteer, possibly from VK4, will come forward to assist. Taking over the management of the Westlakes Novice Contest awaits comments from the Federal Contests Manager. Keith Malcolm VK3ZYK was confirmed in his appointment as chairman of the Federal VHF/UHF Advisory Committee in place of Peter Wolfenden VK3ZPA. This Committee would be discussing a band plan for 6 metres with the Federal Repeater Sub-Committee. A suggestion that the WIA should re-introduce the sale of a WIA tie is to be investigated.

During August the 1979 WIA Australian Radio Amateur Call Book was received from the printers and was distributed. Early indications show that everybody appears to want one.

At the Publications Committee meeting on 7th August it was noted that, from the few comments received, the change of paper used in AR was favourably commented on mainly because it was less glossy than the previous grade. It was also noted that problems in postal distribution caused delays in receipt of the July issue in particular.

WARC 79 DONATIONS

The Executive wishes to acknowledge with grateful thanks the receipt of the following donations from members —

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■

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I have recently returned from a two-month trip to EUROPE and seen many interesting things, directly and indirectly related to amateur radio. As a result I have decided to start early next year with some new things, computer related equipment and new brands of receivers, transceivers and accessories.

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ARIE BLES VK2AVA

SSB TRANSMITTER FOR THE 13 cm BAND

Reg V. Galle VK5QR
5 Turnbull Rd., Enfield, SA 5085

EXPERIMENTAL VERSION USING ENVELOPE ELIMINATION AND RESTORATION

(Note: This is a translation by AR staff, with permission, of an article originally published in German in UKW-BERICHTE 4/1978, based on material submitted to them by VK5QR. As the English version (VHF Communications) may not appear for some time, it is hoped this version may expedite use of the technique by VK amateurs.)

The technique of SSB signal generation by the method of envelope elimination and restoration has been suggested to VHF amateurs in Ref. 1. Dr. Karl Meinzer DJ4ZC has developed the necessary adapter, using a frequency divider, which allows a final frequency multiplication into the desired UHF or SHF band. This can be achieved by use of the usual varactor multipliers (Ref. 2). The author employed the method in an SSB transmitter for the 13 cm band, and was able to produce by this means a 4W SSB signal on 2304 MHz. This was sufficient to make contact on 17th February, 1977, with VK6WG under mid-summer duct conditions over the 1885 km path from Adelaide to Albany. Naturally it was not the conversion process which made this incredible distance possible, but there is unlikely to be a simpler method of achieving SSB signals of usable power in the microwave spectrum. It seems therefore that the technique should be more widely known, so the transmitter used will be described. It is emphasised that since the equipment described is experimental no attempt will be made to provide complete constructional information. The main details will be presented and discussed; some photographs which were helpfully provided by R. T. Manual VK5RT give an impression of the author's prototype version.

1. BLOCK DIAGRAM

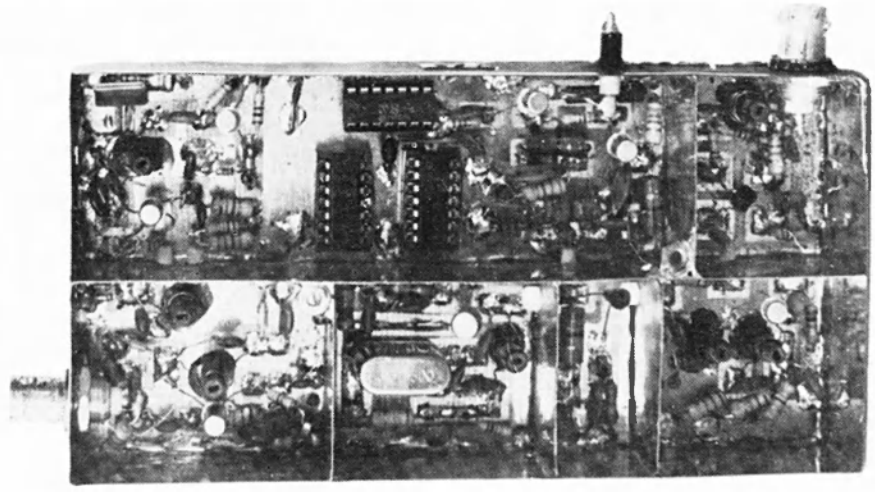
The block diagram in Fig. 1 shows the stages and filter arrangement. A KWM-2 or FT-101B on 21 MHz is used as the SSB exciter. The vital element of the system, the processor, will be described in detail in Section 2. The frequency of the following crystal oscillators is chosen so that after multiplying by 6 the frequency of 2304 MHz in the 13 cm band is achieved. Linear power amplification takes place at 384 MHz, at which frequency this poses no problem. For example, one might use the amplifier described by G. Freytag DJ3SC in Ref. 3. The output power is solely dependent on the capability of the following frequency multipliers. For tripling from 384 to 1152 MHz one may use the varactor tripler MMV1296 available from Microwave Modules. It is only necessary to re-tune it to the lower frequency, at which it can produce 10W output at 1152 MHz from a maximum of 20W.

The following doubler, from 1152 to 2304 MHz, will be described in greater detail in Section 3, since in this area there is more scope for individual variations. The band-filters preceding and between the frequency multipliers are extremely important to ensure that only the desired single frequency drives each multiplier.

Finally, it may be mentioned that the DJ6ZZ 006 unit (Ref. 4) was used as the transverter from 28 to 384 MHz, and an interdigital output filter (Ref. 5) was used in the receiving converter.

2. THE PROCESSOR

The theoretical basis of the technique is covered extensively in Refs. 1 and 2. Here, it is sufficient to say only that the incoming 21 MHz SSB signal is split into its AM



2.3 GHz Processor.

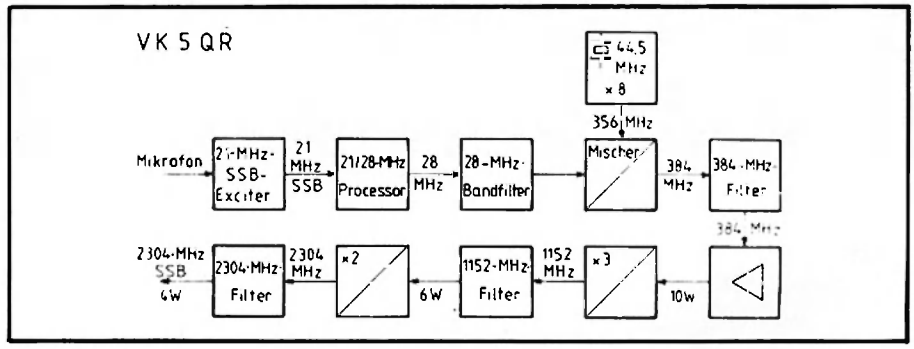


FIGURE 1: SSB transmitter for the 13 cm band using envelope elimination and restoration.

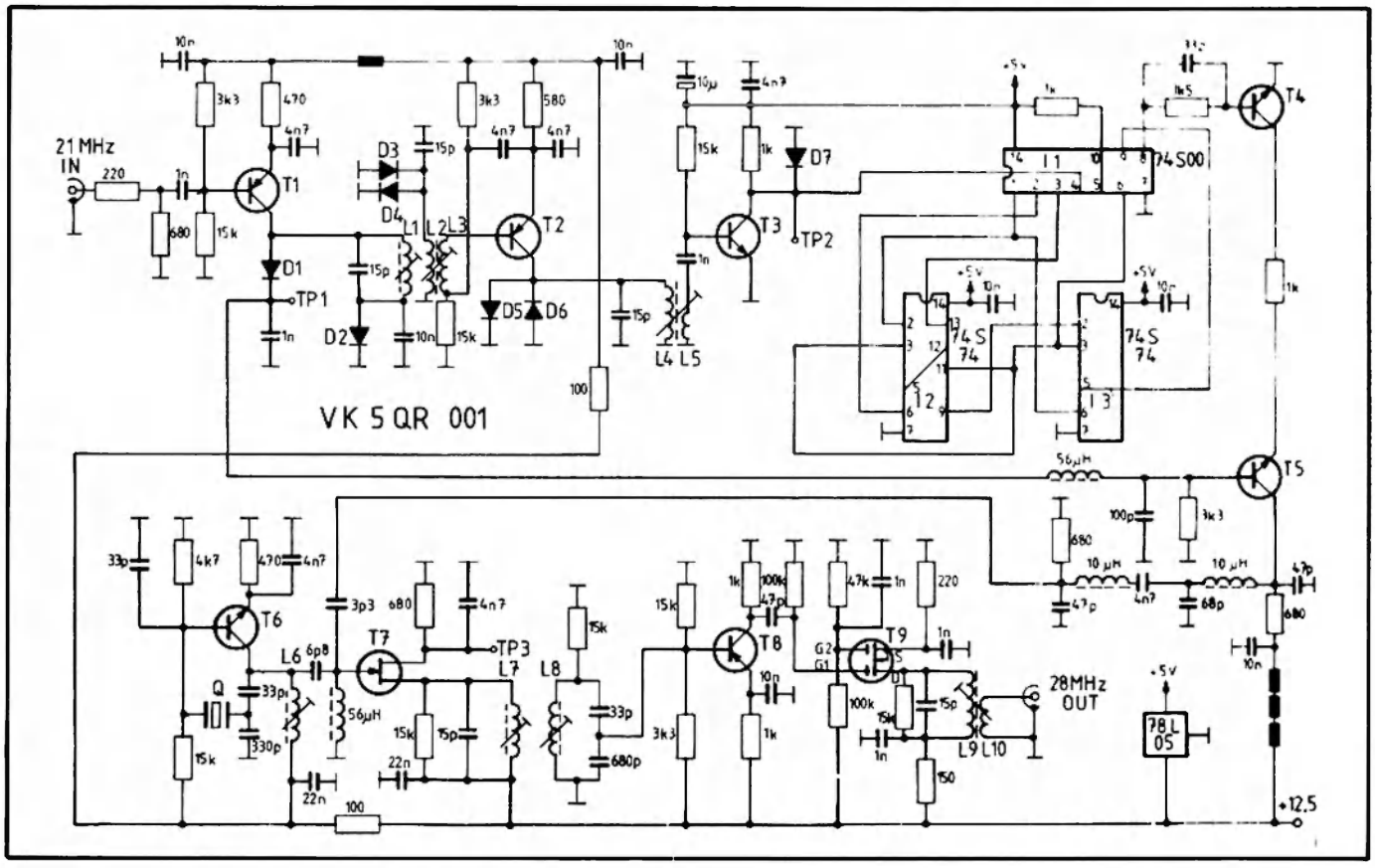
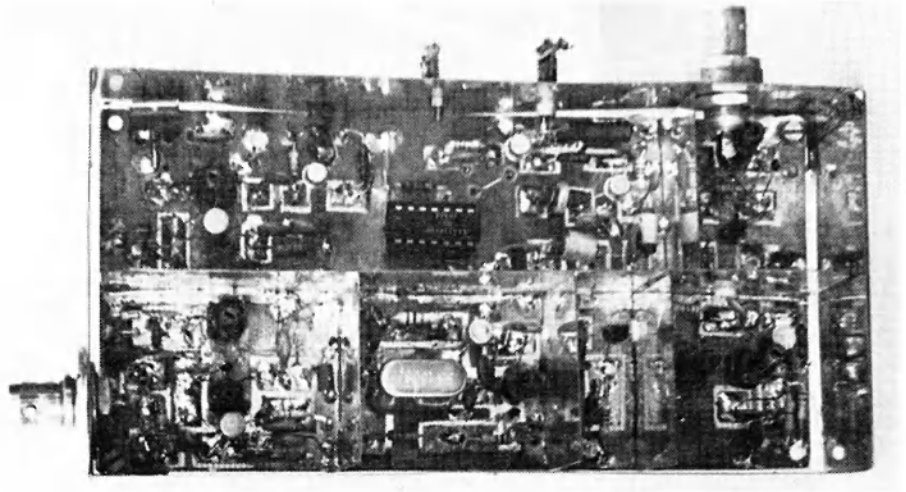


FIGURE 2: The 21/28 MHz SSB processor using division by 6.

(envelope) and PM (FM) components. These two components are then further processed separately. The PM signal is divided by 6, whence the resulting frequency of 3.5 MHz has only one-sixth of the original deviation. This signal Is then amplitude-modulated by the separately-amplified envelope signal, and finally mixed with a crystal-oscillator frequency of 31.5 MHz to produce 28 MHz. After this the new SSB signal, now containing only 1/6 of the deviation, is selectively amplified to a level suitable for the next stage.

Fig. 2 shows the processor circuit. The 21 MHz SSB signal (any chosen frequency between 21 and 21.5 MHz) is of the order of 100 mV at the input, where it is amplified by transistor T_1 to around 5V. An envelope detector using diode d_2 separates out the AM component, the resulting low-frequency signal being fed to the audio amplifier T_3, which then modulates the PM signal in the stage T_4. The diode D_1 provides bias for transistor T_6.

The signal amplified by T_1 is also fed via the bandpass filter (L_1, L_2) to a first limiter (D_3, D_4). After more amplification (T_2) and limiting (D_5, D_6) the 21 MHz PM signal arrives at a pulse-forming stage (T_3). The square-wave signal is now divided by 6. Although at an input frequency of 21 MHz standard TTL devices should be adequate, the author preferred to be sure and used Schottky TTLs.



1.3 GHz Processor.

Transistor T_4 works as an electronic switch, which is controlled by the 3.5 MHz square-wave. The current through T_4 controls the audio voltage at the base of T_5, so that the 3.5 MHz signal is re-modulated by the envelope.

The composite signal Is now fed through a low-pass filter to suppress the 6th harmonic, and then to the mixer stage using an FET (T_7). The crystal oscillator T_8 delivers a frequency of 31.503 MHz, so that the difference frequency 28.083 to 28.0 MHz passed by the filter (L_7, L_8) can then be amplified in the last two stages.

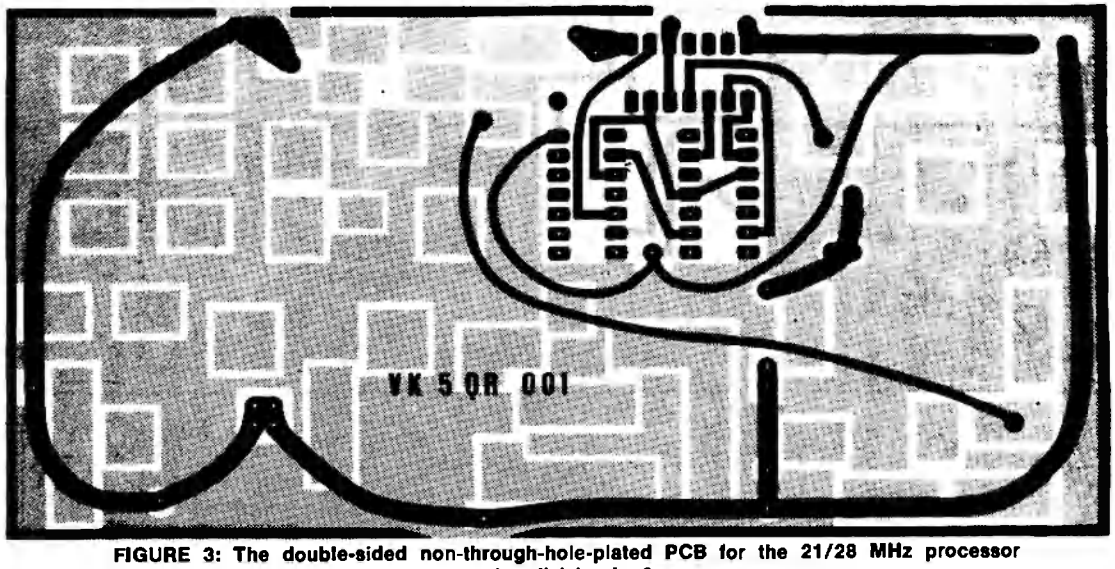


FIGURE 3: The double-sided non-through-hole-plated PCB for the 21/28 MHz processor using division by 6.

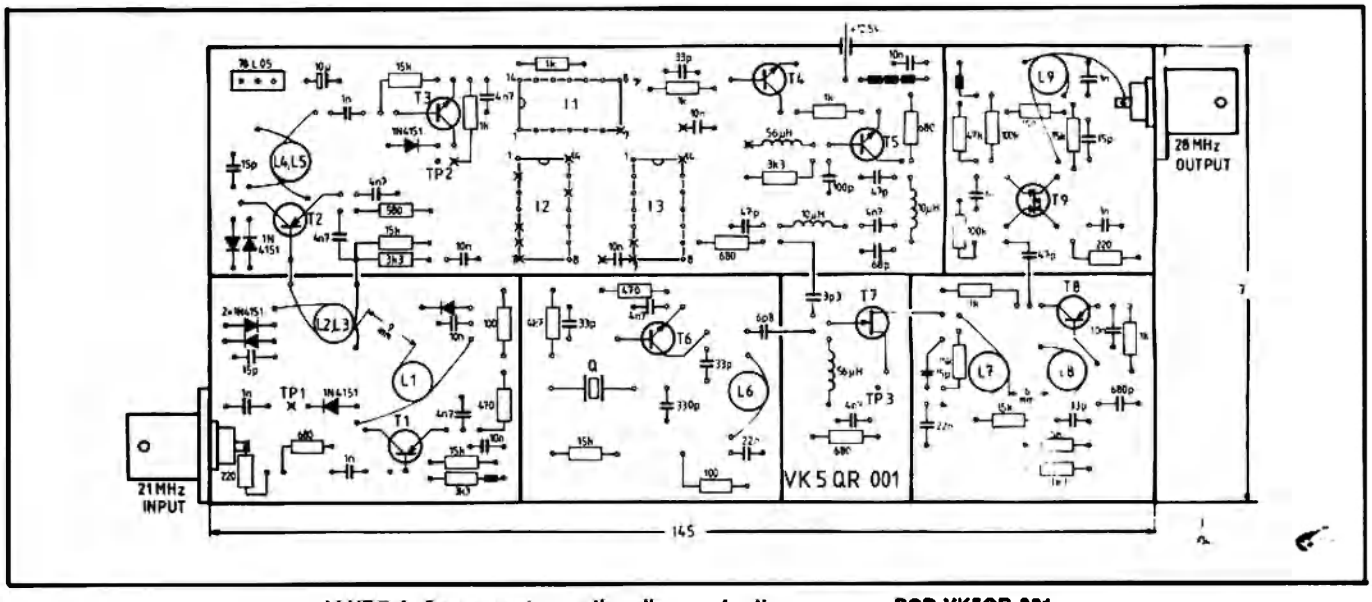


FIGURE 4: Component mounting diagram for the processor PCB VK5QR 001.

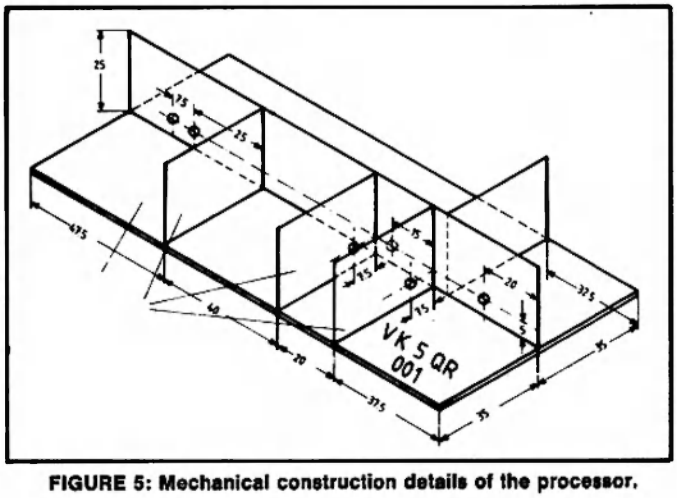


FIGURE 5: Mechanical construction details of the processor.

2.1. COMPONENTS FOR THE PROCESSOR

T_1, T_2, T_3 — RS2003 (Japan), AF106, AF127 or other Ge PNP HF transistor.

T_3 . . . T_5 — 2N706 or similar Si NPN VHF transistor.

T_6 — BF173, BF224, BF199 or similar VHF transistor.

T_7 — MPF102, BF245 or similar FET.

T_8 — MPF121, 40673, 40841 or similar dual-gate MOSFET.

D_1, D_3 . . . D_7 — 1N914, 1N4148 or similar Si planar switching diode.

D_2 — AA112, AA118 or similar Ge diode.

All coils on 6 mm formers with HF slugs, using 0.4 mm (26 AWG) enamelled wire.

L_1 — 20 turns.

L_2 — 22 turns. Formers spaced 15 mm between centres.

L_3 — 4 turns wound over L_2.
L_4 — 22 turns.
L_5 — 4 turns wound over L_1.
L_6 — 15 turns.
L_7, L_8 — 22 turns each 12 mm spacing between formers.
L_9 — 22 turns.
L_{10} — 3 turns wound over L_9.

2.2. CONSTRUCTIONAL DETAILS

For the processor of Fig. 2 a printed circuit was developed as shown in Fig. 3. It is 145 mm x 70 mm in size and is double-sided. The few through connections necessary are effected during component mounting by soldering top and bottom; these points are designated in the diagram (Fig. 4) by small crosses. Leakage of any original SSB signals into the output must be completely prevented by shielding of the whole processor and its individual stages from each other. To achieve this the board is divided into 6 compartments (Fig. 5) using shielding plates, and the assembly is then soldered into a tight-fitting housing. This is carried out as follows:

The side of the board with the greatest area of copper will be designated as the top or component side. The underside is therefore that with relatively few conductor tracks. All mounting holes are to be drilled from the underside.

The shielding plates are cut out as in Fig. 5, the holes in them are drilled as shown, and the plates are then soldered to the component side of the board. The coils can now be wound (as in Section 2.1), and lightly fixed with quick-setting glue. Before permanent fixing with epoxy cement the specified distances must finally be checked.

The components can now be installed for the input amplifier, limiter, and frequency divider, supply voltage connected, and a 21 MHz signal fed in. Following a rough alignment of the coils, the functioning of the divider is checked either with a receiver or a counter.

The remaining components can now be fitted.

After this, the unit is enclosed in a tin box fitted with BNC connectors and voltage feed-throughs. Then final alignment follows.

2.3. ALIGNMENT OF PROCESSOR

It is important to provide a constant input level at 21 MHz so that the limiter can function properly, thus providing a roughly constant voltage to the modulator. After adjustment of L_1, test points TP_1 should read not less than 5 volts nor more than 6, using an HF VTVM or equivalent.

Adjustment of the circuits L_2 and L_4, which are damped by the limiter diodes, can be effected with the VTVM at TP_2, using a temporarily-reduced input voltage such that barely usable indication is produced at a level below the diode limiter threshold.

With the VTVM at TP_3, the crystal oscillator is adjusted to oscillate, and checked for reliable self-starting.

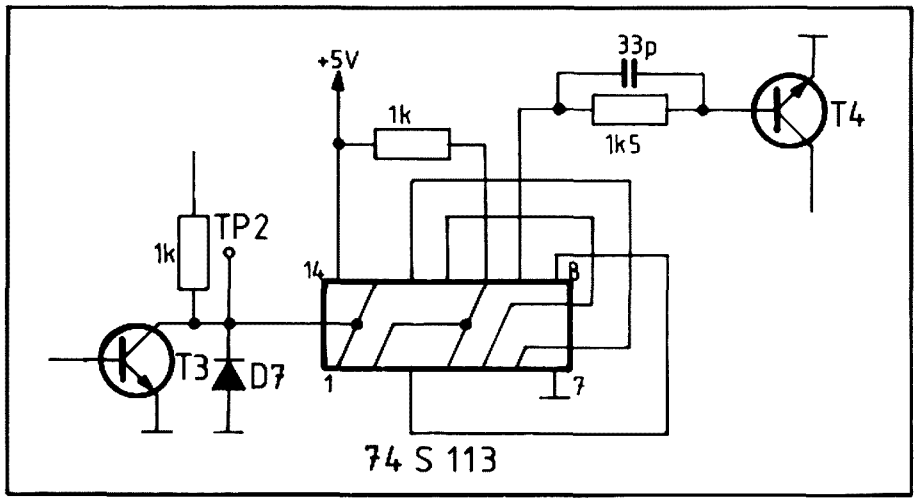


FIGURE 6: Divide by 3 circuit, replacing the divide by 6, if the processor is to be used on 23 cm.

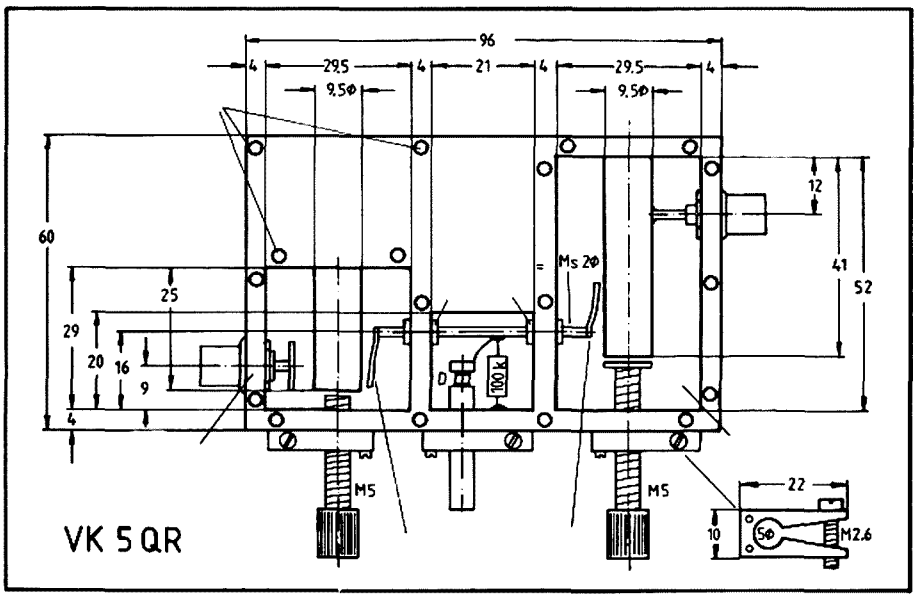


FIGURE 7: Practical frequency doubler from 1152 to 2304 MHz.

During final alignment of the mixer and output amplifier it is essential that these should not inadvertently be adjusted to the crystal frequency. After this the signal may be fed to the 384 MHz transverter.

3. A MODIFIED VERSION FOR THE 23 cm BAND

The principle and construction as described can be used with minor changes for the 23 cm band. Appropriate construction notes are as follows:

Obviously it is considered easier to achieve linear power amplification in the 70 cm band, and subsequently triple the frequency, than it is to amplify the 23 cm SSB signal directly.

The whole concept remains the same; only the frequencies must be altered as follows:

In the processor one divides by 3 instead of 6. The appropriate circuit as shown in Fig. 6 is inserted between T_8 and T_4 in Fig. 2.

The crystal oscillator is now on 35.166 MHz, so that mixed with the "intermediate frequency" of 7.0 to 7.166 MHz, output is produced from 28.166 to 28.0 MHz. There are no other component or coil changes needed.

In the following transverter mixing takes place with 404 MHz, producing the usual 70 cm frequency of 432 to 434 MHz. The power is then linearly amplified and a frequency tripler follows.

(On the appropriate request, a PCB layout for this version can be made available.)

4. DOUBLER 1152 TO 2304 MHz

The principal dimensions of this assembly are shown in Fig. 7. The cavity walls are

made of 4 mm sheet copper, top and bottom plates of 2 mm. The whole doubler fits into a cast aluminimum box of the type used by Microwave Modules. Although the author used BNC connectors, based on experience he would recommend using type N connectors at 2300 MHz.

Quarter-wave coaxial resonators are provided for input and output frequencies. They are connected together by a coupling line with 4 mm wide brass tabs used as coupling capacitors. This line passes through a third compartment containing a multiplier diode type VSE 66P (Mullard/ Philips). The diode is mounted at one end to a heat-sink and the other end has a cap and attached strip connecting to the coupling line.

Whereas the input coupling at 1152 MHz is by metallic connection to a tapping point, the output coupling at 2304 MHz is capacitive, by means of a disc about 6 mm diameter soldered to the inner conductor of the connector. The coupling is adjusted to optimum by screwing the connector in or out.

The author would be glad if others adopting this method of microwave SSB generation could inform him of their experiences. He would also like to acknowledge the assistance given by Terry VK5GU in suggesting the dividing circuitry. The Editor would like to acknowledge the invaluable assistance of Mr. R. Maier with the German to English translation.

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■

A ROOF-RACK ANTENNA FOR HF

Rex Newsome VK4LR
58 Prospect Terrace, St. Lucia 4067

Some time ago I had a small imported car that did not seem rugged enough in either the front or the rear end to carry a decent HF whip. I decided, therefore, to try a Discontinuous Directional Ring Radiator (DDRR) in the form of a roof-rack. The results obtained from its limited use were sufficiently good to allow me to recommend it to others who might like to try a bit of inconspicuous mobiling.

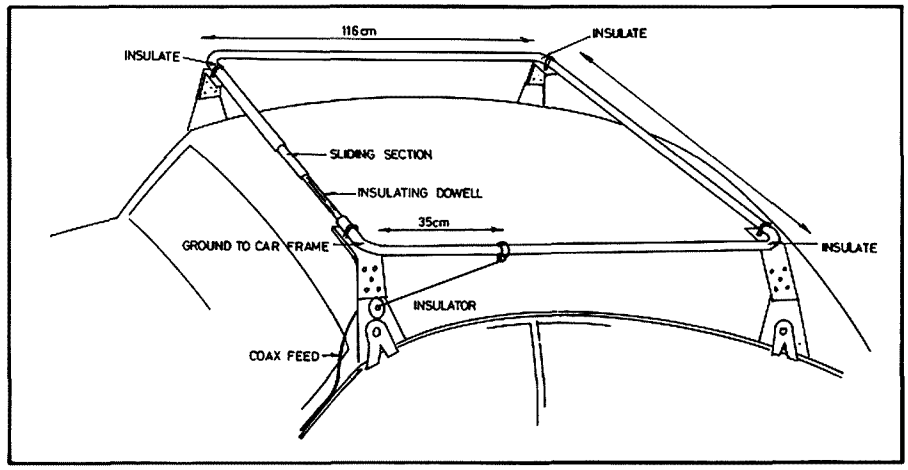


FIGURE 1: The installed antenna, showing dimensions.

Figure 1 gives the essential details and dimensions. The four roof-rack clamps used were made by Wilbroc and the curved aluminium pieces of tubing were swiped from a defunct camping chair.

The radiating element was insulated from the holding clamps by slipping a piece of large sized PVC garden hose over the aluminium tubing. According to design data for DDRR antennas the radiating element should be about 440 cm long for 14 MHz. However, it seems that the three insulated mountings provided capacitive loading that resulted in a considerable shortening. In my case the actual length was 411 cm. In the normal DDRR configuration a capacitor is inserted across the gap in the ring to tune the radiator to the desired frequency. In this case no capacitor was required and tuning was accomplished by sliding a smaller section of tubing into the end of the larger part of the loop. Adjustments were made with the aid of a GDO and self-tapping screws were inserted after adjustment to hold things firm. Matching proved to be a simple matter of a tapered feed extending from the support at the grounded end of the loop to a point 35 cm along the radiator. Again, no capacitor seemed necessary to cancel the stray inductances and a SWR of 1.5 : 1 was obtained over the 14 MHz band.

The initial try-out was on the day of the 1974 Field Day Contest. The first response to a CQ Field Day was a call from a YS1! It did appear that we were getting out at least, even if we were not immediately answered by another Field Day contestant.

While the dimensions given worked for my particular car (a Datsun 120Y), there is no guarantee that these will immediately suit another type. Variations in dimensions and clamping details will possibly alter the radiator length required. However the system is offered here as one alternative to the usual compromise provided by the helical whip. The DDRR is supposed to be theoretically identical to a full quarter-wave ground plane. While the car roof does not quite give the full extension specified for a DDRR ground disc, it appears to go close to filling the bill. The DDRR has an added advantage in that, with some adjustment of feeding arrangements, it should work on 21 and 28 MHz. Although no check was made on the latter two frequencies, I did try it on 144 MHz!

Whether is was sheer luck or something else is unknown, but the SWR was below 1.5 : 1 for the 2 metre band and a number of contacts were made using the DDRR. It also remains a moot point as to which part of the structure was doing the radiating, or what orientation and direction this radiation took. As yet, no measurements of directivity have been made, either on 144 or 14 MHz. ■

RIGID COAXIAL LINE

I. Berwick VK3ALZ
107 Loongana Avenue, Glenroy 3046

Conventional coaxial cable losses make the use of long runs of such cable unattractive for use at UHF. Most of the cable does not need to be flexible so the use of rigid "cable" or line is possible. This article describes a method of building low loss low cost rigid coaxial line.

The basic arrangement is shown in Fig. 1. A centre conductor of 3/16 in. copper wire and an outer conductor of ½ in. 16 gauge aluminium tube were selected to form a coaxial line because of their ready availability. The line impedance works out at 57.5 ohms, which is convenient. The copper wire may be purchased in rolls the same as fencing wire. It may be straightened by gentle hammering and stretching after cutting Into 20 foot lengths. The aluminium tube may be purchased in 20 foot lengths.

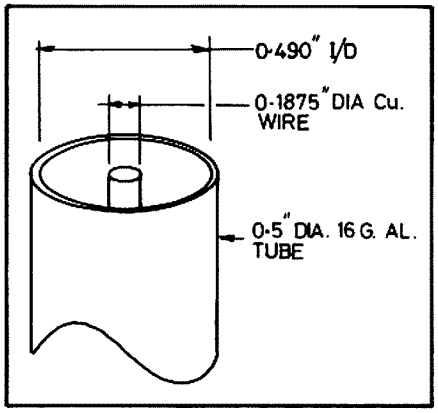


FIGURE 1: Basic arrangement of coaxial cable.

Fabrication of the line is described below. The inner assembly details are shown in Fig. 2. The spacers are turned from ½ in. teflon rod, drilled and cut off with a parting-off tool or hacksaw. They should be a push fit on the inner wire and a loose fit inside the outer tube.

The outer tube is connected to a coaxial connector as shown in Fig. 3. The termination block is pressed on to the end tube until this is flush with the block face and then clamped with a ¾ in. hose clamp over the slit.

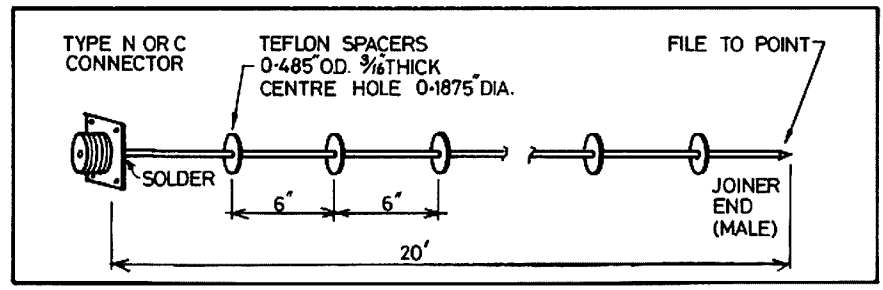


FIGURE 2: Inner assembly details.

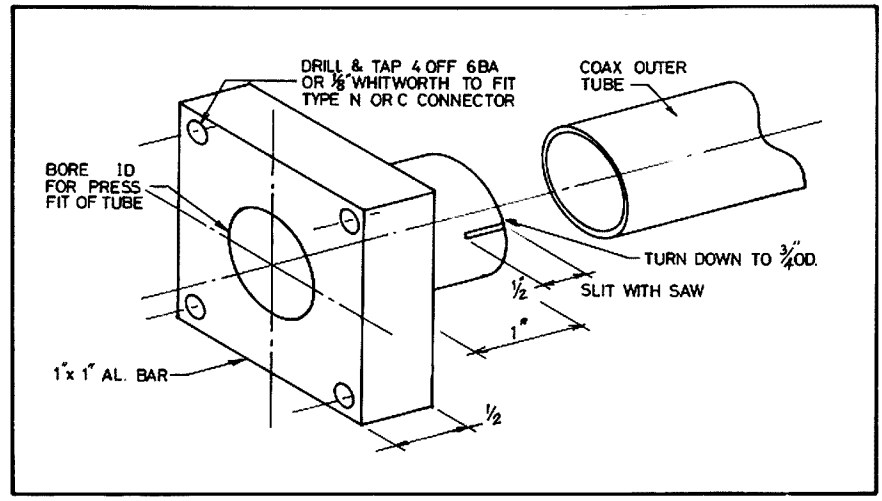
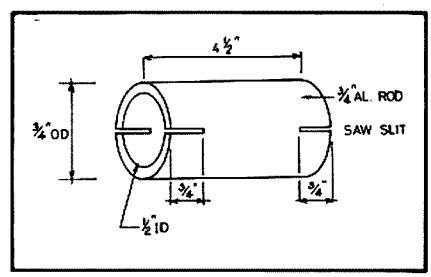


FIGURE 3: Outer assembly detail — connector end.



LEFT — FIGURE 4: Outer joiner sleeve.

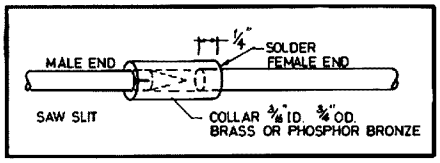


FIGURE 5: Inner joint.

Twenty foot lengths may be joined as follows. The outer tubes are butted together and the joiner, Fig. 4, clamped with two ¾ in. hose clamps. The inner conductor is joined as shown in Fig. 5. The two sections should firstly be completely assembled separately. The inner assembly is inserted into the outer, then the end connector is attached on to its mounting block with screws. The end clamp is fitted and tightened up and the joint sealed against entry of water. After fitting the two twenty foot lengths together a splint of two three foot lengths of 3/8 in. tubing taped to the centre joint will reduce strain on the joint and prevent a nasty accident during installation or service.

If the line is not run vertically, it should be supported as shown in Fig. 6.

The cost several years ago was 75 cents per foot. The loss at 432 MHz is less than ½ dB for the 40 foot length. The tube will now only be available in metric sizes so some adjustments will be required in the dimensions given. The impedance of the line, Z, can be calculated from the standard formulae $Z = 138 \log (D/d)$, where D is the inner diameter of the tube and d is the diameter of the wire. ■

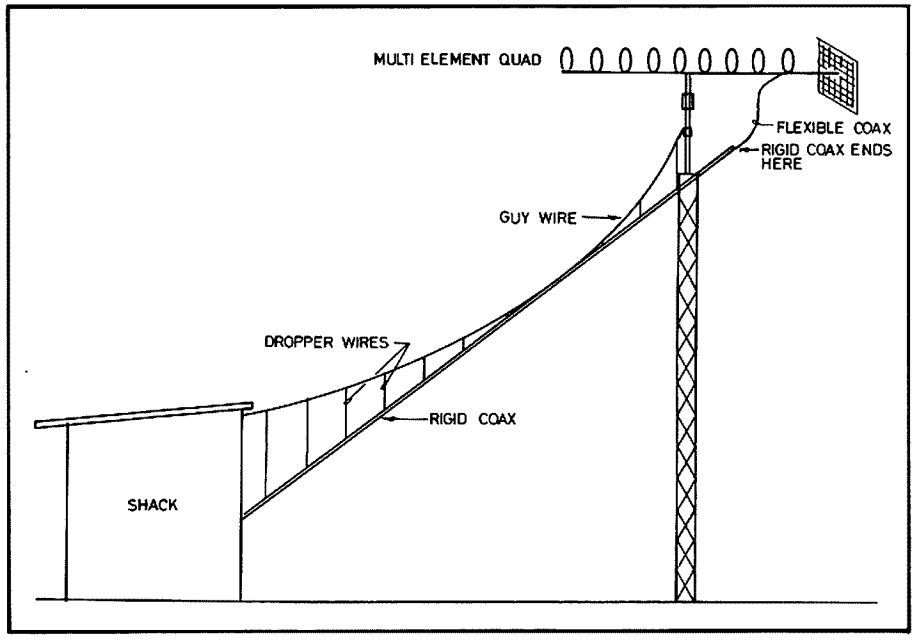


FIGURE 6: Support for rigid coax.

AN EMERGENCY LIGHT FOR THE SHACK

Ivan Huser VK5QV
9 Tallara Avenue, Mt. Gambier 5290

Have you ever been caught in the shack at the bottom of the garden on a dark and stormy night, when the power fails and you can't lay your hands on a torch? Then read on.

The system is shown in Fig. 1. When plugged into the mains, the three nickel-cadmium cells are placed on charge, the charging rate being set by R1 and indicated by the LED. In the prototype, R1 was 120 ohms, giving a charge rate of approximately 30 mA. Loss of mains voltage will allow the lamp to turn on. Restoration of mains voltage will automatically turn the lamp off and place the cells once again on charge. Emergency light is available for several hours from the "nicads".

There is a measure of built-in delay between the loss of mains voltage, and when the light is activated. This delay can be controlled within small limits by changing the value of the filter capacitor. Typical delay times are shown in Table 1.

The unit can be built into a "standard" flush light fitting mounted on the wall or ceiling, a hand lantern or whatever. A hand lantern has the advantage of portability, and will be most useful in getting you from the shack up into the house if the blackout is prolonged. All the components, including the three "D" size cells will fit comfortably in a "Dolphin" hand lantern. Connections to the supply can be made via a short lead or a suitable socket mounted on the rear of the torch. Note that the built-in switch of the torch must be left in the ON position. If a 9 volt "plugpack" power supply is available, then this could be used in place of the built-in power supply.

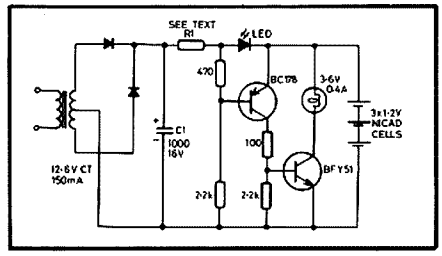


FIGURE 1: Circuit diagram.

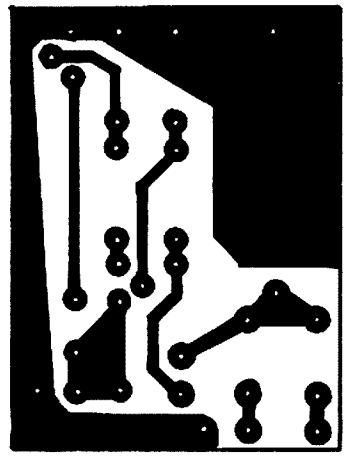


FIGURE 3: PCB layout (actual size), copper side.

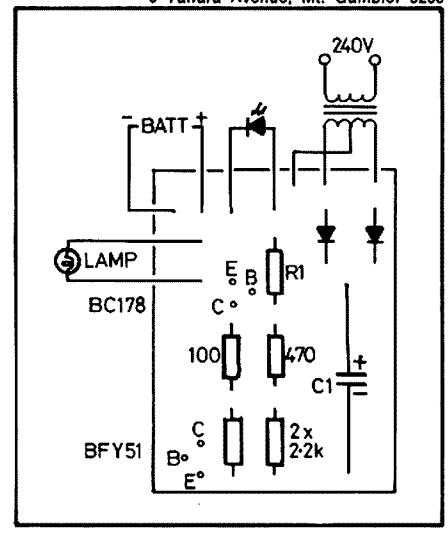


FIGURE 2: Component layout.

The PC board is simple and quite within the scope of those who use hand painted resist. A full size layout is reproduced as a guide.

TABLE 1

C1 (uF)	Delay time (sec.)
220	0.5
470	1.0
1000	2.0

■

DIAMOND IN THE SKY

(A SORT OF MULTI-BAND QUAD)

Rex Newsome VK4LR
58 Prospect Terrace, St. Lucia 4067

During a recent sojourn in G-land I had the opportunity and pleasure of visiting G6XN's antenna farm and of garnering a few ideas from Les as to how to go about exciting loops of wire to work as antennas on several bands. The present design was produced as a result of that visit.

While experiments are still being carried out, the results so far have been so encouraging that it was thought worth while reporting. Let me say at the outset, though, that the antenna, electrically, is due more to G6XN's know-how and experimenting than to any technical brilliance on my own part. The physical configuration described here, however, can be blamed directly on myself. In spite of the lack of visual aesthetics, the system may offer sufficient virtues and advantages for others to wish to try. It works as a rotatable directional array, albeit with some limitations in efficiency, on 40, 20, 15 and 10 metres. It is light, weighing about 3 kg from the rotator upward, and can easily be turned with a TV rotator. The turning circle is 11 ft. and, best of all from my point of view, it can be tuned entirely from the ground.

Basically it is a cubical quad system using two 12 ft. 6 in. square loops of wire each tuned by a closed stub about 45 ft. long. Given that the array is placed no higher than about 50 ft. the stubs fall within reach of terra firma, a condition that will be appreciated by all those who no longer have the ability to imitate our simian ancestors! Physically, the system is realised by arranging the loops around the corners of a cube formed by what initially appears to be a ground plane for 21 MHz (see Fig. 1). Three-quarter inch hard-drawn aluminium tubing was used for both the centre upright and the four radials. The centre upright was insulated from the rest of the structure at the base by a paxolin tube to break up the electrical mass of the support structure. The wire elements are held away from the structure by Estapol-coated dowelling jammed into the ends of the radial supporting tubes. Rather than bring the tops of the two element loops together a 3 ft. cross-tree of dowelling was fitted at the top with the aid of nylon cord down-

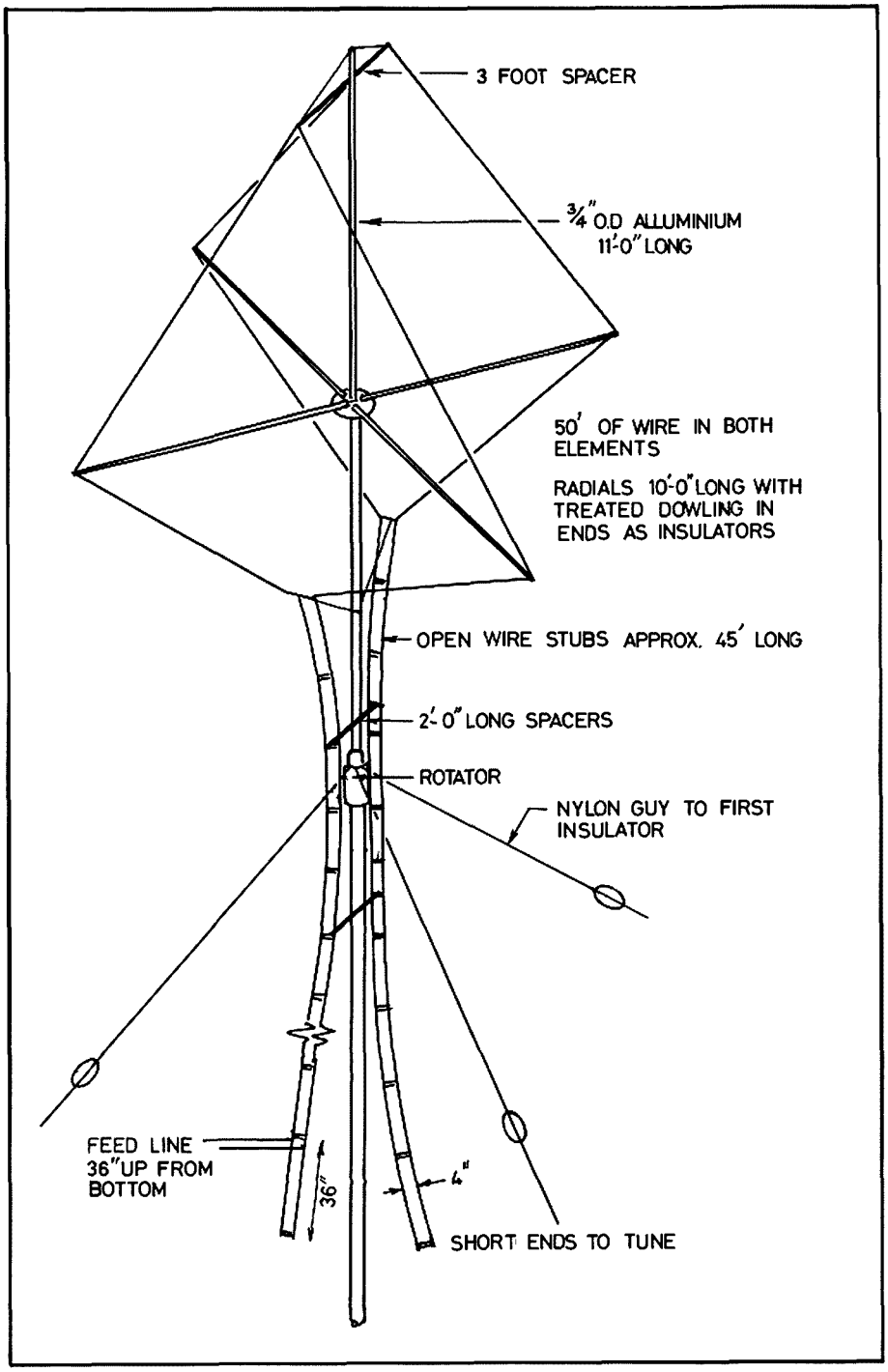


FIG. 1: The Sky Diamond.

bracing. While theoretically the two loops should be further apart, 3 ft. seemed to be a good compromise. Nylon cord was also used at the bottom of each loop to pull these in to about 3 ft. apart.

As the system is meant to rotate through 360° some arrangement had to be devised to allow the trailing stubs to turn with the elements without tangling or entwining with the mast and its guys. In practise this meant a twist of 180° in either direction. This was achieved successfully by the use of two dowelling standoffs, one attached to rotate freely at about 3 ft. below the loop-to-stub termination, and the other fixed to the mast 3 ft. below the other. If some slack is allowed in attaching the stubs it will be found that the array can twist through 180° without unduly affecting the stub tuning. Some form of standoff support is also needed to hold the remainder of the two stubs away from the tower, and possibly along the ground if the tower height is less than the length of either stub. Nylon rope was used in guying the mast for the first 4 ft. or so to avoid interactive effects between the guys and the stubs.

ERECTION AND TUNING

Erection can be done, and was done, single-handed, for all of the apparent size, the whole array is quite light and easy to balance. In fact, it can be held up in one hand (if no wind!). I used a 25 ft. length of 1½ in. OD aluminium tubing to loft the array skywards from the back balcony of my QTH.

With the array in place and the stubs tied down tuning was done by applying a GDO to the end of the stub in question just above the shorting bar. My initial aim was quite unambitious, simply that of making it work on 20. It turned out to be quite easy to find a position for the shorting bar to resonate on 14.2 MHz. Quickly checking for resonances on other bands I found that the driven element gave nice dips on 7.1, 21.4, and 28 MHz. Not bad! As I was anxious to feed some soup into the thing I improvised a 4 : 1 balun* out of two lengths of 73 ohm twin to take the end of a RG-8/U coax feedline to an impedance which I guessed to be suitable at about 3 ft. up from the shorted end of the stub. As it turned out, the position was just right and there was scarcely a flicker from the SWR meter in the reverse direction. A check on the higher bands showed that I was in luck, almost no returned power at 21.35 and 28.1 MHz. After a slight adjustment of stub tuning and alteration of loop dimensions a low SWR was obtained for all three bands.

The GDO was also used to tune the second loop as a reflector by application to its stub. Again, by adjusting the loop size slightly and the stub length a compromise position was found where the reflector resonated about 5 per cent lower in frequency for two of the three bands. A check with received signals indicated that a front-to-back ratio of about 8 to 10 dB could be obtained for 14.2 MHz and about 20 dB for 28.6 MHz. Fifteen metres was a different story. Due to the fact that the loop tuned high on this band the front-to-back was about —10 dB. In other words, the loop was acting as a director rather than a reflector. OK, so one just has to remember to reverse directions mentally from that indicated by the beam rotator when using the beam on 15!

No doubt a better compromise could be reached by adjustment of the various dimensions, but I chose to leave well alone.

While the principal aim of the exercise was to build an antenna which would work on 20, 15 and 10 metres, according to my reckoning it should work on 40 too, perhaps with some loss of efficiency! As it turned out, the loop plus stub arrangement did show a nice GDO dip on 7.1 MHz and a SWR of about 2.5 : 1 was indicated when RF was fed in. Again, no doubt a better SWR could have been obtained by adjustment, but as my interest in 40 was minor I thought it better not to disturb the good readings obtained for the other bands. More intrepid experimenters may like to improve on my results by further juggling the dimensions. As for 15 metres, the back-to-front for 40 turned out to be reversed. As far as I could tell the directional effect seemed to be weak, perhaps about *only* 5 dB. This could probably be improved also by further adjustment. Remember, though, that any adjustments affect all four bands.

How well did it work? Quite well in fact. While no comparisons could be made with a conventional beam, the impression was that it was not quite as good as the 3 element mono-band yagi used previously on 20. The virtues of this mini-quad, however, are obvious for those who are happy to sacrifice gain and efficiency.

*** A QUICK, MULTI-BAND BALUN**

A simple 1 : 1 balun for HF can be made by taking two lengths of 70 ohm twin of about a ¼ wave-length for the lowest frequency to be used, coiling both together into a bundle of about 6 in. diameter, taping, and joining the four wires at each end in accordance with the balun configuration. I have found that such a device works well to feed the end of coax to a balanced antenna for 20, 15 and 10 metres. In all probability ordinary figure-eight would serve just as well.

VK4LR ■

TEN COMMANDMENTS OF HUMAN RELATIONS

From Ham-Hum (Omaha NE).

Speak to people. There is *nothing* so nice as a cheerful word of greeting.

Smile at people. It takes 72 muscles to frown, only 14 to smile.

Call people by name. The sweetest music to anyone's ears is the sound of his own name.

Be friendly and helpful. If you would have a friend, be friends.

Be cordial. Speak and act as if everything you do is a genuine pleasure.

Be generous with praise — cautious with criticism.

Be considerate with the feelings of others.

There are usually three sides to a controversy: yours, the other fellow's and the right side.

Be alert to give service. What counts most in life is what we do for others.

Add to this a good sense of humour, a big dose of patience and a dash of humility, and you will be rewarded manyfold. ■

Photographs for AR

DON'T KEEP THEM TO YOURSELF

Send them in – NOW

WANTED

The Project ASERT Committee of the WIA is anxious to obtain a number of Rustrak miniature recorders, preferably having a range 0-1 mA and a chart speed of 5 cm/hour.

If any member or other person reading this advertisement is prepared to donate or sell a recorder of this type, the ASERT Committee would be most grateful.

Please have a look in your junk box and see what you can find; then either write to Box 150, Toorak, Vic. 3142, or telephone Les Janes (03) 338 9284 A.H.

A SIMPLE REGULATED POWER SUPPLY

Following on from the supply described recently (1), here is a design that may appeal to those who require a supply with a shut-down facility rather than the more often used current-limiting version. The decision to use shut-down may simply be personal preference or it may be a technical requirement.

K. Postler VK5KI
26 Hilltop Avenue, Ridgehaven 5097

The supply built by the author some months ago satisfied the need for a 12V, 1.5A unit requiring shut-down. Higher currents may, of course, be obtained by external pass transistors in the usual fashion.

The circuit of the supply is shown in Fig. 1 and follows the ideas put forward in the original article, i.e., keep it simple. As can be seen, the heart of the unit is the regulator IC, uA 723. The pin numbers in the circuit refer to the 10 pin metal can version (because it was on hand). There is no reason why you should not be using the 14 pin DIL version if you have them. (For pin numbers see reference (1).)

The basic information for the shut-down operation is given by the manufacturer of the device (2). I required an indication by way of an LED to signal that an overload had occurred. A simple push-button will reset the supply once the overload has been removed. My supply has pre-set output voltage. If you require adjustable output then substitute a potentiometer in place of VR1 and R2 (as per reference (1)). R1 limits the switch on surge to within the ratings of the diode bridge (30A peak). In the event of an overload, some power is dissipated in R6 and R7. This is done intentionally in order to prevent the voltage across C1 rising above its voltage rating. A capacitor with a higher voltage rating would have been too big physically. D1 is included to protect TR2 and IC1 in the event of the load generating a back EMF or other undesirable transient when the supply shuts down.

The SCR I have used comes from a packet of unmarked SCR devices sold by Tandy's. They are low power devices and look something like a BC108 transistor. I have tried several and they all work. You will need to adjust R8 to get satisfactory triggering, however, watch you don't reduce too much or you will exceed the gate current of the device (not at all desirable). I suggest if the thing does not trigger with

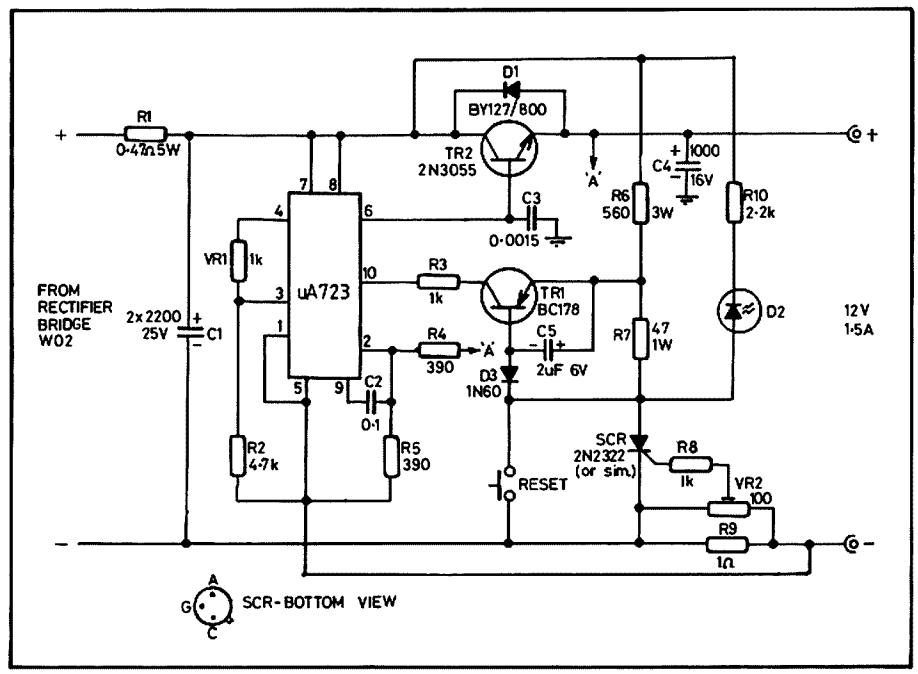


FIGURE 1: Circuit diagram.

R8 = 1k ohm, try another, or buy the one listed in the circuit diagram, if you don't feel like experimenting.

The construction is not at all critical. I have not given a PCB layout; you might feel like giving it a go. This might be a good project for "starters" in the art of making printed circuit boards.

Under conditions of capacitive loads the supply will cut out upon switch on although the current drawn is not anywhere near the limits of the supply. This is due to the surge as the external capacitors are trying to charge up. However, the action of the overload circuit is so fast that it shuts down before any charging-up can occur.

A small capacitor and a diode will need to be added to the circuit to "soften" the turn on action. These two components are shown as D3 and C5 in the circuit diagram Fig. 1.

REFERENCES:

(1) A simple, high current regulated power supply, B. H. Riley, Amateur Radio, November, 1977.
(2) Linear Integrated Circuits data catalogue, Fairchild Semiconductors, February, 1973. ■

Review: THE TONO THETA 7000 COMMUNICATION COMPUTER

By AR Editorial Staff

The TONO THETA 7000 Communications Computer (to give it the full title) is a highly sophisticated state of the art RTTY, ASCII and CW receiving and transmitting terminal, and projects the information on a normal television receiver or VDU monitor.

It is not often that we get the opportunity to look at the latest in amateur equipment as it actually hits the market, and we were grateful when we contacted VICOM that a unit was made readily available for a review.

The unit itself is very compact, measuring 400 mm x 300 mm x 120 mm and weighs 4.5 kg.

It incorporates many facilities including being able to be used as a terminal for an external microcomputer, and is not restricted to amateur communications. It can also be used for many types of commercial traffic.

The built-in RTTY demodulator has three shifts; 170 Hz for normal amateur use, also 425 Hz and 850 Hz, making it a very versatile unit in this mode. FSK or AFSK may be used.

Character speeds of 45.45, 50, 56.88 and 74 baud are available at the push of a button, and in the ASCII mode speeds of 110 and 300 baud are selectable.

The unit has several reasonably large capacity memories, including a buffer memory with recall.

CW sending and receiving is also fully automatic, with adjustable speeds and weight for varying character ratios.

The control panel is a modern typewriter keyboard and is silent in use.

We tested the unit basically from an operator's point of view, and did not delve into the circuitry with any depth.

Suffice to say that it is fully solid state, with a Central Processing Unit, and naturally due to its complexity, would not lend itself to "fiddling" by over-enthusiastic experimenters.

One would have to consider that providing the unit was operated in accordance with the instructions, and the "works" be left alone, many years of excellent service would be obtained.

The unit comes with a fairly comprehensive instruction manual, and even a limited service manual for various adjustments.

Both manuals are written in the typical pseudo English from Japanese translation we are now becoming used to, and it is necessary to read over some of the sections several times to obtain a thorough understanding.

ON-AIR TESTING

On-air tests were restricted to the RTTY and CW modes, we did not encounter any ASCII transmissions during the tests, so we were unable to fully appreciate that mode.

It is very easy to be over critical with a device such as this, and after a period of becoming fully conversant with its capabilities, we found it a delight and relatively simple to operate.

RTTY

It certainly helps if the operator has some form of typing capability, but the testers were only "two finger" typists, and even though we were slow at first, we had no trouble in keeping up with some of the more experienced operators in our QSOs.

We generally found that signals less than S3 provided a marginal copy only, in both RTTY and CW. It was interesting to note that on occasions where the "woodpecker" was evident, or with QRM from SSB and some CW stations, the display was not affected.

The automatic carriage return and letters and figures shift means that the operator does not have to concern himself with "running off the page" or typing "asterisks", etc., in place of numbers. It is all done for you, and helps to speed up transmission.

The memory functions are *very* useful, and permanent short messages such as call signs, basic details, etc., may be stored for instant recall.

CW

The signal to noise ratio on most bands produced excellent CW copy from keyers.

The easy way to copy CW at virtually any speed.

Hand sent CW is often not optimally spaced, and the unit produced some odd characters if a station operator was inconsistent, e.g., "HI" was often displayed as "HEE".

Some noise bursts, particularly on 80 metres, produced a string of "Es", but after a while one became used to this, and it was amazing how quickly we were able to mentally correct what was being displayed.

It is obvious that the unit performs its best on receiving keyer sent code.

In monitoring two or more stations on CW we found it necessary for all stations to be zero beat, or within 100 Hz of each other, to save returning the receiver. This is actually quite an important facility, as it proves the effectiveness of the filters by rejecting QRM as mentioned earlier.

SUMMARY

The general consensus of the testers was that the TONO Corporation has produced a very effective and efficient terminal. It is a new generation of amateur equipment and should prove itself popular with amateurs and commercial users.

The unit performed to its specifications and, after spending several hours to become fully accustomed to its capabilities, we found very little to criticise.

We found it relaxing to use and were grateful for the help and understanding given by the other amateurs we contacted.

The TONO THETA 7000 is the ideal unit for the RTTY enthusiast who detests noisy teletypes and who would also like to work some CW, or for the CW fiend who would like to try RTTY.

It is not particularly cheap, although very competitively priced to other similar units. At the time of testing the price is $839, and is available from VICOM and their distributors. ■

24 HOUR CLOCK

By G. Sones VK3AUI
30 Moore Street, Box Hill South 3128

Contacts should always be logged in UTC, or GMT as this gives a universal basis of comparison rather than in local time. Local time may not mean anything to someone in another country and could result in a card being returned as the log entry could not be found.

An easy way of keeping the log is to have a 24 hour clock running in UTC. This can be set to WWV and will then enable you to have a log using UTC.

However a snag arises in that 24 hour clocks are not available over the counter in every shop. All is not lost though as most electronic clock integrated circuits provide a 24 hour option.

The DC operated digital clocks are initially very attractive but unfortunately most of them use a colour TV crystal from the USA. These are very cheap as they are mass produced and so is an integrated circuit divider to bring this down to a suitable input for the clock circuit. However the *frequency of* this crystal is 3.579545 MHz. This is rather unfortunate as it places a rather large birdie in several amateur bands.

A better alternative is the mains operated clocks which use the AC mains. The AC mains hold frequency very well and for a clock are quite adequate.

An AC mains type 24 Clock Module has recently been advertised by Dick Smith at the extremely attractive price of $6.90. All you need with this module is a transformer, some switches and a case. The module is a 24 hour unit and is actually a unit designed for use in a clock radio. As a result of this an alarm driving output is available. The module is type MA1008. Similar modules are the MA1002 series.

Suitable transformers, switches, buzzers and cases are also available. These parts may be used in the clock described.

A word of caution is in order before you start though. These modules use an MOS integrated circuit and several of the inputs are of necessity brought out to connect to switches. When soldering the module into circuit the module should be grounded by attaching a clip lead to the power supply section of the circuit board. The electrolytic capacitor leads are very convenient. The soldering iron should also be earthed as also should any tools and also yourself. Quite high resistance earthing is satisfactory and you may discharge your static charge by touching any of the earthed objects.

In spite of all these problems with MOS the author was able to solder and unsolder the circuitry several times without any trouble. The *reason for* this was that the first lashup was outside the case and then when in the case a few wrong connections had to be sorted out.

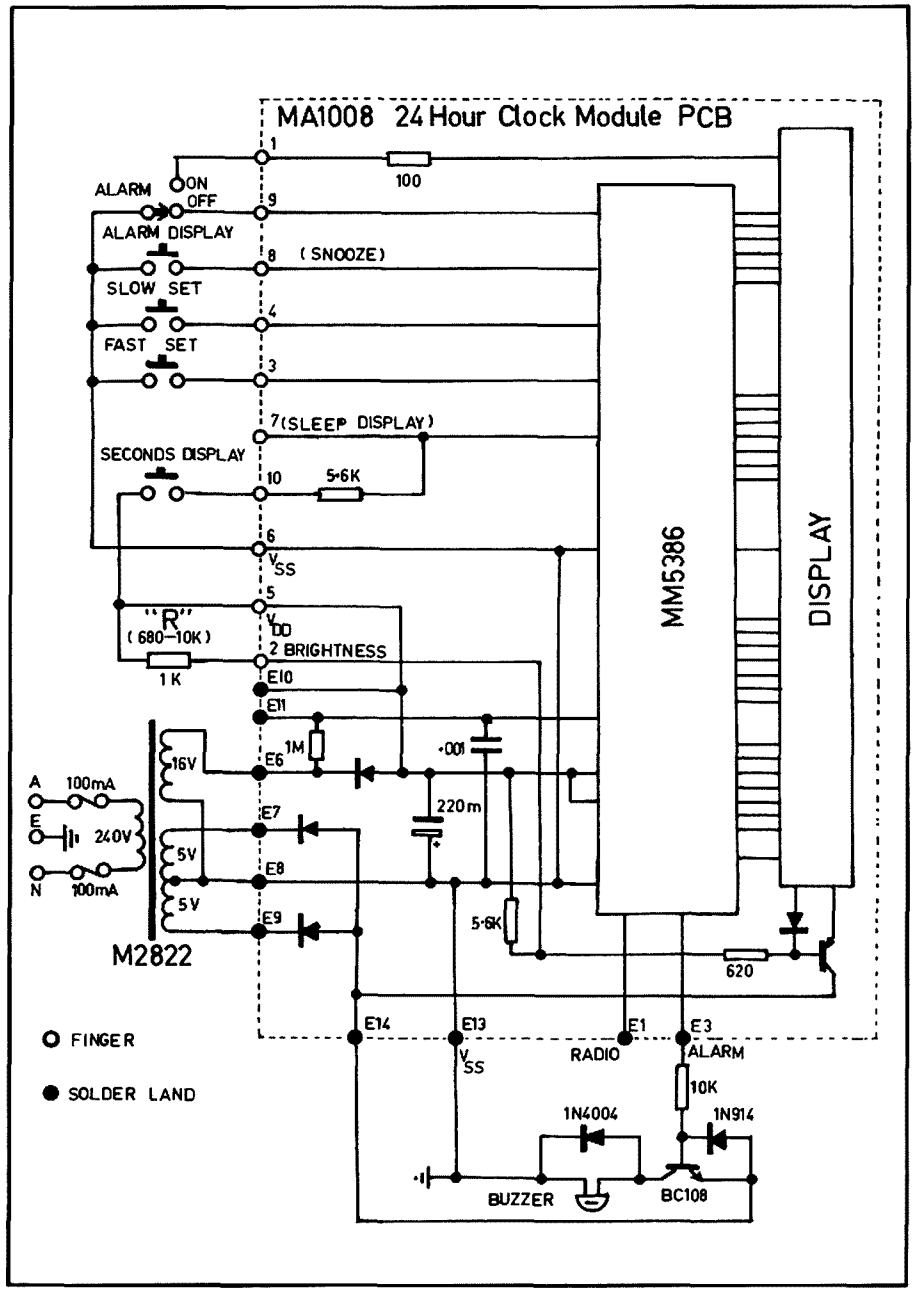


FIGURE 1: Circuit Diagram.

The module is wired up in accordance with the data sheet as shown in Figure 1. A circuit board layout with connections is shown in Figure 2. The alarm need not be used but it can be handy *for reminding* you of schedules or to alert you to listen to WWV for the propagation broadcast. The seconds display is used in setting the time and a toggle switch may be easier to use than a push button.

The alarm in this module provides an output to drive a transistor which turns on

a small buzzer. The diodes are to catch any spikes and may be omitted if an electronic plezo electric buzzer is used. There are several of these available ranging from $1.50 up. The sonalert is another suitable type which whilst dearer will give an ear splitting level if required. The transistor may be virtually any NPN silicon type.

The author mounted the clock in a Horwood aluminium box. These boxes consist of a piece of aluminium extrusion with suitable end plates. The module was positioned close to the edge which put the readout centrally in the end. The readout outline was then marked on to masking tape covering the panel. A suitable cut-out was then punched and filed to shape.

When mounting the module 8 BA screws were used with small Insulated washers, as some tracks are very close to the mounting holes.

The brightness of the display may be adjusted by varying the values of R from 680 ohms to 10k. A fixed resistor is simplest but a potentiometer may be used If you wish to vary the brightness. The author found a 1k resistor to be suitable.

The mains fuses were included as the clock will be left on for extended periods and are a cheap insurance if anything breaks down.

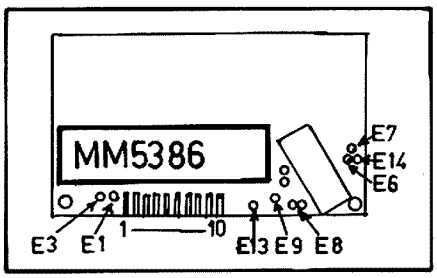


FIG. 2: PCB layout showing pins.

When switched on the display will blink until you operate either the fast or slow setting switches. The fast set switch advances the display at a rate of 50 minutes per second. The slow switch causes the minutes to advance at a rate of 2 minutes per second. These allow you to advance the time in minutes to set the correct time.

The seconds display button shows the last figure of the minutes display plus the two seconds digits. The fast and slow buttons may be operated also. The fast set button allows you to reset the seconds to zero in this condition. Also with the seconds button pushed simultaneously pressing both fast and slow buttons will reset the clock to 0 : 00 : 00 or 0 hours. This last feature may be very useful at times. To set the clock to WWV manipulate the fast and slow buttons to set the time display to one minute in advance of the last announcement. Then operate the seconds button and flip the fast button to reset the seconds to zero. Then wait till the minute display is announced.

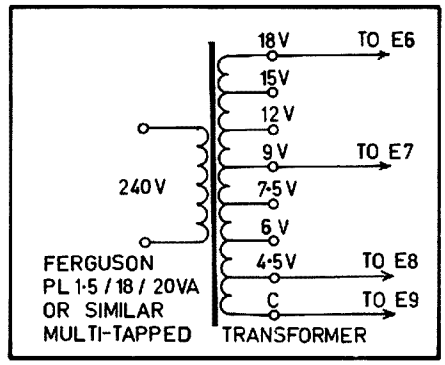


FIG. 3: Alternative Transformer

Give the fast set button a flick whilst keeping the seconds button depressed as the tone beep is heard. Release the seconds button and the clock is set on UTC.

The alarm may be set by operating the alarm display button and then using the fast and slow set buttons to change the displayed alarm time. A reset is available by pushing both fast and slow buttons in this mode. This resets to 0 : 00. The alarm is turned on by a switch which indicates on the display by an LED in the bottom right-hand corner of the display. The alarm display switch also provides a 9 minute snooze feature when the alarm operates.

Considerable variation in layout, switches and transformer used is possible and in the features used. The exact mix selected Is up to you. However the result is a most useful and noise free 24 hour clock. It would also be possible to run several modules to provide a number of displays set to various time zones. This would be a very easy way to use display of time around the world.

Should you wish to use one of the multi-tapped transformers of 18 volts or so, then refer to Fig. 3 for connection details. These are often more readily available than the special clock transformer. Whilst a Ferguson transformer is shown there are many similar multi-tapped transformers made by all manufacturers. Small differences in voltage will cause no concern as the module is usable over a reasonable range of voltages. ■

AMATEUR SATELLITES

Bob Arnold VK3ZBB

	OSCAR 7			OSCAR 8		
	ORBIT	EQX.GMT	EQX.°W	ORBIT	EQX.GMT	EQX.°W
1	22304	0112	84	8012	0137	70
2	22316	0011	69	8026	0142	71
3	22329	0105	82	8039	0004	47
4	22341	0004	67	8053	0008	48
5	22354	0100	81	8067	0014	49
6	22367	0154	94	8081	0019	51
7	22379	0053	79	8095	0024	52
8	22392	0147	93	8109	0030	53
9	22404	0046	78	8123	0035	54
10	22417	0141	91	8137	0041	56
11	22429	0040	76	8151	0045	57
12	22442	0134	90	8165	0051	58
13	22454	0033	74	8179	0056	59
14	22467	0128	88	8193	0101	61
15	22479	0027	73	8207	0106	62
16	22492	0121	87	8221	0111	63
17	22504	0021	71	8235	0116	65
18	22517	0116	85	8249	0122	66
19	22529	0014	70	8263	0127	68
20	22542	0108	84	8277	0131	69
21	22554	0008	68	8291	0136	70
22	22567	0102	82	8305	0141	71
23	22579	0002	67	8318	0004	47
24	22592	0056	80	8332	0010	48
25	22605	0150	94	8346	0015	50
26	22617	0050	79	8360	0020	51
27	22630	0144	92	8374	0025	52
28	22642	0044	77	8388	0030	53
29	22655	0138	91	8402	0035	55
30	22667	0037	76	8416	0041	56
31	22680	0133	89	8430	0045	67

EDITOR'S NOTE: Due to unforeseen circumstances, this column will appear in the next issue.

TRY THIS

WITH THE TECHNICAL EDITORS

In my home brew transceiver, which uses a Yaesu 5174 kHz filter, I used originally a VFO on about 8 MHz. This gave outputs directly on 80 and 20 metres, from the difference and the sum respectively. The VFO was pre-mixed with a crystal oscillator for 40 and 15 metres. I was not happy with this as the 80 and 20 metre calibrations were different, and the 40 and 15 metre calibrations read backwards.

I have now changed the VFO to cover 5826 to 5426 kHz, and this is pre-mixed on every band. The result is a dial reading the same way on all bands, and the positions of the 100 kHz calibration points are virtually unchanged from band to band. Readers who like to build their own may be interested in an outline of the system.

The difference between upper and lower sideband carrier frequencies with this filter is 3.3 kHz. The original crystal on 5172.4 kHz was used for LSB, and another crystal on 5175.7 for USB.

As the VFO scale was not linear I preferred to use the lower half of its range for 80 and 40 metres, with pre-mixing crystals of 14.3 and 17.8 MHz respectively. The full VFO range is used on 20 and 15 metres, the crystals being 25.0 and 32.0 MHz. There are trimmers across each crystal except that on 25 MHz, and these permit adjustment of the 100 kHz calibration points to within about 1 kHz of agreement on all bands. Slightly different crystal frequencies would be necessary to improve on this.

The partial circuit diagram indicates how it is done. Note that FETs are used in mixer, crystal oscillator, and VFO functions, and that to minimise RF band-switching a separate optimised mixer-oscillator combination is used on each band.

Jonathan Kitchin VK6TU. ■

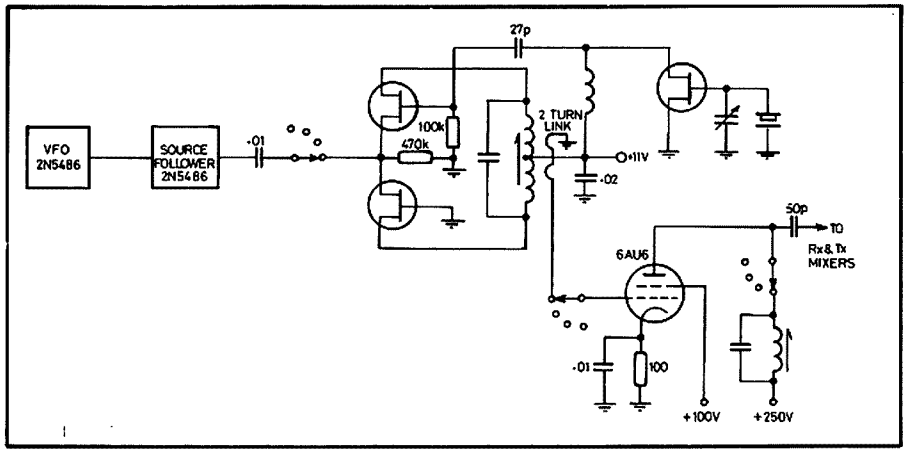


FIGURE 1: Mixer Oscillator circuit. A separate balanced mixer and crystal oscillator are used for each band.

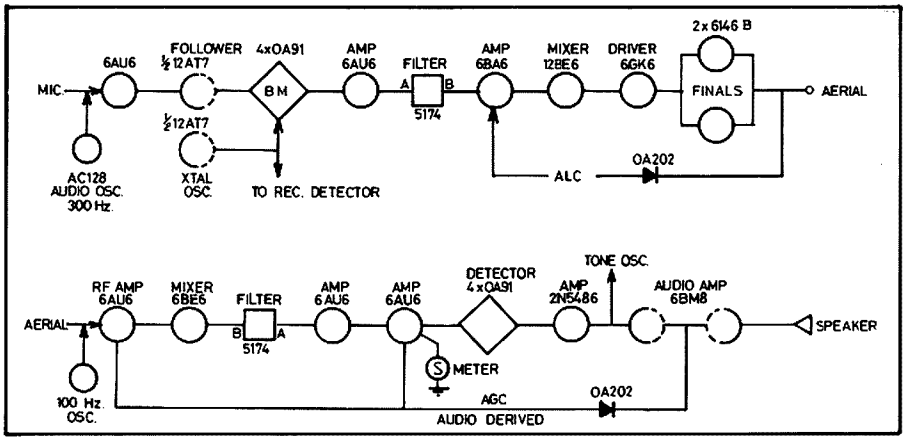
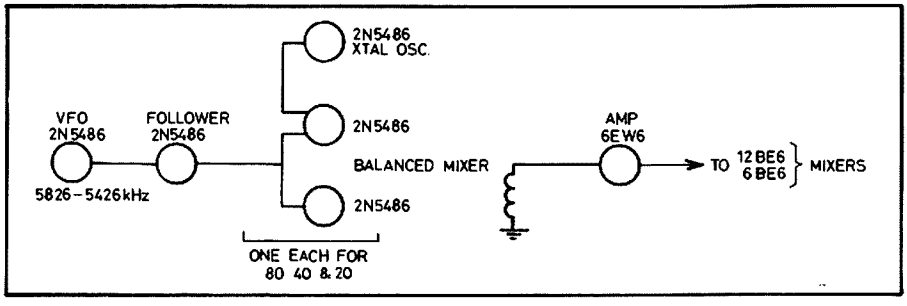


FIGURE 2: Schematic of Transceiver.



RIGHT: FIGURE 3: Schematic of Oscillator-Mixer.

MY OLD FLAME

A warmth infuses thru my frame
When I think of my old flame.
Passionate, all the more because
I made her what she really was.
Small, elegant, pert and neat;
A well-turned leg and tiny feet.
All her lines were smart and trim;
A touch of class — none more slim.
Orbs that glowed in hot replay
To every word I had to say.
— Adorned her chassis with the best
I showed her off at each Hamfest.

I treated her to tenderness.
The sweetest thing I did possess.
At times we spent the whole night thru
Close together, just us two.
And tho the years have sped away.
It only seems like yesterday.
This affair with my old flame,
But, you ask, what's her name,
This one you loved, warm and big,
The answer is, MY HOME BREWED RIG.

Alan Shawsmith VK4SS. ■

Are you checking our bands for

INTRUDERS

AND REPORTING SAME TO THE INTRUDER WATCH CO-ORDINATOR?

MY OM—AN IDIOPATHIC NARCOLEPTIC HAM

Many more YFs, YLs and OGs seem to find themselves, whether they like it or not, involved in this new surge of AR activity. I'm getting more and more calls on the twin telling that their OM's going bonkers — like working up at the top of the mast half the night to fix the beam, so as he can come down at 4 a.m. for a ten second QSO with some DXpedition. Well, here's another YF who's learnt of the funny (queer) things AR can do to the "better half". Let me tell you about my OM.

He's been a DX compulsive for many more years than I care to remember and it sure has worked some changes — even more these past few months: nodding off at odd times and places, as if suddenly bored. I put it down to no new DX but my guess was wrong, for the other day, when tidying his desk, I received quite a jolt. Being his Girl Friday, I attend to the mail. There was this letter lying open and addressed to a city psychiatrist from our local GP. It read in part, ". . . shows clear clinical evidence of IDIOPATHIC NARCOLEPSY . . . but suggest an EEG for first elimination of . . ."

I stared and read it again. No, there was no mistake: it was our own GP referring my OM to a headshrinker for a brainwave test. It took a moment for the shock to pass. So, my OB was sick — and in the head. He had IDIOPATHIC NACOLEPSY, whatever that was. The words fairly leapt out of the page at me: now I suddenly saw him in a new light — so that was why he was so cranky and bloody-minded. How long had he been getting like this? What was the disease? The name of it sounded hideous. Was I now married to a monster? What was the prognosis likely to be; would he go only half ga-ga or stark raving bonkers? Was it fatal? These and a dozen other questions began tumbling through my mind.

Suddenly I remembered the old unused medical dictionary which was gathering dust in the bookcase. I snatched for it, hardly daring to read the truth. Let me see — I . . . Ia . . . Ic . . . Id . . . Idiot: a condition of feeble mindedness; well, not yet . . . but no IDIOPATHIC. Well, what was it then — a disease of modern society? There was nothing for it but to ring the GP, who was also an old friend.

"Mac," I said, "can you see me right away?"

At the surgery, I simply slid the referral chit across his desk and said, "OK, Explain!" Doc glanced at it and smiled wanly.

"Just like your OM to leave this thing lying about and worry you over nothing."

"Nothing!" I said. "You tag him with a dreadful sounding complaint — er, what's it called, "PATHETIC EPLEPSY . . .?"

". . . IDIOPATHIC NARCOLEPSY."

"Yes and send him to have his head read by some 'shrinker' — and you say that's NOTHING. What is this, a con game, or are you up to some sort of a rip off?"

"No, I assure you, there's nothing seriously *wrong* with your OM."

"But he *is* sick?"

"Not in the lay sense."

"Look," I said, slapping the desk impatiently, "do you mind if we go back to square one, where I came in and asked for an explanation."

"Right, a NARCOLEPTIC is a person who can't stay awake when sleepy. Most can but a NARCOLEPTIC can't. That's the difference. He simply drops off any time, any place; such as standing up in a bus, on the phone, at a party, or even in the 'loo'. Fortunately, only very occasionally does it indicate something serious. The other day your OM dropped by for his regular medical. He complained that he's half-awake at night and half-asleep all day and getting worse. Now, I've known the OB for years and I was certain he was OK but I had an EEG done, just because any GP can't afford to make a mistake. The test showed he's as normal as both of us. Satisfied?"

"OK. Well, if he's not sick but has a medical condition, what's wrong with him!"

"Ham Radio."

"You mean that's the cause of his IDIOTIC . . ."

"Yes, he's flipped his twenty-four hour cycle."

". . . flipped his what!"

"We all have a daily cycle, which is part of our biorhythms. Nature meant us to slow down and sleep at night — but your OM doesn't. Insomniacs like he is are mostly self-made, for a variety of reasons. He doesn't know it now, because the habit's become planted in his subconscious long ago but he *wants* to get up with the first cock crow; apparently that's the time he likes to chase DX and it's put him out of tune with his natural cycle."

"How crazy — he's tuned every cycle on the HF bands a million times over and flipped his own."

"— er, yes, if you like. You can cheat on sleep for a while but, in the long run, nature wins out — and in your OM's case, he's developed IDIOPATHIC NARCOLEPSY."

"OK. What's the treatment?"

"None."

"NONE!!"

"He's happy. Just let him be. What he's got is harmless and trying to change him now, after thirty years, may produce a neurosis. I wish all my patients had a good hobby: I'd have less psychosomatic nuts to treat."

"But he's becoming an embarrassment. He has dinner, then switches on the TV and is snoring before the picture tube is in focus. Later, friends drop by and as soon as we are settled and talking, he nods off in the middle of a sentence. What can I say? If they knew he's become an IDIOPATHIC NARCOLEPTIC, there'd be a stampede out of the house. With a name like that, they'd think it was contagious, or fits, or something . . ."

"Just tell them he's been overworking."

"I know what they'd say to that!"

Well, you can't stop a thing like that from getting around the neighbourhood — and yesterday, it happened. The phone rang and I recognised the local Police Sergeant's Irish brogue. "— er, your good man is with us. He was giving some evidence about an accident he witnessed and faith, all of a sudden, he went clean out in the middle of it. He's not been drinking, he's too clear-minded for that, so tell me, does he take drugs?"

"No, never."

"Then, Is he sick? We didn't want to wake him, In case It was wrong."

"Yes and no."

There was silence on the line as the arm of the law pondered the ambiguity. I knew there was nothing for it but the truth.

"He's an IDIOPATHIC NARCOLEPTIC."

More silence, then in shocked tones, "He is . . . he's a . . . he has, he is — is he THAT! Shall we get him off to hospital right away?"

"No, no, it's nothing. Just nudge him awake and he'll carry on as if it never happened."

So, there you are, that's what thirty years of AR and too much DX and too little sleep has done to my OM. Every pastime has some long term hazard. It's lumbered me with an IN for a partner. So, watch it; if your OM is a night-time DX compulsive, be prepared for anything, eventually.

I guess I'd better take the Doc's advice and try not change . . . OM . . . might . . . for . . . worse . . .Oops, sorry . . . must have dozed off at the "mill" here. I can hear a cock crowing, so it's time to QRT, or the OM'll be turning out before I turn in.

Helen, YF of Al VK4SS. ■

NOVICE NOTES

FINDING THE RARE DX

Invariably the rare DX station is "at the other end of the band". During periods of peak activity on the bands, calling CQ will not necessarily bring results.

Remember that, although the band may appear to be reasonably clear at your end, on the other side of the world there may be many local stations transmitting and possibly using the exact frequency that you are calling CQ on.

This of course would prevent your call from being heard, so it is reasonable to assume that if you do receive a reply to your CQ then either you are not getting through or the frequency is in use.

Also during busy periods, especially between early evening and midnight in Australia, many many stations will be calling CQ, possibly on the same frequency that you are using. Even though you may not hear them, the operator in another country will, and may find it difficult to sort out the jumble of call signs all coming through at once.

For this reason the experienced DX operator will listen carefully and answer an overseas station calling CQ, particularly the weaker ones.

After midnight, the majority of local operators will have gone off the air and it is more likely that with clearer frequencies, your CQ will be heard and answered.

However, it should always be remembered that any CQ at any time may bring results if you are lucky to be in the right place at the right time.

The successful DX operator is the one that LISTENS.

☆ ★ ☆

HOW TO GET THE QSL CARD

If the station you are working is considered rare DX the chances of your receiving a card by direct air mail, even though you send him yours that way, are remote. He has thousands possibly to send out and is unlikely to favour you in particular. Sending him IRCs increases the chances slightly, but it is wise to check.

I worked an Arabian station that was actually being operated by an Englishman. I asked him if he would QSL direct and would IRCs be appreciated. He said that he answered all cards and if I wanted mine direct it would certainly assist with the postage. I anticipate that that card will arrive in due course.

But remember it costs over $1 to send a letter air mail from South America, and if a station is sending out 300 cards per week, it could amount to six times his salary.

There are exceptions of course but generally they are with more personal contacts and not DX stations working many local operators for long periods at a stretch.

Helpful hints . . .

Make sure your card is filled out properly with the time in GMT.

Write a short interesting note on the back of your card, but remember that cards via the bureau are limited to five words only.

If possible, try to get your address over to the DX station at the time of contact . . . if he confirms it correctly you have a chance.

Send one card direct, one through the bureau as well.

Confirm with the DX station at the time of contact that he is OK in the latest call book.

Countries that are reliable in returning QSLs: England, Scotland, France, Germany, Sweden, Norway, Denmark, Japan, Canada.

75 per cent returns: USA, New Zealand, Brazil, Italy, Spain, Eastern Europe.

50 per cent returns: Mexico, other South American countries, South Africa, USSR, Central America, South-East Asia, India, the Far East.

☆ ★ ☆

DIRECT OR VIA THE BUREAU

Cards may be sent via the WIA bureau free of charge or at a nominal cost to members.

A maximum message of five words is permitted in the remarks section on your card and the call sign of the station to whom the card is to be sent should be written on the back in the top right hand corner.

Cards sent via the bureau to Australian amateurs may be collected free of charge.

Postage rates at present are (air mail): USA and Canada 50c, Japan 40c, Europe and foreign 55c.

It is not always wise to send unsealed envelopes marked "card only" to certain foreign countries. Do not put Y3GH, for example, or any indication that the letter is to an amateur, as this invites the IRC or green stamp thief.

All cards to the Soviet countries must be sent to Box 88, Moscow, and no Russian may QSL direct. You will receive any Russian cards through the bureau.

☆ ★ ☆

TIME

When you are working USA at 2300 GMT on Monday 16th in Melbourne it will be Sunday night on the 15th in USA.

When you are working England at 1100 GMT on Monday 16th in Melbourne it will be Monday on the same day in England.

☆ ★ ☆

CALLING CQ

When you do find the occasion to call CQ the following procedure is generally successful.

"CQ Fifteen . . . CQ Fifteen . . . CQ Fifteen Metres . . . Victor Kilo Three November November Romeo . . . calling CQ Fifteen Metres Beaming Short Path Europe and standing by".

Listen for ten seconds or so then repeat the call. If no response is heard after three such calls try a different part of the band.

It is quite in order to call CQ Wyoming, or CQ Europe, etc., if you wish to work a particular area of the world, but remember if you just call CQDX you are obliged to answer any operator who might reply.

—From CQDX Radio Group Handbook — by Trevor Reid VK3NNR, Box 79, Heidelberg, Vic. 3084.

EDITOR'S NOTE

This completes the series from the CQDX Radio Group Handbook. Many thanks to Trevor VK3NNR and his group for their efforts in helping to publicise the proper method of using an amateur station.

(VK3UV) ■

☆ ★ ☆

HAD A WOODPECKER IN THE PILE-UP LATELY?

Have you ever known the frustration of copying that elusive piece of DX on HF and suddenly been plagued by an ever-increasing crescendo of zips, zaps, crackles and grinds reminiscent of a buzz saw with a power supply suffering from the bends?

In total disgust have you then retired to the comfort of your living room and switched on the faithful old colour, or black and white telly only to have your distraught nerves totally shattered by half the picture vanishing beneath a series of fragmented lines moving in bands either slowly up, or down the screen?

Fear not! You haven't been smitten by the dreaded Russian Woodpecker, the Soviet over-the-horizon radar transmission; we have a far worse enemy in our midst: That of electrical transmission line hash.

As far as radio signals are concerned, it has largely been a country area problem, as signals in the city and suburban areas are usually strong enough to drown out the majority of the hash, on the medium and low frequency bands. With the gradual introduction of many local country commercial broadcasting stations, the problem of hash tended to be pushed into the background — that is, until the introduction of television, and particularly colour television. It manifests itself here in a number of ways:—

With black and white receivers the hash shows up usually as a series of black dots

occupying one line space, and combined into 2 bands of varying widths which move up or down the screen obscuring 50 per cent of the picture area. The number of lines involved, and their movement either up or down is usually dependent on the precise relationship between the mains frequency and the field scanning rate. In very severe cases where the interference bandwidth is wide and of a very strong intensity, it can cause horizontal pulling of the picture when the vertical synchronisation is tripped, by its movement into the vertical blanking period. In some cases it affects the vestigial sideband carrying the sound, destroying its quality.

It has been noted by the author of this article at his home QTH, that the effects are not wholly confined to MF commercial broadcast stations and VHF television stations. It rears its ugly head in all portions of the HF amateur allocations, and becomes progressively worse as the frequency drops. On occasions, listening to 80m on a general coverage receiver becomes near impossible!

One peculiarity of the dreaded hash is its relationship with changes in weather conditions. Usually with the onset of rain the problem will vanish, leaving the airwaves very clear while the weather remains wet. When the fine weather returns, it may be days or even weeks before it returns again. This is particularly so during the winter months. On the other hand it is aggravated by the humid conditions encountered during the summer months; particularly at sundown with a drop in temperature and a change in humidity. Light rain drizzle will often trigger it into its worst form of disruption until the onset of heavy rain. I have noticed at my QTH that there appears to be a definite link between the above factors and the load condition of a step-down transformer not 30 metres away from the house.

Many theories have been forwarded as to the reason for this interference, the most common being that of the "dust on the insulators", where a layer of dust provides a leakage track across the insulators until rain washed it off. The same problem occurring again when another layer of dust accumulated. Another theory is that of the "loose hardware" variety. It suggests that any two pieces of metal in loose contact within a strong field adjacent to the power cables could produce small sparks between them, thus generating an RF field.

Whatever the answer is, there is no doubt that the high voltage transmission lines can seriously affect the reception of both radio and television signals when the abovementioned conditions prevail. It is also hoped that some kind soul in the responsible utility organisation will read this article and hopefully for ever banish the dreaded Gosford Woodpecker.

Cliff Perrin in Smoke Signals, June 1979. ■

AROUND THE NOVICE SHACKS

THE CQDX RADIO GROUP
Our group is just one of many thousands of similar groups throughout the world with the same aim, to assist each other. Long may it continue.

Photo No. 1: SEATED, from left: John VK3NNF, Roy VK3AOH, Paul VK3VDP (front), Ian VK3VAG (Club President), Trevor VK3NNR, Wayne VK3VEW (front), Bob VK3VGQ, Bill (SWL), Peter VK3NNY. BACK ROW, standing from left: Kevin VK3NXE, Rick VK3VHF, Gerard VK3NWZ, Graham VK3NOA, Mark VK3VEV, John VK3NXB, David VK3NDO, Colin VK3VBU.

The above photo shows the other two senior members of the club and they are: Len VK3ZGP/NAC (left) and Howard VK3ZJY/NGV. We have one other ham in the group (not illustrated) and that is Merv VK3AMB who instructs in Morse Code. (VK3NXE and VK3NWZ are brothers as are VK3NOA and VK3NNY. VK3VHF and VK3VDP are father and son and so are VK3VAG and VK3VEV.

Over 1300 CCA transmitters are in use world wide. The CCA FM range covers everything from a modest 10W. to 80KW. Why do so many broadcasters rely on CCA? Because all CCA transmitters are designed to cut operating costs.
By using proven grounded-grid design. Grounded-grid design cuts the expense of frequent replacement which is inherent in designs using HF tetrodes for FM transmission. In a recent survey, WFPG-FM achieved continuous running of 55,586 hours from a final amplifier tube.
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KFOX Long Beach
KOSI Denver
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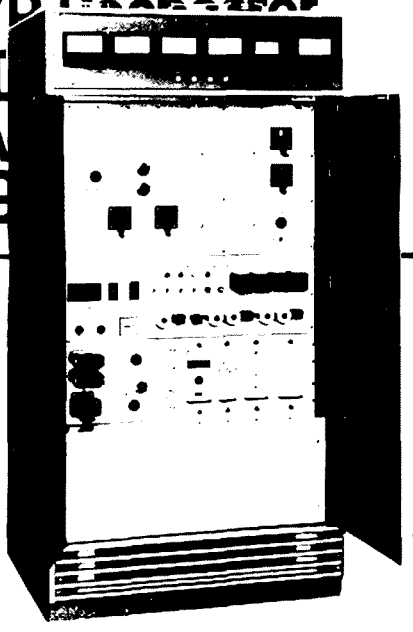
KAAT Denver
WMOD Washington
WEBH Chicago
WEFM Chicago
WGRT Chicago
KADI St. Louis
KCFM St. Louis
WNYR Rochester
WEEI
WDA
WMG



WFCN Nashville
WAMB Nashville
KRBG Houston
KHCB Houston
KRSP Salt Lake City
WQFM Milwaukee
WFMR Milwaukee
CBC Toronto
CBC Calgary
CBC Winnipeg
CBC Peace River
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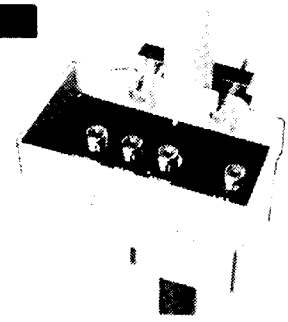

Automatic Antenna Tuners

CNA1001	200W Model	269.00
CNA2002	2.5 Kw Model	569.00

A new concept in antenna tuning!
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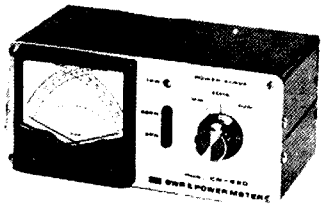
CN630	140-450 MHz	20/200	yes	135.00
CN650	1.2-2.5 GHz	2/20	yes	169.00
SW210A	1.8-150 MHz	20/120	no	99.00

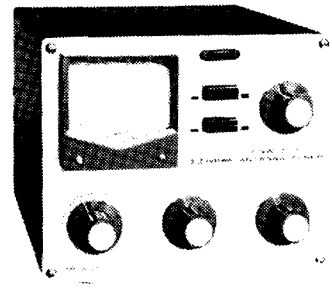
Cross-needle type offer DIRECT readings.



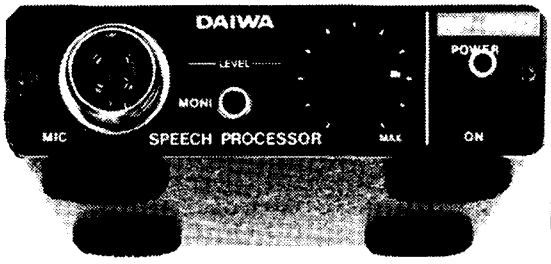
ANTENNA COUPLERS

CL67A	1.9-28 MHz, 500 wpep	135.00
CNW217	Includes SWR/PWR Meter, 200W	165.00
CNW417	Includes SWR/PWR meter, 500W	199.00

High quality couplers, 2 models includes cross-needle SWR/PWR meters.



SPEECH PROCESSORS



RF660	Phasing type dc	109.00
RF440	Phasing type ac/dc	126.00
RF550	Fitter type, ac/dc	169.00
MC330	Speech compressor	99.00

Increase talk power with splatter free operation. RF clipping (not in MC330) assures low distortion. Simply install between microphone and transmitter.

Typical specs RF660:
Talk power: Better than 6dB
Freq. Response: 200Hz-3000Hz at 12dB down
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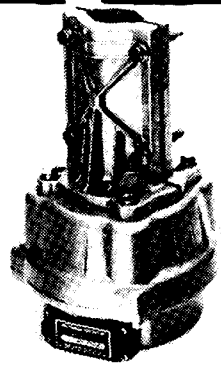

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DR7500S	Medium Model	189.00
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* High dependability: weather sealed
* Quiet operation
* Complete with attractive controller

	DR7500S	DR7600S
Rotation Torque	500 Kg-cm	600 Kg-cm
Braking torque	2000 Kg-cm	4000 Kg-cm

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4	Position model CS401	59.00

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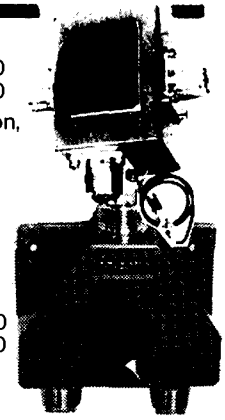
Power rating: 2.5 KW pep, 1 KW CW
Impedance: 50 ohm
Insertion loss: less than 2dB
Maximum frequency: 500 MHz
Isolation: Better than 60dB at 300MHz.



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CX2H	200W pep max model	69.00

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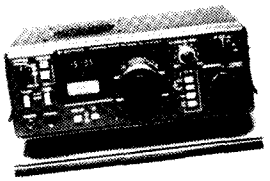

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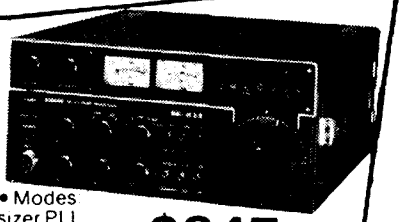

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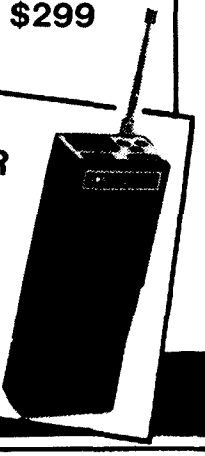

Daiwa Low Pass Filters

FD30LS	32 MHz Fc, 200 w, 3 stages — $20.00

Baluns

AS-BL	Asahi 50 ohm for beams — $34.00
BL50A	50 ohm, 4 KW, 1:1 for dipoles — $32.00
BL70A	70 ohm, 4 KW, 1:1 for dipoles — $32.00

Leader Test Equipment

LAC 895	Antenna Coupler 3.5 — 28 MHz — $182
LPM 885	SWR/PWR Meter — $97
LPM 880	RF Power Meter — $139
LDM 815	TR Dip Meter — $89.00
LBO 310	3" Ham Oscilloscope — $330
LA 31	Ham monitorscope adapter — $26.00

Radio Teletype Terminal

0-7000	Tono RTTY CW/Baudot/ASCII — $839

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6KD6	Finals for Yaesu linears — $9.00
6JS6C	Finals for Yaesu transceiver — $9.00
12BY7A	Driver — $3.75
6146B	Finals — $12.00

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FT101E	Yaesu — $39.00
TS520S	YG3395 Kenwood — $57.00
TS820S	YG88C Kenwood — $59.00

Morse Keys

HK702	Deluxe Key with marble base — $41.00
HK708	Economy Key — $23.00
HK706	Operator's Key — $25.00
MK701	Manipulator (side-swiper) — $45.00
PALOMAR	1C Keyer — $149.00

Jaybeam Antennas

5Y/2m	5el 2m, 7.8 dBd gain, length 1.6 m — $43.00
8Y/2m	8el 2m, 9.5 dBd gain, length 2.8 m — $51.00
10Y/2m	10el 2 m 11.4 dBd gain, length 4.4 m — $84.00
10XY/2m	10el 2m, cross yagi, 11.3 dBd — $114.00
D8/70cm	Twin 8el, 70 cm, 12.3 dBd, 1.1 m — $64.00
PBM 18/70	18 el, 70 cm, 14.9 dBd, 2.8 m — $96.00
MBM 48/70	48el, 70 cm, 15.7 dBd, 1.83 m — $83.00
MBM 88/70	88el, 70cm, 18.5 dBd, 3.98 m — $105.00
PMH/2C	Phasing harness — $20.00
8XY/2m	2m cross yagi, 8el, 9.5 dBd, 2.8 m — $99.00
12XY/70 cm	70 cm cross yagi, 12el, 13.0 dBd, 2.6 m — $139.00

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A4VPN	40 m dipole kit — $27.00
LISTENER 3	Short wave Rx antenna — $49.00
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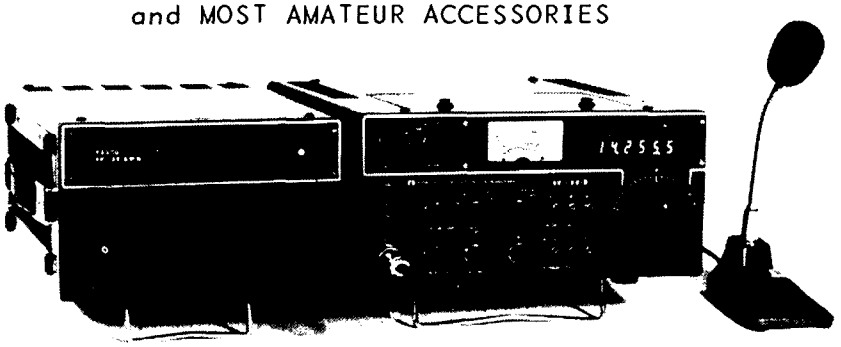

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AMATEUR BAND BEACONS

Freq.	Call Sign	Location
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50.004	PY1RO	Rio de Janeiro
50.010	HL9TG	Seoul *
50.023	HH2PR	Haiti
50 025	6Y5RC	Jamaica
50.030	HC1JX	Ecuador *
50.030	KL7CDG	Alaska
50.030	ZS6PW	South Africa *
50.035	ZB2VHF	Gibraltar
50.050	WA1ENX	Maine *
50 050	ZS6LN	South Africa *
50.075	HK3/4	Columbia (repeater)
50.080	TI2NA	Costa Rica
50.088	VE1SIX	New Brunswick
50 091	WA6JRA	Los Angeles *
50.092	W7KMA	Oregon*
50.093	WA8FTA	Michigan *
50.098	K7IHZ	Arizona *
50.100	ZS6HVB	South Africa *
50.101	FO8DR	Tahiti *
50.104	KH6EQI	Pearl Harbour
50.110	KG6JIH	Guam *
50.110	JD1YAA	Marcus Island *
50.110	KH6	Marshall Islands *
50.110	KG6RO	Saipan *
50 110	AL7C	Alaska *
50.500	5B4CY	Cyprus
51.999	YJ8PV	New Hebrides
52.100	VK0BC	Casey Base
52.200	VK8VF	Darwin
52.300	VK6RTV	Perth
52.350	VK6RTU	Kalgoorlie
52.400	VK7RNT	Launceston
52.450	VK2WI	Sydney
52 500	JA2IGY	Nagoya
52.500	ZL2VHM	Palmerston North
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
52.900	VK6RTT	Carnarvon
53.000	VK5VF	Mt. Lofty
144.010	VK2WI	Sydney
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1HTA	Canberra
144.500	VK6RTW	Albany
144 600	VK6RTT	Carnarvon †
144.700	VK3RTG	Vermont
144 800	VK5VF	Mt. Lofty
144 900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
145.100	ZL1VHF	Auckland
145.150	ZL1VHW	Waikato
145.200	ZL2VHF	Wellington
145 250	ZL2VHP	Palmerston North
145.300	ZL3VHF	Christchurch
145.400	ZL4VHF	Dunedin
147.400	VK2RCW	Normanhurst
432.400	VK4RBB	Brisbane
432.475	VK7RTW	Ulverstone

* Denotes attended operation.

† Denotes new beacon — see text.

BEACON NEWS

Andy VK6OX advises they are waiting P. and T. consent to operate their 2 metre beacon VK6RTT on 144.600 MHz. Taking a chance, I have included the beacon in the list in the hope the time lag between now and when you read this the permission may have been granted!

"Break-In" mentions the Auckland VHF Group have constructed a 6 metre beacon for operation on 52.100 MHz to be installed in the Waitakere Ranges. The Wellington VHF Group have constructed a 10 GHz beacon to operate on 10.370 GHz with a power of 30 watts and operating from Hawkins Hill near Wellington and 454m a.s.l. I gather reports would be welcome from Australia!

Rolf Rasp PY1RO writes that his beacon is on continuously from Rio de Janeiro, using a 5/8 wave vertical and 10 watts output. He is considering replacing the antenna with a 3 element beam, with some thoughts to turning it toward VK as time permits.

I hear also there is to be a new 6 metre beacon near Hobart on 52.370, which now awaits P. and T. approval. Nothing really definite on this one at present, but mentioned here for your reference.

ANTARCTIC NEWS

Direct contact via 20 metres has been made with Brian VK0BC at Casey, who is still very interested in getting 6 metres operational from there. The 300 mW beacon is still operational, running into a 6 element beam. Brian was very pleased to learn that VK5 were preparing for him and those that follow 6 metre equipment to put the area on the air with reasonable power — aided by the loan of an IC502 by Barry VK2ZXB, for which we are very grateful. The unit is in excellent condition and is now in the hands of David VK5KK, who is building a solid state linear amplifier to run about 40 watts. It is hoped to be able to send the package south on the next plane in November, which will be in time for the summer Es season this year. Brian will finish his tour of the south in January, but we are hoping he can arrange for his relief to continue to operate 6 metres, especially over the March-April period 1980. We want to thank those other people who have offered donations towards the project, which is already creating considerable interest overseas.

HIGHER POWER FOR NEW HEBRIDES

Peter YJ8PD looks like being a very active six metre station in the future and currently uses a TS600 to drive a 3-500Z linear amplifier to about 100 watts, which is about the total capability of the driver stage. In an effort to let Peter use the power his linear is capable of the VK5 gang are sending him a driver stage of about 40 watts thus enabling him to have an output of 500 to 600 watts, which should be a very worthwhile increase. By the time you read this some of you will probably have worked Peter using the extra power.

Peter also advises that the YJ8PV beacon is to be shifted to be at his QTH and will be turned off when he is working on six metres. The YJ8PV does cause some problems with mixing and other frequencies when both stations are on the band simultaneously — apparently when Peter works on 50 MHz things are not so bad, but bad news on 52 MHz.

Some other information gleaned from Peter indicates Bob T2AAA (ex VR8), who works at the weather station on Tuvalu Island, would also like to try 6 metres. Other active stations are KX6SC (Chris) and KX6SA (Reg) on Quaduline Island. Chris runs an IC502 but Reg runs more power and can use CW. Both stations are currently set up for 50 MHz but have been advised about 52.

VU2RM in India uses CW on 50.070, 50.100, 50.150, 52.050 and 52.550, while 4S7XA from Sri Lanka could be operational on 50.120.

Also noted off air that KZ5NW will be leaving the Canal Zone soon for Puerto Rico, leaving KZ5JM as the alternative station now. This area may become HP1 in due course. The HC1JX beacon was to have a power increase so it may be better heard by the time you read this.

SIX METRES AS SEEN FROM VK5

In the late part of July and early August very little Es activity. However, the three consecutive days, 12th, 13th and 14th August, gave some unusual short skip Es. On 12-8 around 0330Z VK1 to VK5 opened with VK5ZJG, VK5AVQ to VK1RK, about 590 miles. Same time the band also open from VK3 to VK4. On 13-8 0230Z Ch. 0 Melbourne became stronger than usual on 51.760, generally with normal conditions the sound carrier is about +5 dB signal to noise. At 0305Z the VK7 beacon became audible on 52.400 MHz, peaking S5 and disappearing at 0410Z. At 0315Z VK5KK worked VK3ZTK in Melbourne, 5 x 9. Others on included VK3VD, VK3AMK, VK5ZBU and VK5ZGZ. Strong backscatter on local signals (5KK to 5ZBU, etc.) both running high power, around 0340Z. Last contact VK3AMK to VK5ZBU, and typically like Es the skip zone was down to something like 5 miles at closing, i.e. the difference between 5 x 9 and nothing. Last signal 0358Z. Greatest distance 430 miles, shortest about 385 miles. All signals 5 x 8 — 9+. On 14-8 similar opening from 0430Z to 0515Z but Ch. 0 Melbourne not as strong as day before. VK7 beacon audible. At 0442Z VK7KJ (?) heard on CW on 52.050. On 17-8 band opened to Townsville from Adelaide at 1000Z. No amateurs heard. YJ8PV audible in noise at same time as VK4RTL.

SIX METRES GENERAL

Before going into the mass of overseas openings, a brief run up to the beginning of the equinoxial season in VK5. Until 14-8 most MUF readings generally up to 40 MHz on double hop to the north during the daytime. Except for freakish JA opening on 14-7 very little over 44 MHz since 22-5-79. Single hop (F) to near Asia usually to 41.5 MHz. A number of magnetic storms in late August upset the pattern of things, providing JA openings to at least Brisbane though still more 50 MHz than 52 MHz. Best days for MUF to 35°S were on 20-8, 21-8, 23-8 and 26-8. A reasonable magnetic storm occurred on 19-8. On 26-8 the first (and the beginning of the equinoxial season here at least) 52 MHz JA openings of any note to VK5 occurred. Signals from 0832Z to 0905Z. Areas JA1, 2 and 3 to VK5s KK, LP, ZMO, ZZZ. Peaking to 5 x 9+. It would appear the band was open to northern VK4 listening about and to Carnarvon with JR6HJD heard working VK6OX at 0900Z on 52.057 5 x 9. No other areas heard in dog-piles. This opening is 22 days earlier than the first signficant opening to JA last year.

SIX METRES INTERNATIONAL

It seems things are really shaping up for the following 9 months both propagation-wise and new station-wise!

C21AA DXpedition a great success from 10th to 15th August. Organiesd by JA1UT and the same crew as the YB0X journey. Approximately 10 countries worked, including JA, KG6, KX6, P29, H44, possibly 3D2, and VK4RO. Nothing is known about the last contact except that it did occur. C21AA has been left the IC551 and 6 element yagi so there is some good news for Nauru hunters on six metres. QSL via JA1UT for DXpedition.

HS1WR is very active from Thailand with a single 4CX25QB and 300 watts into four 5 element yagis. Most DX so far to JA. Still in the Asian area good to hear VU2RM is on as reported earlier. The Sri Lanka station also mentioned earlier has taken delivery of a TS600 plus antenna and beacon keyer, all made available by the JA6 Kyushu 6m Group. At present it has been indicated operation will be on 50.120, but with that sort of equipment it will be possible to operate elsewhere, including 52.050. Additionally, YB0X is expected to be re-activated during a September-October DXpedition.

Shifting to the Pacific Ocean, north of VK now. At the moment there are three JD1 stations active on six metres. On 24-8 KX6SC heard working KG6 from JA. Another KG6 station active from Guam, KG6JSG with a FTV650B to a 6 element. JA1NVG may be going to the Caroline Is. (KC6) during September for 6 metre DXpedition. VK8GB has KX6BU confirmed on 52 MHz. The Es season has toned down in the Northern Hemisphere, the best Es DX around JA in late July only to JD1, HL9 and KG6. On 28-7 opening between H44 and VK4 and VK8, heavens knows how many since then! Evening TEP to VK8 and northern VK4 and VK6 common from mid-August onwards to JA, etc.

SOUTH PACIFIC

N6DX going on a 160 metre and 6 metre DXpedition (that's really handling the stick at both ends) and will be starting from KH6 on 1-9, arriving at ZK2 around 16-17 September. ZK2 is NIUE west of Cook Is., then on to A35 Tonga, 5W1 Western Samoa, KH8 American Samoa and finish at 3D2 Fiji. The 3D2 stay will be useful for many stations wanting to get QSL cards (second time lucky!). Now more good news. Some more JAs have sent an FT625 plus antenna and beacon system to the Northern Line Is. The two calls to look for are VR3AR and VR3AH. However, it is

likely a change will be made in the Northern Line Is. prefix so beware of this when beaming towards the area, which is 1500 miles south of Hawaii. By the way, N6DX will be taking an IC551 with 100 watt Lunar Amplifier and 6 element beam with him on the trip.

Still in the South Pacific, remember YJ8PD with 500 watts, plus YJ8KM. On 25-8 Peter YJ8PD worked KX6, KG6 and KH6 all in one go! And we are assured there is unlikely to be any 6 metre operating from Norfolk Is. in the foreseeable future, unless someone goes there specifically to do so. VK9NI will certainly not be on, and the other station there VK9NW is in fact an N call (!) and thus not able to work six metres. And despite what you might have heard on the air, Hal VK4DO will NOT be going to Norfolk Is. now or at any time — and that's straight from the "horse's mouth", as a phone call from the VK5LP establishment to Hal VK4DO asking if it was true brought the negative answer, and a very puzzled Hal, who is still wondering where the rumour originated!

W6XJ copied Ch. 0 video at reasonable strength from 0030 to 0100Z on 25-8 . . . HL9WI is now resident in KH6 . . . HL9TG copied by VK6OX at 5 x 9+ on 5'0 MHz 20-8, no signals on 52 MHz . . . SMIRK Party Contest in June brought a surprise certificate to VK5KK for being first for VK5 . . . Thanks to JA1UT, JA1VOK, JE1HYR and VK5AVQ for correspondence on JA 6 metre DX-ped:tions and new countries with JA donated equipment.

TWO METRES — GENERAL

Quite a large amount of tropo about but few operators on. Sid VK5ME has recently brought back from JA a Belcon 707, a 70 cm multi-mode rig. It works very well. Also the FM321 looks like getting 439 MHz going at last. Recent "OX" on 432 MHz include VK5ME, VK5LP, VK5ZJG and VK5AVQ . . . all from VK5KK and distances up to 35 miles!! Although not concerning 2 metres, Mark VK5AVQ has had an excellent response to the PRC10 info, so far in a month there have been more than 15 requests, including VK2, 3, 4, 5, 6, 7, 8 and P29! (Looks like the column IS read from time to time.—5LP.) PRC10s are popular, and in VK5 they are sometimes used instead of 10 and 20 dollar notes in trades! The best source in the eastern States for units and valves seems to be the two disposals stores in Oxford Street, Sydney. Hopefully some info will be available eventually for the C42s and B47s. Can anyone help?

After that, back to two metres! on 21-8 a reasonable 2m tropo opening occurred to Melbourne area from Adelaide area. First contact to VK3YMY/P at Mt. Macedon, at 1200Z. Steve's location and equipment as per previous times in June. VK3YMY/P worked again at 1257Z, this time 5 x 9. Also worked VK3YFU, Flemington, on 144.12 at 5 x 1, same time. Attempts on 432 MHz by VK5KK unsuccessful at 1330Z and 1410Z. VK3YFU runs 2 x 4CX250B on 432. VK5KK also worked Darryl VK3AQR, Geelong, at 1311Z, peaking 5 x 1. Last signal VK3YMY/P at 1430Z, still 5 x 9. No sign of VK3RTG beacon. Ch. 7 Mt. William only just noise free during the night. Ch. 5 Mt. Macedon just slightly weaker but very consistent. Antenna used 12 elements vertical at 15 feet. No other stations heard both ends. It is interesting to observe UHF CB as an indicator to propagation (tropo). In the country area range is about 30 to 50 miles with 7.5 dBI antenna and fringe stations always take a tremendous lift in signal strength with any useful tropo. It can be useful (more so than 2m FM at VK5KK) watching the stations up to 150 miles away, e.g. Pt. Lincoln, Pt. Augusta and trawlers around Kangaroo Island. It is also quite novel, with the number of amateurs on, to use it for natter nets!

Thanks, David, for filling in the blanks in my information, also to Peter YJ8PD and Gary W6XJ for on-air scraps of information.

CARNARVON ON THE AIR

Andy VK6OX has written to say the "World above 50 MHz" is alive and well in the north-west of WA. He reports the output of the Carnarvon six metre beacon is about 8 watts to an omni-directional antenna, with CW ident. There are hopes for converting to solid state and increasing power output.

On six metres the scene has been quiet there since the sun went north, and no Es either. On 12-8 first JAs were heard weakly on 52 MHz at 0910Z, a CQ on 52.050 brought JH2KKZ at 5 x 9! Then followed JA2DNN and JA2BZY, also 5 x 9. Band closed 0945Z.

On 31-7 Andy and Tony VK6BV at Northam decided to try meteor-scatter in the evening. Skeds ran from 1230 to 1325Z with complete success. As a result of this the Perth boys are now showing an interest, and Andy now runs skeds with Jack VK6ZEL, with others listening.

Andy advises that the VK6 VHFers are running a weekly VHF net on Sunday at 1200Z on 3685 kHz with a good attendance. They are considering moving down into the Novice segment as a number of the Novice boys have Z calls. Anyone from anywhere is welcome to join in.

BRAZIL

Gil VK3AUI sends a copy of a letter received from Rolf PY1RO in Brazil and the following are some extracts from it, dated 17-7. Rolf says he would like to work VK on six metres, but account has to be taken of the fact that even on 10 metres it has only been two years since VK stations were worked after a lapse of many years. Main opening on 10 metres in Brazil occur between 0300 and 0700Z with VK6 occasionally to 1100Z. One problem of course is that 0300Z is midnight in Brazil! However Rolf suggests he is prepared to stay up late if the TV signals indicate right conditions, although the TS820/TV506 combination doesn't allow for readily identifying FM signals. Gil has given Rolf a list of VK TV stations which will help.

Rolf uses a 6 element yagi cut for 50 MHz, and has considerable drop off in gain on 52.050, so will endeavour to look at a new 6 element of more suitable dimensions. The PY1RO beacon runs continuously on 50.003 or 50.004, depending on the ambient temperature of the shack! Rolf has worked all continents except Africa on six metres so he is doing very well. Rolf is also now aware of the 28885 kHz liaison frequency for six metres. His longest contact was to HL9WI over the long path, being about 2000 km more than halfway around the world!

DISTANCE RECORDS

The VHF Advisory Committee have forwarded copies of approved records claimed recently by three recipients as follows: VK2BYX to W6XJ, 7514.059 miles or 12092.691 km, a new VK2 record; VK3OT to XE1GE, 8555.484 miles or 13768.703 km, which constitutes a new VK3 and Australian 6m record; and VK4VC to an unnamed station at 1597.937 miles or 2571.628 km for a new VK4 2m record. Congratulations to all those concerned. Like all records, even VHF records are made to be broken, and the Australian 6 metre record has been broken twice since Steve's good effort, and the claim is being processed, details to be released on confirmation by the VHFAC.

FIJI CONFIRMS

David VK5KK was thrilled to receive a card from 3D2CM for a contact on 52.050 some months ago, being the first contact to VK on 52 MHz since the issuing of the 3D2 prefix. The operator uses a home-brew transverter running 30 watts to a 3 element yagi. David now has confirmed contacts with 15 countries, which is a good effort for someone so far south.

NEW ZEALAND SIX METRES

Via "Break-In" I note Bill ZL2CD in Wellington reports a great thrill to work W6 again after 20 years. Last contact was to W6FZA on 2-11-59, after working more than 100 US stations during 1957-59. On 11-3-79 Bill worked Garry W6XJ on 52.050 at 2045Z with S9 signals after hearing him on 50.1 MHz. Following this he had OSOs with N6CT, N6HZ, WA6BYA, WA6OIB, N6AJ, WB6NMT, K6HAA, N6CW, W6SMS, AA6S, K6BDK and K6ODV (last worked in 1958). Signals were still over S9 at 200Z.

W6XJ reported working ZLs 1AVZ, 1MQ, 1AUM, 2HP, 2BJO, 2BFC, 2BGE, 2CD, 2AQR, 3RW and 3AAN on 11-3. He was also hearing ZL TV Ch. 1 on 50.740, 50.750 and 50.760, plus beacons on 52.500 and 52.510 MHz. Not a bad effort for a morning's work!

SOUTH AFRICA TO GREECE

It has been known for some time that two metre contacts had been made between South Africa and Greece, but further information is to hand from Bill W3XO and "The World above 50 MHz" in OST. Two-way contacts were known to have been made on several occasions between ZS6DN and ZS6LN on the southern end and SV1DH and SV1AB, but the record officially belongs to ZS6DN and SV1AB for spanning a distance of 4419 miles (7127 km). The first contact was made on 13-1-79 and repeated again on 16-1-79. Contacts lasted up to an hour on 144.130 at S3. The CW signals had a hissing sound to them similar to steam or white noise. Very good tape recordings were taken of the contacts. The antenna system at ZS6DN is four 16 element KLM yagis with a measured gain of 19.5 dB and the ERP in the 10 kW range. The antenna at SV1DH is a 16 element with 100 watts.

USA 70 cm WAS

It's been done eventually! W0YZS has completed the first Worked-all-States on 70 cm by taking his portable moonbounce station to the QTH of WA7DKZ and contacting his own station back in Kansas City, operated by K0TLM. Although it doesn't say so, I gather this was achieved via EME contacts, but is still a great achievement and must have taken much painstaking effort.

70 cm SPANS THE PACIFIC

From OST also comes news of the spanning of the Pacific from the US mainland to Hawaii on 432 MHz. Originally this path was conquered on 144 and 220 MHz by W6NLZ and KH6UK, and a 432 MHz attempt by W6FZJ (now W1JR) in August 1973 was almost successful, but thwarted by equipment failure.

After hearing the KH6HME beacon on Mauna Loa beginning about 0000Z 18-7-79, WB6NMT placed a phone call to the Islands only to find the operator of the beacon could not make the trip up the mountain for several hours due to work commitments! As the evening wore on, the signal faded and peaked until finally at 0517Z KH6HME, now operating portable from the 5000 ft. level, was being copied in San Diego. Contact was immediately established, first on CW then SSB, for a new terrestrial record, with signals peaking 5 x 7. Thereupon W6YDF, WB6ESQ and WB6WLR up the coast also made the grade. Congratulations are certainly in order here, gentlemen.

BUT WATCH OUT. Graham VK8GB has advised me from Darwin that he is ready to go on 432 MHz using an MMT432/144S transverter feeding into a KLM 432/16LB antenna and it will be pointing north at Japan. If successful, and I don't see why he shouldn't be eventually, the 432 MHz record will come to Australia once more. We will all be waiting to hear the word down here, Graham!

MOONBOUNCE NEWS

From "The Propagator" Lyle VK2ALU reports modifications being made to the 70 cm disc feed of the dual band system to reduce reflected power. It will be good to have the Dapto dish operation on 1296 MHz as well in the future.

ZL2BCG and ZL3AAD have been working on 432 MHz EME system for a year or so, with ZL2BCG being the first to make a contact out of New Zealand on that band, using 16 EYE type yagis, K2RIW type amplifier. ZL3AAD is using 8 of the same type antennae, and similar equipment.

By the way, Dick K2RIW is working on an array of sixteen 19 element yagis for 70 cm! Great Scott, I find it hard enough to keep two large antennae in the air, let alone sixteen of them!

QST reports some very good 70 cm pre-amps have been tested recently. At the North-east VHF/UHF Conference last May a V-244 pre-amp submitted by W1JR produced a noise figure of 0.95 dB, three entries at 1.3 dB, an MSC-8000 submitted by K2UYH, and NEC-64535 jobs by W1GAN and K1LPS. Another K2YUH unit, employing a V-244, was measured at 1.45 dB. Of the 25 pre-amps presented, 17 showed noise figures of less than 2 dB. Things have come a long way in the past few years.

CONCLUSION

By the time you read this we will be halfway through the September-October equinoxial period and will have sampled the good contacts likely to be available as Cycle 21 moves closer to its peak. Another administration overseas which has seen fit to allow limited 6 metre operation is Cyprus, where 5B4AZ has been allocated 50.499 MHz for CW contacts. I note also moves are afoot in New Zealand to try and obtain some concessions for 50 MHz operation — even that country, whilst being permitted to operate down to 51 MHz, realises just how much is being missed through non-compatibility with leading 6 metre countries of the world. Doubts can no longer exist that the MUF on many occasions reaches 50 MHz but does not go on to be usable on 52 MHz. Even the ability for us to be able to go down to 50 MHz legally and ask a station to make a split frequency contact would be some improvement, but the option to make a quick contact on 50 MHz limited to signal reports and exchange of names would be more desirable and would present few if any problems to other users of the 50 MHz part of the spectrum. My only hope is that if something can be done for us in this regard that P. and T. don't leave it until all the DX has faded away, which will probably happen rapidly once the peak has been passed.

Closing with the thought for the month: "One trouble with the world today is that there are too many people in it who are willing to put in their oars but not willing to row."

73. The Voice in the Hills. ■

WARC 1979 AND THE AMATEUR SERVICE IN REGION 3

By D. H. Rankin 9V1RH, Secretary,
IARU Region 3 Asociation,
PO Box 14, Pasir Panjang, Singapore 9111.

By the time you read this, the all important WARC will be under way in Geneva and the fate of amateur radio and other users of the radio spectrum is being determined for the remainder of this century. All will be known by 1st December this year — or at least that is the present intention. The Conference is due to finish on the 30th November, but some observers are forecasting the Conference will have to re-convene some time in early 1980. Nevertheless quite a lot will be known by the end of this year and in the meantime it is important that all amateurs throughout the world be the best possible ambassadors for this unique international activity of amateur radio.

INTRODUCTION

As the ITU settles down to hold the 1979 World Administrative Radio Conference, it has 154 member countries. Of these 99 are located in ITU Region I (Europe and Africa), 28 are in Region II (North, South and Central America) and 27 in Region III (virtually the rest of the world, including Afghanistan, China, Japan and Australasia).

Most, but not all, of the member countries are expected to attend this most important WARC (141 at last count) and again most, but not all, are expected to make written proposals to the ITU containing their requirements for frequency allocations for the remainder of this century. At the time of writing (end July) over eighty countries, including 14 in Region III, had lodged their preliminary written submissions to ITU with some nations putting up several briefs on various subjects of interest to the Union. A single set of documents in one language is estimated to consist of around 7,000 pages at the start of the Conference with a further estimated 12,500 pages being generated during the Conference.

There can therefore be no doubt that this WARC will be one of the biggest on record.

THE AMATEUR SERVICE AND AMATEUR SATELLITE SERVICE

Amateurs will be well represented at WARC. The International Amateur Radio Union — IARU — will be fielding a team of 10-12 Observers, including amateurs from all three ITU/IARU Regions. Some countries will have amateurs in their capacity as amateurs as official members of their Delegation. Australia, New Zealand, Canada, Philippines, USA, United Kingdom, to name a few. Other amateurs will also be part of their countries' Delegation but in their professional capacity as a civil aviation man, or a broadcast man or a defence man, etc.

The IARU commenced preparations for the 1979 WARC some years ago. The Region III Association of IARU was the first to form policies for the WARC back in 1975. And preparations have continued ever since, until now, as the WARC commences the Amateur Service goes into the Conference with the best ever preparation in its history.

For reasons already publicised, the IARU is accepting the present position that the Amateur Service and Amateur Satellite Service are two separate and distinct services, though they are closely inter-related to be sure. But it is hoped that the Amateur Satellite Service will receive more consideration in the frequency bands 1,000 MHz and above. Table 1 and Table 2 show the different bands as proposed by the IARU for both services. These details were promulgated amongst all IARU member societies with the objective of amateurs everywhere presenting a united front to the various national Administrations. The issues to be discussed at the WARC are vast and complex both from an administrative and technical point of view. Many of them do not involve the amateur/amateur satellite service. Even so the ramifications of those matters affecting only the amateurs in all three ITU regions are so large that for the purposes of this article attention will be concentrated principally on those matters affecting frequency allocations in Region 3.

One way to analyse the approach of the various Administrations is band-by-band, looking principally at the Region 3 countries' approach and also the USA because of the US possessions in the Pacific but including as appropriate observations about other countries outside of Region 3 where such observations are of importance. As you read the comments below given for each band, compare the details with those appearing in Tables 1 and 2.

AN ALLOCATION IN THE BAND 160-200 kHz
(Regions 2 and 3 only)

This would appear to be a non-starter as only one Administration in Region 3 has recognised the IARU proposal. Papua New Guinea has proposed one exclusive amateur allocation at 190-200 kHz for Region 3 only.

1800-2000 kHz

At the present time, this band is shared between the Amateur and other services. Individual Administrations have constrained their amateurs to operate in only part of the band. Most Region 3 Administrations propose to maintain the status quo although Papua New Guinea proposes to chop 5 kHz off the top end of the band and allocate 1995-2005 kHz to a new service named "Safety".

Some amateurs in Region 1 countries are permitted to operate on top band by virtue of a footnote (194). A few Region 1 Administrations are now proposing to include the Amateur Service in the Table which would be an upgrading of the Service.

3500-4000 kHz

Again most Region 3 Administrations are not proposing far-reaching changes in this band. Singapore, perhaps following the lead of the United Kingdom, is proposing to give the segment 3500-3615 kHz over to the Maritime Mobile Service on a world-wide basis leaving 3615-3900 to the Amateur Service on the same shared basis as now exists. The Indian proposal of 3500-3900 kHz shared with 3660-3700 exclusive amateur world-wide is particularly interesting in view of the present vary restrictive allocation available for Indian amateurs (3890-3900 kHz). Australia too has an interesting submission — they propose to delete footnote 3501/206, which inter alia confines VK amateurs to 3500-3700 kHz. The reason given is as follows:—

"The footnote is no longer required. Subdivision of the band between the allocated services will be made on a national basis."

This proposal reflects the policy of Australia to seek to avoid a proliferation of footnotes.

6800-7300 kHz

No Region 3 Administration has accepted the IARU proposal in full but some have agreed to the band commencing at 6950 kHz. Japan, New Zealand and USA propose that both the Amateur Service and the Amateur Satellite Service be allocated 6950-7100 kHz, whilst the Philippines proposes 7000-7100 kHz for both services. Australia on the other hand proposes that the segment 6950-7000 kHz be allocated to the Amateur Service only with no change in the present 7000-7100 kHz segment.

The top end of the 7 MHz band is coming under great pressure from the Broadcasting Service and it does appear likely that Region 2 amateurs will lose something in this band. The USA proposes that the top end of the band be pulled back to 7250 kHz as also does the Philippines. Many Administrations are proposing that broadcasting is allocated 7100-7300 in Region 2.

This band will, without question, be the subject of much discussion and negotiation at Geneva.

10100-10600 kHz

This is the lowest of the three new HF bands proposed by the IARU and many Administrations have accepted the proposal though not in its entirety. India, New Zealand, Australia, Philippines and Singapore all propose a new band around 10100-10200 kHz although India does suggest commencing the band at 10110 kHz with 10100-10110 kHz being allocated to a new "experimental" service. The Indian proposal does not explain in detail the difference between the Amateur Service and the new experimental service. Papua New Guinea proposes that the band 10100-10300 kHz be allocated to both the Amateur Service and the Amateur Satellite Service, whilst India proposed that 10110-10200 kHz be allocated to the Amateur Satellite Service. The Philippines' proposed emergency amateur frequencies are 10190-10200 kHz. The Peoples Republic of China does not support the introduction of a new Amateur band here.

14000-14500 kHz

No Region III Administration has proposed changes to the existing band. Thus there appears little likelihood of the band being expanded. The only challenge to the Amateur Service/Amateur

Satellite Service comes from Saudi Arabia, who proposes to add fixed and mobile services in the 14250-15350 segment.

18100-18600 kHz
This is another new band proposed by IARU and again many Administrations have reacted favourably although not to the extent of allocating a 500 kHz wide band. Most proposals both within Region III and the other two regions are for a 100 kHz segment at 18068-18168 kHz. Australia, India, New Zealand, Philippines and USA actively support this proposal, with Australia and New Zealand also proposing that the Amateur Satellite Service share. Papua New Guinea proposes that both services use the segment 18300-18500 kHz. Singapore does not support the allocation of a new amateur band here but instead proposes that 18088-18568 kHz be given to the Maritime Mobile service. China, Japan, Korea, Malaysia, Pakistan, Thailand and the Democratic Peoples Republic of Korea have not made submissions on this part of the spectrum.

20950-21000 kHz
To date there have been no proposals threatening a reduction in this band. On the contrary a number of countries have proposed that the band be extended down 50 kHz to 20950 kHz. Both New Zealand and USA propose this for both the Amateur Service and the Amateur Satellite Service.

The Philippines emergency frequencies proposed are 21440-21450 kHz.

24000-24500 kHz
The last of the three new HF bands proposed by IARU has not received quite so much support by Region 3 Administrations as the two lower bands. Australia and New Zealand have proposed the segment 24150-24350 kHz for both the Amateur Service and the Amateur Satellite Service, whilst Philippines and USA propose 25110 to 25210 kHz for both services. Papua New Guinea offers 24500-24990 kHz for both services. Indonesia wishes the status quo to be retained, whilst all other Region 3 countries make no submission at all on this band.

The Philippines emergency segment is proposed as 25200-25210 kHz.

A similar confused situation exists with the proposals from the countries of the other two regions. This is another band which will come in for a fair amount of discussion and negotiation during the Conference.

28000-29700 kHz
No country world-wide to date has proposed to take any of this band from the Amateur Service or Amateur Satellite Service. China does propose to add the mobile service as a secondary allocation in this band but no other Administration has to date supported this proposal.

50-54 MHz
India proposes to delete the Amateur Service in Region 3 from this band to allow the introduction of another 7 MHz wide television channel (47-54 MHz). However, a number of countries in other regions are recommending that television be not used in this frequency band because of periodic long distance propagation problems and as a consequence the subject will be up for discussion during the WARC. Both China and the Democratic Peoples Republic of Korea propose to leave the Amateur Service in Region 3 on a primary basis but to add in Broadcasting Service by way of a footnote. Malaysia proposes to add Fixed and Mobile Services on a primary basis along with the Amateur Service. Indonesia and USA propose to retain the existing allocations unaltered, whilst Australia wishes to retain the Amateur Service as primary but with a modified footnote (3544/246) that reads as follows:—

"In Australia, the band 50-54 MHz is also allocated to the broadcasting service. Reason: To retain the allocation for the amateur service."

New Zealand offers no submissions on this band in its brief.

A most interesting proposal is put up by Norway, which reads as follows:—

"When the broadcasting service ceases operation in the band 47-66 MHz, the amateur service should be permitted to use exclusive segment or segments in the band 50-54 MHz, preferably 50-50.5 MHz. Reason: As this band is a suitable and interesting band for the amateur service, it should in the long term obtain a minor segment."

It would indeed be a move acceptable to all amateurs interested in VHF if a world-wide segment around 50-50.5 MHz were to be allocated to the amateur service.

144.0-148.0 MHz
This band is coming under great pressure from most of the Asian Administrations in Region III with the fixed and mobile services being the intended beneficiaries. To simplify the discussion consider first the segment 144.0-146.0 MHz and then 146.0-148.0 MHz.

144.0-146.0 MHz
Australia, India, Japan, Malaysia, New Zealand, Korea, Pakistan, Papua New Guinea, Philippines, Thailand and USA do not submit proposal on this segment.

China wishes to add a new footnote that permits her to allow aeronautical mobiles to operate in this band, whilst Singapore wishes to add fixed and mobile services on a secondary basis. There is a potential interference problem in that Singapore proposes to have both the Amateur and Amateur Satellite Service on a primary basis in this same segment.

146.0-148.0 MHz
This is the segment of the band that is under heavy attack. Japan, Korea and Thailand propose to delete the Amateur Service from the Table in this segment, whilst India, Philippines, Indonesia and Singapore propose to add either directly into the Table or by footnote, sharing with the fixed and mobile services.

Australia and Papua New Guinea make no proposals in this segment, whilst New Zealand and USA wish to maintain the status quo.

Thus it appears highly likely that the Amateur Service in Region 3 could lose the top two megahertz of the band and that if they wish to protect the interests of their Amateurs, Australia and New Zealand could possibly have appropriate footnotes added into the Radio Regulations.

220-225 MHz
Insofar as Region 3 is concerned, this band would appear to be beyond reach. The only Administration proposing a Region 3 allocation is Papua New Guinea and the band proposed is 230-235 MHz. Australia, China, Democratic Peoples Republic of Korea, India, Malaysia, New Zealand, Philippines, Singapore, Indonesia and USA all refused to accept the IARU proposal of 220-225 MHz world-wide exclusive for the Amateur Service and the Amateur Satellite Service.

420-450 MHz
This is another band under heavy attack in Region 3. New Zealand, whilst proposing to cut out 10 MHz (420-430 MHz), proposes to allocate 610-620 MHz for NZ amateurs in lieu. Papua New Guinea also proposes to delete the bottom 10 MHz from the band but offers no other allocation in its place.

The following countries propose to include fixed and mobile services into this band either by direct entry into the Table or by footnote:—India, Japan (mobile only), Singapore, Korea, Philippines, Thailand, Indonesia, Malaysia.

However, Malaysia also proposes to upgrade the Amateur Service to primary.

Australia, Pakistan and USA make no proposals about this band.

The Amateur Satellite Service is presently allowed to use the segment 435-438 MHz, through footnote 3644/320A. No Administration has proposed to change this to delete the 435-438 MHz segment, which is encouraging.

However, the pressure to admit fixed and mobile services into this band is strong and if the move is successful it would be to the detriment of the Amateur Service.

902-928 MHz
This proposed new band has not received support from any of the Region 3 Administrations to date. The Philippines have not made any proposal on this segment and the USA proposes that the band 902-928 MHz be made available to the Amateur Service in Region 2 only.

Insofar as Region 3 is concerned, it would seem most unlikely that an amateur band will be allocated in this range.

1215-1300 MHz
There are strong moves to take the bottom of this band (1215-1240 MHz) from the Amateur Service for the new Radionavigation Satellite Service.

Australia makes no proposals at all, whilst New Zealand, Philippines and USA propose 1240-1300 MHz for the Amateur Service. New Zealand and Papua New Guinea further propose 1290-1300 MHz for the Amateur Satellite Service, NZ by footnote (3644/320A) and PNG by direct entry into the Table. However, the Philippines and USA propose by footnote, the segment 1250-1260 MHz for the Satellite Service.

Indonesia and Japan propose that the existing allocation remain whilst other Region 3 countries make no proposals at all.

The important thing for amateurs here is that the Amateur Satellite Service achieves some form of allocation to allow future OSCAR-RS experiments in this frequency band.

2300-2450 MHz
The IARU some years ago had already identified that the requirement for the segment 2300-2310 MHz was already absolutely essential. Both Australia and New Guinea accepted this proposal and both countries propose the segment as requested. They also proposed that the remainder of the band 2310-2450 MHz should remain as is. New Zealand, on the other hand, proposes to leave the entire existing allocation but allow the Amateur Satellite Service to use the entire band via a footnote. This would be on a shared and non-interfering basis.

The Philippines and the USA both take a similar approach to New Zealand but their proposed footnote restricts the Satellite Service to the segment 2390-2450 MHz.

The other countries in Region 3 made no proposals about this band.

3300-3500 MHz
Insofar as the amateurs are concerned, China, Democratic Peoples Republic of Korea, India, the Philippines, Singapore and USA propose no changes in this band.

Australia proposes that the Amateur Satellite Service be allocated the segment 3400-3410 MHz on a non-interference basis (footnote 3739A). Otherwise no change. Papua New Guinea proposes that the band be changed on a world-wide basis and that it becomes 3100-3400 MHz for both services but that the satellite traffic be in earth-to-space direction only.

New Zealand wants the band to remain as is, but by footnote allow the satellite service to share 3400-3500 MHz on a non-interference basis.

5650-5925 MHz
The present allocation in Regions 1 and 3 is 5650-5850 MHz but IARU proposed that the upper limit become 5925 MHz in all three regions. However, there was no support for this proposition amongst any of the Region 3 Administrations. Korea, Malaysia, Pakistan, Singapore, Democratic Peoples Republic of Korea, and Thailand made no submission on this band, while China, India and Papua New Guinea specified no changes insofar as amateurs are concerned.

The Philippines, Japan and USA propose that both services share 5650-5670 on a secondary and non-interference basis (footnote 3644/320A) with the Amateur Service also allocated 5670 to 5850 on a shared secondary basis.

Australia has a similar proposal except that a different footnote reference is used.

Indonesia proposed no changes to the segment 5650-5725 MHz and did not submit proposal to cover 5725-5850 MHz. New Zealand proposes to use footnote 3644/320A to permit the Amtaeur Satellite Service to use the segment 5650-5670 MHz and makes no submissions regarding the rest of the band.

It does appear as if the Amateur Service in Region 3 can expect to retain 5650-5650 MHz and that the Amateur Satellite Service will be allocated 5550-5670 MHz.

10.0-10.05 GHz

Most Administrations have either made no proposals or proposed no change for this band.

Australia and Papua New Guinea propose an amateur satellite band, whilst New Zealand proposes that the entire band be made available to both services (that ubiquitous 3644/320A footnote again).

Japan and the USA do not propose an allocation here for the Satellite Service.

24 0-24.25 GHz

Only three Administrations put forward proposals concerning this band. Australia, Philippines and USA wished to maintain the status quo. Consequently there does not appear to be any threat to amateur interests in this band.

FREQUENCIES ABOVE 40 GHz

The proposals for frequency bands put forward by IARU are at present unallocated in the ITU Frequency Table. Eight of the Administrations in Region 3 have not made submissions covering these frequencies. The Peoples Republic of China has, but does not propose any amateur bands at all. Australia has not proposed any amateur bands either, but has instead proposed that the bands 155-160 GHz and 240-250 be designated "experimental" to allow investigations to proceed without making service allocations.

Pakistan has not made any allowance for the Amateur Satellite Service but has proposed 71-84 GHz, 152-170 GHz and 240-250 GHz for the Amateur Service on a primary, world-wide exclusive basis. New Zealand, on the other hand, proposes that the Amateur Service be secondary and shared on 48.0-50.0 GHz with the Amateur Satellite Service being permitted by footnote on a non-interference basis.

For 71-84 GHz, 165-170 GHz and 240-250 GHz, New Zealand proposes exclusive world-wide use by both services.

The Philippines and USA have, insofar as the Amateur Service and Amateur Satellite Service are concerned, identical proposals, viz., 49.8-50.0 GHz world-wide exclusive both services; 76-81 GHz, 165-170 GHz and 240-250 GHz Amateur Service shared as secondary service with the Amateur Satellite Service permitted on a non-interference basis (footnote 3644/320A).

Japan, the only other Region 3 nation to make proposals in these frequency bands, submitted the following:—49.5-50 GHz, Amateur and Amateur Satellite on a primary shared basis; 72-76 GHz, 166-170 GHz and 240-250 GHz, both services on a secondary shared basis.

No doubt there is again plenty of scope for discussion during the WARC.

GENERAL

Amateurs in both Australia and New Zealand are fortunate in that their Administrations have a high regard for the Amateur Service and also that their national societies have good working relationships with their respective Administrations. This high regard is exemplified by the following. A form of activity that requires a large transmission bandwidth is colour television (fast scan) and the lowest band on which amateurs may conduct such experiments is 420-450 MHz. Because of sharing and other problems the New Zealand Administration is proposing to write a footnote into the Table purely for New Zealand amateurs that will allow them the use of the band 610-620 MHz. This will be on a shared basis.

In Australia, the band 576-585 MHz is available to amateurs on a temporary basis.

With two low frequency VHF bands at their disposal, it is expected that there will be an increase in activity by amateurs interested in colour TV experiments involving repeaters.

CONCLUSION

It is the purpose of this article to outline the preparatory information on the WARC insofar as it affects the Amateur and Amateur Satellite Services and show that the matters involved are highly complex and technical and that if national and international politics also come into the picture then the whole matter will become just that more complicated.

As stated earlier, the IARU has never been better prepared for WARC. The value of putting up a consolidated position paper for the consideration and adoption of national societies is obvious. One only has to look through the various country submissions to see which societies approached their licensing authorities. Some were more successful than others but it does appear that no country having an active national amateur society failed to impress on its government the importance of the amateur cause.

Publicity about the 1979 WARC in almost all amateur journals has been extensive. Individual amateurs who don't know what is going on only have themselves to blame. Most of the active, national societies in Region 3 have a designated IARU Liaison Officer who has most, if not all, pertinent information for amateurs on WARC in his possession. Information is also available from the IARU headquarters in Newington, Connecticut, USA, and from the Regional Secretariat in Singapore. This article has concentrated on the submissions and attitudes of the various member countries of Region 3. More information on the approaches in Regions 1 and 2 can be obtained from the official journal of the IARU — QST. In particular the July and August 1979 issues contain excellent summaries written by Dave Sumner K1ZZ of IARU headquarters.

Australian amateurs have every reason to be proud of and grateful to those dedicated amateurs who have worked so hard over recent years to promote the amateur cause to the authorities. The Australian proposals to the Conference do support many of the requests put forward by the IARU. However, it must be borne in mind that other services have a claim on the radio spectrum and the allocation splits will be by negotiation and agreement. Amateurs may therefore not get all that they want — never again 200 metres and down — but the IARU Observer Team and amateur representatives on the various national delegations will ensure that the amateur requirement is properly presented.

TABLE 1

New Amateur Service Frequency Bands for Regions 2 and 3 as proposed by IARU.

An allocation within the segment 160-200 kHz.

1800- 2000	kHz	420- 450	MHz
3500- 4000	,,	902- 928	,,
6800- 7300	,,	1215- 1300	,,
10100-10600	,,	2300- 2450	,,
14000-14500	,,	3300- 3500	,,
18100-18600	,,	5650- 5925	,,
21000-21500	,,	10000-10500	,,
24000-24500	,,	24000-24250	,,
28000-29700	,,	48- 50	GHz
50- 54	MHz	71- 76	,,
144- 148	,,	155- 160	,,
220- 225	,,	240- 250	,,

All non-allocated frequencies above 275 GHz.

TABLE 2

Amateur Satellite Service Frequency Bands as proposed by IARU for World-Wide Allocation.

7000- 7100	kHz	1290- 1300	MHz
10100-10600	,,	2300- 2310	,,
14000-14250	,,	3400- 3410	,,
18100-18600	,,	5650- 5670	,,
21000-21450	,,	10475-10500	,,
24000-24500	,,	24000-24050	,,
28000-29700	,,	48- 50	GHz
144- 146	MHz	71- 76	,,
220- 225	,,	155- 160	,,
435- 438	,,	240- 250	,,

All non-allocated frequencies above 275 GHz.

■

QSP

CW FOR THE DEAF

June 1979 QST contains a short article describing how an old loudspeaker can easily be modified to enable a deaf (and blind) amateur to read morse by carefully removing the cone but leaving behind the dust cap, spider and input lead connectors. A half table tennis ball glued on to the dome allows the operator to feel the vibrations which, even at full volume, are almost inaudible. ■

QSP

SATELLITE PROBLEMS

Did you know that satellites have experienced difficulties with the build-up and discharge of static electricity? In rare instances such arcing and sparking has knocked some satellites out of operation.—Telecommunications Journal June 1979

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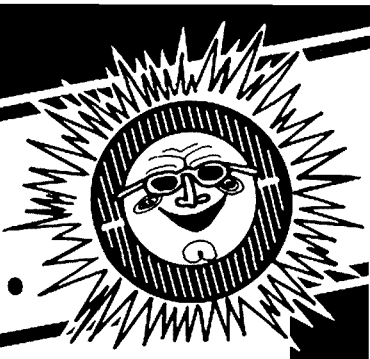

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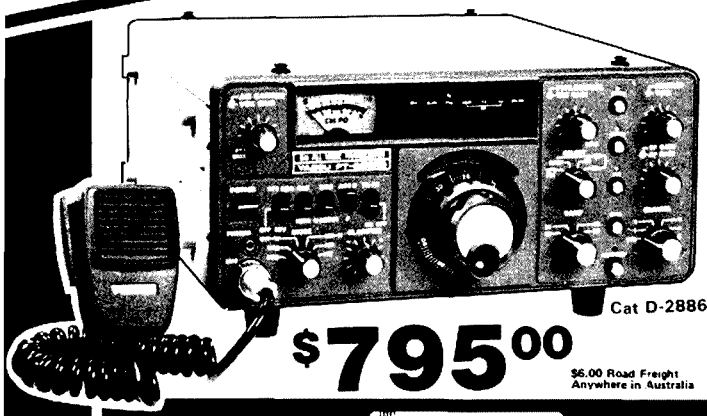

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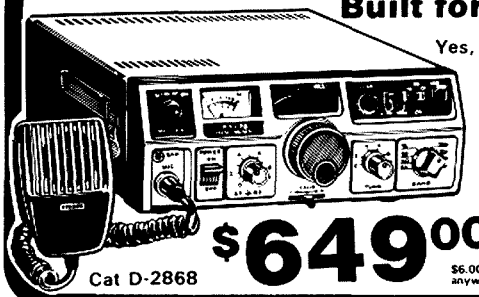

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	162 Pacific Highway,	GORE HILL.	Phone 439 5311	656 Bridge Road,	RICHMOND. Phone 428 1614
	30 Grose Street,	PARRAMATTA.	Phone 683 1133	**QLD** 166 Logan Road,	BURANDA. Phone 391 6233
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TRANSMITTER	
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PHILIPS

BOOK REVIEW

THE ARRL ANTENNA ANTHOLOGY
Reviewed by VK3AUI.

As the title says, this is a selection of antenna articles originally published in QST. The antennas described range from midgets to monsters and construction, as shown in the photographs, covers the range of miracles of machine shop to a miracle that it worked.

Various beams and verticals which have enjoyed some popularity are described. The range from 80 metre monsters to small verticals. Some of them will no doubt have the answer to your antenna problem.

The major criticism is that the book lacks a Bill Orr to tie it all together. However for all that it still provides a most interesting collection of antennas.

Definitely a book that you shold thumb through before buying. It does not set out to be an A to Z of antennas but it does provide a very convenient grouping of recent popular antenna articles from QST.

Available from Magpubs or your favourite bookshop. ■

THE RADIO AMATEUR'S LICENCE MANUAL — 77th EDITION ARRL

Reviewed by VK3AUI.

This publication is a comprehensive manual for all grades of licence in the United States of America. The amateur rules and regulations applicable in the USA are set out in full, together with sample questions and an outline of the scope of the syllabus for each class of examination.

Both the Novice and General Class theory sections have relevance to the Australian scene. The wording of some questions may be different locally but the sections are of considerable use locally.

Regulations are different and in particular the morse requirements are totally different. The regulations and theory are examined in one combined paper. The morse is examined as a comprehensive test which is marked on the answers to a multiple choice question sheet based on the text sent.

Some interesting points emerge from the new regulations and licensing and call sign structure.

The first point is that in many centres examinations are held weekly in the USA and they are marked on the spot and a result given on the spot. This is one area in which P. and T. could learn something but maybe we will never have the American system, which grew out of a need to save staff caused by the elimination of licence fees and the decimation of FCC funding. Messrs. Fraser and Staley please note this new way to save funds.

The second point is that you may immediately be upgraded by the use of a code letter group pending the updating of FCC records. This may or may not involve a call sign change at your request. If you wish you may upgrade from Novice to Extra with the same call sign. The need for the identifier is only until FCC computer records are updated.

The third point is that in the USA there is no grade of licence which is code free. All grades of licence have a code requirement and have HF operating privileges. This is in sharp contrast to the bleating of those locals who are too lazy to learn the code.

The code speeds are 5 words per minute for Novice and Technician Classes. For General and Advanced Classes the code speed is 13 words per minute, whilst for the Extra Class the code speed is 20 words per minute.

The Advanced Class and the Extra Class theory are exactly what the names imply. The General and Technician Class have the same standard of theory.

The Novice Class has an interesting set-up for examination in that it may be taken at home using a volunteer examiner with a higher grade licence. Now that's an innovation for you.

The final interesting point is that, notwithstanding reciprocal licences, anyone can take a 747 flight and stroll into an FCC office and walk out with any licence, even an Extra Class licence, which they may then hold for as long as they keep on renewing it every five years. But remember, there are no renewal notices as the FCC has no funds for such frills. This is a most interesting possibility for anyone who travels and wants to be able to take out a top grade licence anywhere in the world.

A most interesting book for anyone needing a bit of extra pre-exam material or for anyone who has an interest in the US licence structure. There is even an explanation of the call sign structure. It is also a must for the travelling ham. Finally, it is a definite must for P. and T., for if they don't learn from it the Minister certainly could when it comes to departmental efficiency and cost cutting.

Available from Magpubs or your favourite bookshop. ■

INTRUDER WATCH

Alf Chandler, VK3LC

ORM TO P29JS — BEWARE

Through the vigilance of the International Intruder Watch Organisation an E18 station operator in Ireland who has been causing harmful interference to the P29JS DX net on 14220 kHz and other nets has had his licence revoked and his gear put on the disposal market.

We are also aware that other operators, and in VK and ZL, are causing the same type of QRM. One amateur has been identified in ZL, and the whistling crank in VK has been tracked to his area. It is only a matter of time when he will be caught.

Let me here warn anybody causing deliberate harmful interference to watch out. Cross bearings are easy to obtain and our Administration will take action.

Although this operation is not strictly an Intruder Watch matter, we are the only organisation equipped with the necessary know-how to combat these insidious operators. And we shall.

Alf Chandler VK3LC,
Federal IW Co-ordinator. ■

INTERNATIONAL NEWS

SRI LANKA "TRAIN THE TRAINERS" COURSE

The success of the training course on electronics and amateur radio in Sri Lanka last October (see AR December 1978, page 75) has prompted DARC to plan a follow-up course in February/March 1980 for two weeks in Colombo for up to 15 students from national IARU Societies in Region 3. The course will supply solid knowledge on how to prepare local training courses, how to test suitable applicants, how to prepare the paperwork and material, how to check progress by interim tests, etc. Students would be nominated via national societies and only travel expenses and pocket money will be required. Qualifications:—must be licensed radio amateur, possibly with tutoring experience, good command of English and general know-how to follow such a course. Anyone interested should write to Mr. David Rankin, IARU R3 Secretary, PO Box 14, Pasir Panjang, Singapore 9111.

RECIPROCAL LICENSING

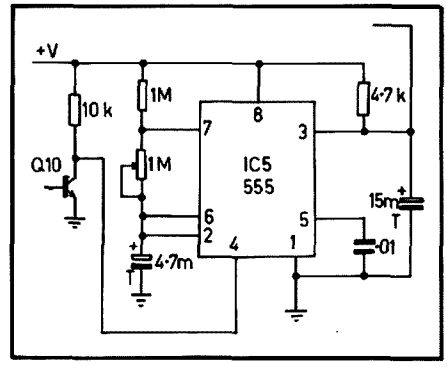
The address of the Belgian authority is:—M. le Directeur General, Regie TT-CNS, 31e etage-Tour Madou, Place Madou 1, 1030 Brussels. ■

TECHNICAL CORRESPONDENCE

The Editor,
Dear Sir,

ERRATA — 2m FM SYNTHESISER — AUGUST 1979 AR

1. For page 9: Table 1, programme codes. Programme code for Ch. 61 on Tx should be "2941" and not "1941".
2. For Fig. 2B: Coil details: these are missing the number of turns, etc. They should be as follows:
   L1: 100 turns, 36 swg scramble wound on neosid former between a couple of ¼ in. diameter toroids. Secondary is 10 turns over bottom of L1 and same gauge. Slug is F16.
   L2: 40 turns 36 swg close wound on neosid former. Toroids not used. Slug is F16.
   L3: 60 turns 36 swg tapped 15 turns from earth end. Slug is F16.
   L4: 45 turns as per L3 tapped at 10 turns from supply end. Slug is F16.
   L5: 30 turns 28 swg. Secondary is 6 turns over bottom of L5. Slug is F16.
   For using tripler at 34 MHz alter above details for L3, L4 and L5 as follows:
   L3 becomes L6: 37 turns 28 swg tapped 8 turns from earth end. C = 33 pF.
   L4 becomes L7: 20 turns 28 swg tapped 6 turns from supply end. Slug is F29. C1 equals 10 pF, C2 ≈ 4.7 pF.
   L5 becomes L8: 20 turns 28 swg. Secondary is 6 turns over bottom of L8. C = 10 pF.
3. For Fig. 3:
   A. IC10 and IC11 should be MC14560B not MC145608.
   B. Pin 9 of IC10 should go to pin 7 of IC11. Pin 7 of IC11 should not go to earth.
   C. Pin numbers on IC5 missing. They are as follows:



4. For page 12:
   Text at bottom of page 12, last column, last paragraph, should read: . . . the counter resets on the count of 41 via IC12A . . .

For Fig. 5, page 13:
For Mode Switch:
Pos. 1 = + 600 kHz Tx.
Pos. 2 = Simplex.
Pos. 3 = —600 kHz Tx.
Pos. 4 = —600 kHz Rx (reverse rept.).

For Fig. 6, page 14:

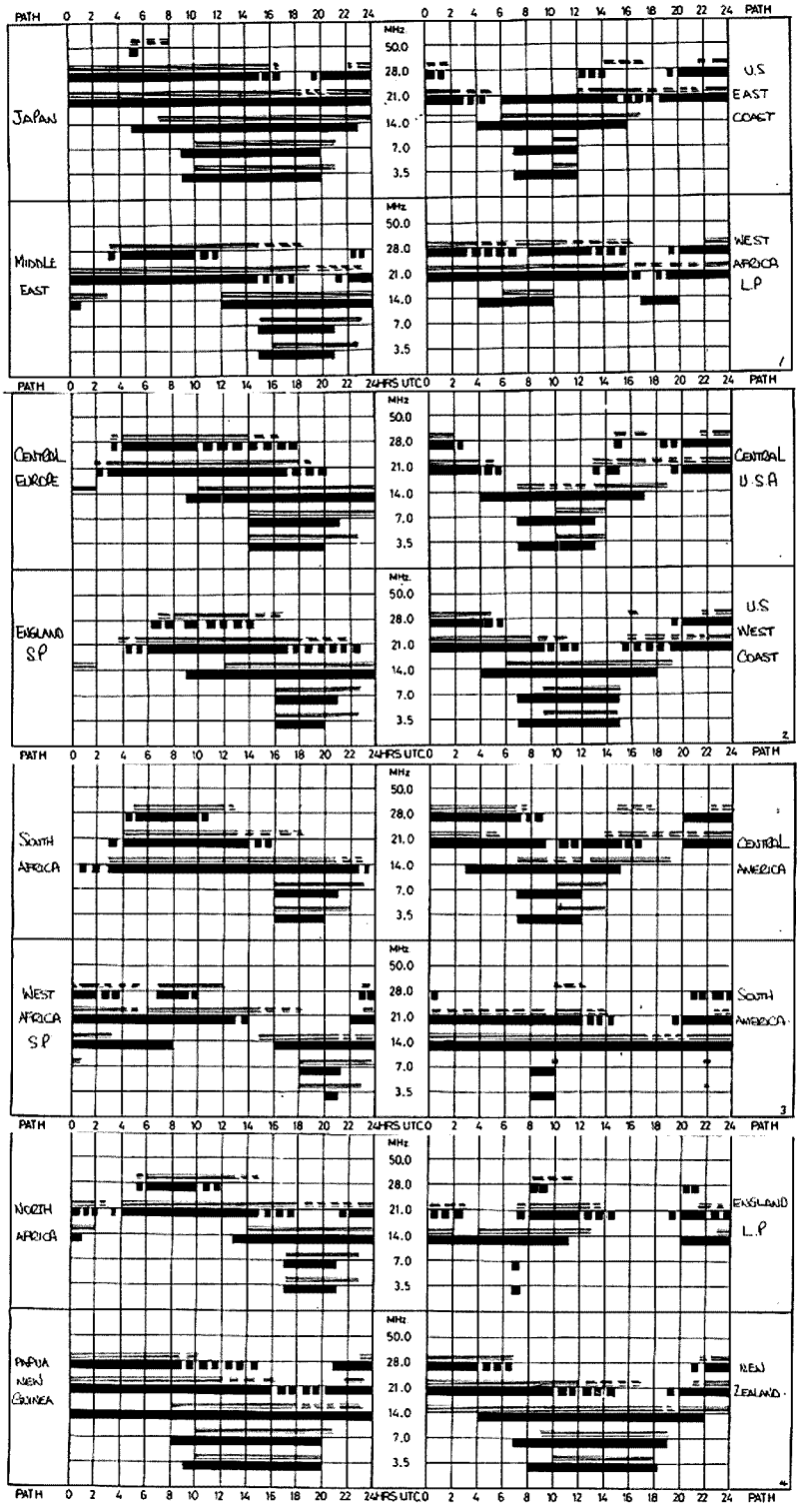
△f pot should have 270 ohm resistor between bottom of pot and earth.

For page 17:
Mode Switch (see Fig. 3) (not "see Fig. 5").

L. De Stefano VK3AQZ. ■

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



LEGEND

FROM WESTERN AUSTRALIA

FROM EASTERN AUSTRALIA

BETTER THAN 50% OF THE MONTH, BUT NOT EVERYDAY

LESS THAN 50% OF THE MONTH

PREDICTIONS COURTESY IPS SYDNEY

ALL TIMES UNIVERSAL UTC (GMT)

EDITOR'S NOTE:

Due to illness Len Poynter was unable to prepare this month's chart, and we have reproduced last month's chart as a guide to band openings.

We wish Len a speedy recovery — (VK3UV).

YOU and DX

Mike Bazley VK6HD

8 James Road, Kalamunda W.A. 6076

At the time this is being written Spring is just around the corner. Spring, the time when a "young" man's thoughts turn to the ten metre band! Once again ten will be staying open until the late hours with DX opportunities into all areas of the world. Some of our newly licensed fellow amateurs may not be aware of the activity that takes place on ten metres, even during sunspot minima. I'm referring to those ten metre beacons which have been helpful in the past by pinpointing openings and which are still active. It would be appreciated by all if these beacons could be given a clear frequency. The following information is supplied by G3DME through the RSGB's "Rad Com".

28,175	kHz	VE3TEN, Ottawa, Canada.
28,200	kHz	Common frequency.
28,205	kHz	DL0IGI (Mt. Predlghtstuhl, near Salzburg). Moves to 28, 200 kHz between hour and hour plus 5 min. and hour plus 30 and plus 35.
28,207.5	kHz	N4RD, Englewood, Fla. Non-operational?
28,210	kHz	3B8MS, Signal Mount, Mauritius.
28,215	kHz	GB3SX, Crowborough.
28,217.5	kHz	VK2WI, Sydney, Australia.
28,220	kHz	5B4CY, Limassol, Cyprus.
28,225	kHz	(Reserved for VE3TEN.)
28,230	kHz	ZL2MHF, Mt. Climie, New Zealand.
28,235	kHz	VP9BA, Southampton Parish, Bermuda.
28,245	kHz	A9XC, Hamala, Bahrain.
28,247.5	kHz	EA2OIZ (Unofficial beacon).
28,247.5	kHz	EA20IZ (Unofficial beacon).
28,257.5	kHz	DK0TE, Konstanz, FR Germany.

In Group 2 (under construction) are the following:

28,212.5	kHz	ZD9GI, Gough Is.
28,222.5	kHz	HG5, Hungary.
28,237.5	kHz	LA5TEN, Oslo, Norway.
28,242.5	kHz	ZS1CTB, Cape Town.

DX NEWS, RUMOURS, FACT AND FICTION

Those of you who are chasing 5BWAZ may be interested in a letter received from K2EEK, editor of CQ Magazine. Initially one was able to claim a certificate for having worked the first one hundred of the required two hundred zones (40 zones on each band from 80 to 10m). Anyone who managed to get to the two hundred would be awarded a plaque. K2EEK states that the hundred zone certificate award has now been abandoned and that the first ten amateurs to work two hundred zones will receive a plaque, after that a certificate will be issued. It seems that the response to the award was so great that CQ was snowed under and the administration problems got out of hand. Just in case you think that forty zones on each of the HF bands is practically an impossibility, the first 5BWAZ has already been awarded to ON4UN. The award took John six months to work and accumulate the OSLs!! (Makes my efforts look a bit thin!!)

If you need Aves Island TV0 and you hear YV5HAM or YV5HQE, do not pass them by. These two stations are permanent residents on the Island and have been heard in QSO on 20 SSB. There is one catch, their English is somewhat limited.

The 160 metre DX enthusiast may be interested to know that the Russian stations are now allowed to operate in the segment 1850-1950 kHz with a maximum of 10 watts input. The frequency range 1850-1875 kHz is reserved for CW only.

UK1PAA, in Franz Joseph Land, continues to be active and it is hoped that he will be equipped with SSB by the time this column is in print. He is reported to be very active on 14140 at 0500 and 1500 GMT, with UB5UAT as M/C, working at present CW to SSB.

The rumoured CE0X DXpedition looks a distinct possibility now. Call sign is reported to be CE0XEA and the operation is scheduled for October or possibly even earlier.

Those that needed Sable Island I hope managed to QSO VE4CF/L, QSLs go via VE4CF's home address (see QTHs).

Did you QSO JA6HOZ/BY? Well if you did I hope you worked the genuine article! The genuine JA6HOZ/BY was reported on 14210 working JA stations and then QSYd to 14020, when the QRM got rough. A JA6HOZ/BY was also reported on 21 and 28 MHz. If you did get a QSO I hope it was with the real one and that the call sign was authorised.

Marion Island ZS2MI still being reported as very active. Usually favours a frequency around 14250 kHz. QSL via WA2IZN.

Lots of activity from the SV area lately. Mount Athos was very QRV during August under the call signs SV1DC/A, SV1IW/A and SV1JG/A, together with activity by N2KA/SV9, N2KA/SV5 and W2TDQ/SV9, W2TDQ/SV5. QSL information in QTH section.

Another independent state in South Africa will be activated by VE3FXT and company from September 13th onwards. The call sign is unknown but the location is VENDA, which is about 200 miles north of Pretoria. This one will join S2 and H5 on the non-country list!

The Republic of Kiribati has been allocated the sequence T3A-T3Z by the ITU. Kiribati takes in most of the old VR1 and VR3.

VK4KX, in an interesting letter, passes along information that VU2CK may be going to the Andamans. Worth looking out for.

Well, that's the lot for this month. Check 025 and 14195 for those DXpeditions and keep an eye on the LF bands. Thanks to VK4KX, VK6AJ, VK6LK and G. Watts News Sheet. 73 es DX Mike VK6HD. My deadline for December is October 26th.

QTHs YOU MAY HAVE MISSED

JA2KWJ/A2C — Via JA3KWJ.
C3IOH — Via F6DNW.
FR7BE — Via W4LZZ.
FR7BU — Box 32, St. Paul.
FR7BW — Via REF.
JE3YAJ/JD1 — Via JE3SEN.
KH6LW/KH7 — Via KH6JEB.
K7GA/KH7 — Via W7 Buro.
M1Y — Via I0MWI.
OH2OT/OH0 — Via OH2BEJ.
SV1DC/A, etc. — Box 161, Athens.
N2KA/SV — Via N2KA.
W2TDQ/SV — Via W2TDQ.
TA3AC — Via W4KK.
TL8JM — Via W5RU, Box 73, Melaire, LA 70004.
VE4CF/1 — Noel Funge, 30 Mackle Bay, Winnipeg, Manitoba, R2Y 5V7.
ZD7HH — Via W4FRU (correction).
ZK1CQ — Via ZL1AMD.
ZK2DD — Via ZL1!ALE.
5N0DOG — Via W4FRU.
K9EF/8RI — Woody Minar, American Embassy, 31 Main Street, Georgetown.

RAILWAY MOBILE DXPEDITION
MARREE-ALICE SPRINGS-MARREE

Following more discussions with the Australian National Railways by telephone, both with their Adelaide headquarters and operations staff at Port Augusta, the proposed trip from 6th to 10th August has had to be postponed until a date to be advised. This appears largely to be due to problems in arranging for the special brake-van because of the industrial dispute which had closed down the operations of their entire system over a lengthy period until recently, and the backlog of traffic that they must now have to cope with.

Further information will be passed on as soon as it is available; October or November has been suggested by the ANR Public Relations Officer.

A letter has eventually arrived from the ANR and extracts are quoted:

"The recent spate of industrial action on the ANR network prevented any detailed input by the ANR public relations section into the exercise. You will no doubt appreciate that the cost of such an exercise could only be justified on the publicity it generates for Australian National Railways. It is likely that a number of publicity exercises involving the last few trips of the Ghan will be arranged by ANR towards the end of 1980. It is suggested that your ideas be re-submitted next year for possible inclusion in these publicity exercises."

In view of their reversal of attitude and the very bad press this now becomes both for the expedition and them, I feel that they might be able to organise their side of the publicity adequately for the event to take place by the end of THIS year (which by their earlier admission is the best time due to a seasonal fall-off in traffic) if they are pushed by external pressure into such a commitment. I and others I have spoken to feel that it would be pointless to resurrect the trip in, say, 16 months.

Discussion with the local amateur radio club has produced a decision to ask all interested people to write direct to the ANRC expressing concern; as a government body they may well respond to sheer volume of correspondence. Attached hereto is a sample letter readers may care to employ. The fact that they may receive identical letters from all over the world might impress upon them the effectiveness of our communication, and the world-wide publicity the trip has received.

In the meantime copy for the Award Certificate and QSL card has been almost finalised and as far as this station is concerned, all systems are "go" subject to taking leave at the appropriate time.

73 de Dick Ashton VK5DQ, PO Box 11, Woomera, South Australia 5720.

SAMPLE LETTER

"Public Relations Officer, Aust. Nat. Rlys. Commission, 55 King William Road, North Adelaide, South Australia 5006.

I am/We are disappointed to hear of the cancellation of the AR mobile expedition on board the "Ghan" express 50th anniversary trip, and can appreciate the circumstances which led to this decision being made.

It was understood that November or December, 1979, was the original proposed date and I/we hope that this date can still be met in view of the interest generated world-wide as a result of publicity through the many AR societies who have supported the expedition by including the item in their regular weekly news broadcasts and by print in their monthly newsletters and magazines all over the world.

I/We feel that the goodwill and excellent press would be wasted if the journey is deferred beyond the end of 1979 as the ANRC has already received tremendous publicity." ■

REMEMBRANCE DAY OPENING ADDRESS

Recorded script: Official opening Remembrance Day Contest 1979.

Richard E. Butler, Deputy Secretary-General International Telecommunications Union (ITU).

INTRODUCTION

This is Ted Robinson F8RU, past President of the International Amateur Radio Club 4U11TU at the headquarters of the International Telecommunication Union in Geneva, Switzerland.

It is a great pleasure and honour for me to introduce Mr. Dick Butler, the energetic Australian Deputy Secretary-General of the ITU and patron of our Club, who has always shown a keen interest in all matters related to the Amateur Service.

RICHARD E. BUTLER

In the year 1979, I am delighted that I, as Deputy Secretary-General of the ITU, have been invited to open your Remembrance Day Contest and to remember, with you, those who have served before us, offering their skills and services without hesitation and indeed their lives in time of national need. In thanking my colleague, Ted Robinson, for the introduction, I should add that he comes from Belgium, a country well known to many Australians who served abroad.

Amateur radio has had formal recognition in the ITU statutes for a little over 50 years of the Union's 114 years of existence. Initially, as part of what was known as the "private experimental station" but nevertheless operated by "a person interested in radio technique solely with a personal aid and without pecuniary interest". How wise that international encouragement and recognition proved to be, a small legislative concession, when radio was in its infancy. It encoureged personal initiative and interests, as well as self-help. The growth of amateur radio has proved to be of basic importance to community service, without cost, in times of stress and emergency. Think of the local fire fighting unit in the early days. The regulatory provisions established a major potential for fostering goodwill between people with the same pursuits in other countries — yet never to meet except through the friendly dialogues on the air.

The radio frequency possibilities and spectrum operation conditions for the amateur service, which was elevated from recognised station use to a "Service" at the ITU Atlantic City Conference in 1947, received even more formal recognition as a "Radiocommunication Service", being permitted to operate in space, following the World Administrative Radio Conference for Space Telecommunications in 1971. The practical possibilities for amateur enthusiasists was enlarged immensely as the world community moved to the adaptation and use of satellite telecommunication.

But let us not overlook the conventional radiocommunications which continue to satisfy our personal needs and contribute to our knowledge of technical propagation conditions.

In Geneva, September 1979, there will be another focal point for the amateur community. The reasons — the World Administrative Redio Conference 1979 — for which our colleagues — your colleages, and they are much more numerous now, are preparing all over the world.

I have been privileged to be associated with some of these preparations: in the Region 1 meeting in Hungary of the IARU, then in all of the ITU forms, the CCIR and the preparatory seminars, including that of the Asian/Pacific region generously hosted by the Australian authorities. In all of these activities, the amateur interests have been in the forefront of consideration. Such preparations lead one to be optimistic in the search for and negotiation of rational solutions which will respond adequately to the competing needs for radio frequency spectrum of all users, including the amateurs.

So, happy hunting and good luck. Do not be too worried by the WARC. You have admirable representatives in your delegation.

"Thank you for listening." It is an honour for me personally to declare open your 31st Remembrance Day Contest. ■

QSP

ELECTRONIC MAIL EQUIPMENT

By 1987, so states a news item in Telecommunication Journal for May 1979, annual sales of electronic mail terminal equipment will total $US2500 million. "Electronic mail" is the name given to person-to-person messages which are transmitted electronically but which may be paper-based at either end; the most familiar being telex. More sophisticated systems allow word processors to communicate with each other via a modern and existing voice network. Another well-established system is facsimile but the future for this is not viewed as optimistically as others. An important development is expected of "super-telex", Teletex, which is a combined text and graphic device expected eventually to supersede telex. ■

NEW ATLAS 110 LINE

• 250 WATTS • $499 • 80–10Mx •

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- **Choice of** 12-14V DC for mobile or 220-240 V AC for home operation with the Atlas PS-110 Power Supply.
- **Superior Size** RX/TX-110 measures just 31W-x 10H x 25D cms.

RX/TX-110 Transceiver $499
PS-110 Power Supply $109
MM-110 Mobile mount $58

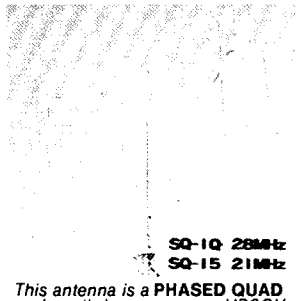
Now for only a fraction of the outlay previously necessary you can run up to 250 Watts on 80 thru 10 Metres, work CW or SSB, operate from the Car, or home QTH using the RX/TX-110H and its AC Power Supply, PS-110.

* * * * * * *

For color brochure with complete specifications write to us, phone us or just drop in and have a look at the RX/TX-110.

NOW IN STOCK ATLAS 210X AND 215X, $795 ea., PLUS OTHER ATLAS ACCESSORIES.

TET SWISS QUADS



SQ-10 28MHz
SQ-15 21MHz

This antenna is a **PHASED QUAD** *and well known as a HB9CV QUAD. Its concept is to drive the Radiator and Reflector at the same time with* **phase differences** *to obtain more gain and better front-to-back ratio than the conventional quads.*

SQ-2Q 2m x 2 Stacked **16dB** Gain **$99**
SQ-24 2m x 4 x Stacked **18dB** Gain **$219**
SQ-6I 6m x Standard **12dB** Gain **$119**
SQ-10 10m x Standard **12dB** Gain **$159**
SQ-15 15m x Standard **12dB** Gain **$169**
SQ-20M 20m x Loaded **10dB** Gain **POA**

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ATN *Australian manufactured antennas range from 6 Element 28MHz Yagi's through to 432MHz 27 Element and 580MHz 14 Element Amateur TV Yagi's.*

For a complete price list and catalogue give us a call or drop us a line.

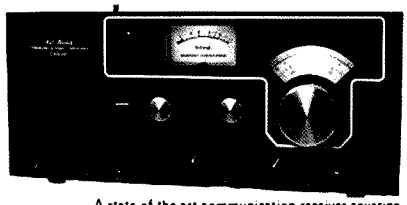
Great Circle Map centred on Melbourne.

This new sought-after map, published by G.F.S. has just arrived. Centred on Melbourne it allows the user to take a bearing for directing an antenna to any place in the world. It also reads the shortest distance to that place. At 33.5cm x 43cm it is easily read and would be ideally suited to wall mounting or just mounting under a glass desk top.
Price: $1.00
allow 75 Cents for post and packing.

NEW!!!

STANDARD C6500

HF WADLEY LOOP COMM. RECEIVER



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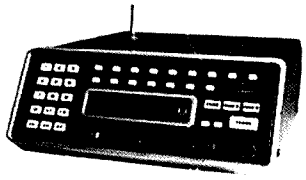

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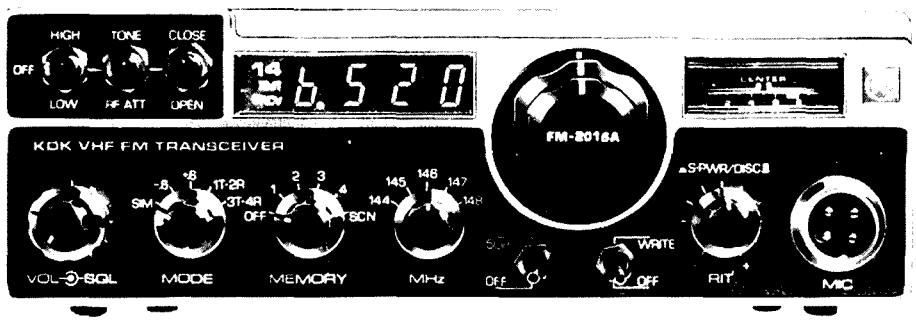

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PROWORDS

You have no doubt heard WICEN networks in action and been puzzled or even amused by some of the expressions used. These standard and repeated words or phrases are PRO WORDS (short repeated words or phrases are PROWORDS (short for pronounceable words) which have a fixed meaning for WICEN operators. They speed up message handling and reduce confusion due to their assigned meanings, not unlike the "Q" code in CW.

In this issue I intend to list the most common ones together with their agreed meanings. In later columns I will give examples of radio nets showing prowords in use.

LIST OF PROWORDS
EXPLANATION

Proword	Used by Sender	Used by Receiver
CONTROL OF AIR TIME		
OVER	That ends my transmission. I am listening to hear your reply.	I have replied but expect further transmission from you.
ROGER		Message received and understood.
OUT	My transmission is ended. No reply is required.	My transmission is ended. No reply is required.
REPORTING CIRCUIT CONDITIONS		
HOW DO YOU HEAR ME	What is the strength of my signal?	
LOUD AND CLEAR		Your signal is loud and clear.
READABLE		While not loud and clear, your signal is readable.
WEAK		Your signal is weak.
INTERFERENCE		You are hard to understand because of interference to your signal.
DISTORTED		You are hard to understand because of distortion to your signal.
MESSAGE HANDLING		
MESSAGE	I have a message for you.	(The receiver should have a Message Form ready to write the message.)
LONG MESSAGE	I have a long message, use a large form.	
RELAY	Transmit this message to all addresses or to the address designations immediately following.	
INFO	The message is to be passed for information to the designations immediately following.	
SPEAK SLOWER		Your transmission is too fast to write.
SAY AGAIN		Repeat all your last transmission or the part I will now identify.
I SAY AGAIN	I am repeating my transmission or the portion identified.	
ALL AFTER ALL BEFORE WORD AFTER WORD BEFORE	I SAY AGAIN the portion of the message you require and repeat your identification.	This identifies the part of the message I require. The reference I quote is the nearest word or phrase received correctly.
I SPELL	I will spell the next word phonetically.	
FIGURES	Numerals follow.	
WORDS TWICE	To indicate that each phrase or group will be said twice.	To request that each phrase or group be said twice because conditions are difficult.
CORRECTION	I will correct a word or group I have said incorrectly.	
CORRECT	Your version is correct.	

Proword	Used by Sender	Used by Receiver
WRONG	Your last transmission was incorrect. The correct version is . . .	
READ BACK	Repeat this entire transmission back to me exactly as received.	
I READ BACK		The following is my response to your instruction to READ BACK.
VERIFY	Verify the whole (or the portion indicated) of the message with the originator and send the correct version Only the addressee will originate the request for verification.	
I VERIFY		That which follows has been verified by the sender in response to your request and is repeated.
GENERAL ITEMS		
WAIT	I am busy but will call within 10 secs.	I am busy but will call within 10 secs.
WAIT OUT	I am busy and will call you later.	I am busy and will call you later.
FETCH NAME	Fetch the designated named official to the radio.	
LOCSTAT	What is your present location?	My present location is . . .
WILCO	I have received your message, understood it and will comply with it.	

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

74 Warmington Road,
West Sunshine 3020
7th August, 1979

The Editor,
Dear Sir,

If an individual amateur radio operator breaks his licence regulations he is penalised by the authorities; and quite rightly so! But it seems that if enough people break the law, then the law is changed!

The law was broken by Pirate CBers! For the offence they were given a complete Amateur Service Band!

As far as we can see, nothing has been given to the Amateur Service to replace this band.

Radio operators in the Amateur Service have committed no offence but they have been punished severely by the removal of a complete band!

The Amateur Service has been given no replacement HF band nor any additions to existing HF bands. Also I quote from ARA, Vol. 2, No. 3, Eris: "What happened to third party traffic privileges offered by the P. and T. in compensation?".

Is the WIA like the Government and Medibank, keeping their heads in the "sand" hoping that if we get extra band(s) from WARC, all the operators in the Amateur Service will forget the terrible 27 MHz crime.

EDITOR'S NOTES:

1. Novice licensees were granted a segment of the 10 metre band, as requested by the WIA.
2. Referring to paragraph 1 of this letter, who will remove the law breakers?
3. Look at the Editorial in AR of September 1977. ■

7 August 1979

The Editor,
Dear Sir,

I think the enclosed copy of a letter to the editor of ARA speaks for itself.

My reason for sending you a copy is that you may find it beneficial to WIA members who read AR to know the true situation and how they stand.

Just a couple of lines somewhere in your magazine may save a lot of people a lot of trouble.

Thanks.

Charles Shaw VK9NI.
PO Box 290, Norfolk Island, NSW 2899

7 August 1979

"To the Editor: Amateur Radio Action.

Copy: Editor: Amateur Radio (WIA).

Dear Sir,

Yesterday I was shown an article that appears on page 81 of Vol. 2, No. 2, of your magazine, under the heading 'Norfolk Island'

The information contained in this article is obviously intended as some kind of 'stir', perhaps at me personally, but I assure you that it is going to do the most damage to those Amateurs who are gullible enough to believe it and act upon it.

Perhaps you would like to publish the following correction information? However if you do, it is going to make the writer of the original article look a bit stupid, as there was hardly a word of truth in the original.

1. VK9NI will be inactive on 6 metres until further notice. No promises of any kind have ever been made to anyone.

2. I do not have a new antenna atop a 90 foot tower. My old antenna was atop a 21 foot length of water pipe. It fell down in strong winds and is a write-off.

3. I have never heard of a Lunar PA, let alone planned to get one.

4. All the operating I have done on the 6 metre band was done with borrowed equipment, which has since been returned to the owner, and I do not intend to borrow it again or buy anything or build anything for VHF operating.

5. Paul VK9NW, in spite of the fact that he has been allocated a two letter call by the powers-that-be, is a novice. He can only operate the normal novice bands and that does not include 52 MHz. (When Paul first applied for a call sign, he was given VK2VGV. He wrote back and said he would prefer a VK9N call. They then allocated VK9NW. This tended to indicate they neither knew nor cared what was going on, so Paul left it at that. If this causes too much confusion blame the licensing authorities, not him.)

6. Needless to add, even with my help and an 'old antenna', there is no way that Paul can get on to 6 metres legally, except to pass the full call examination. He is at present studying for the next one, and is not very active on the air for mainly that reason.

I have already had two letters from operators who have read the article with queries about 6 metres operation on Norfolk. It would save them time and effort and expense writing, and the same for me answering, if you could find the space to publish a little more accurate information, i.e. forget Norfolk Island or else buy a plane ticket and bring your own rig over if you wish a QSL card that badly.

Operating from a location such as this can be a bind at times, and the spreading of totally misleading stories does not make it easier for any of us over here. I am not a DXer, or a fanatic, and Ham radio is not my number one hobby by any means — and take it from me that applies to all the other permanent call operators here as well. I will continue to do my best for what it is worth, but NO promises.

Thank you,

Yours faithfully,
Charles Shaw VK9NI." ■

The Editor,
Dear Sir,

I wish to inform you of the formation of a new radio club.

The Club is —

Shepparton and District Amateur Radio Club meets first Wednesday of each month at 7.30 p.m. sharp, Mechanics Institute Hall, 225 Wyndham Street, Shepparton. Informal meetings on third Wednesday.

If anyone would like further information, contact the Secretary, SDARC, PO Box 692, Shepparton 3630.

Yours faithfully,
Graeme Stevens VK3ZSQ,
Publicity Officer SDARC.
PO Box 692, Shepparton, Victoria 3630. ■

MAGAZINE INDEX

Syd Clark, VK3ASC

BREAK-IN June 1979
A Simple Aerial Coupling Unit; Oven Controller — Timebase Oscillator Power Supply; Twin for Galbraith PS1 (8 Amp, 13.5 Volt PSU); Spurious Free 2 Metre Transmitter; Bending Brake; Microprocessors.

HAM RADIO June 1979
RF Power Amplifier Design; AFC Circuit for VFOs; Satellite Tracking Systems; Diode Noise Source;

160 Metre Magnetometer; Digiscope — TTL Test Instrument; Talking Digital Readout; Packet Radio — Computer Linking; Biquad Bandpass Filter; Gallon-size Dummy Load; Digital Techniques; Multivibrators and Analog Interfacing.

CQ July 1979
Getting the Most Out of Schematic Diagrams, Part 2; RF Output Power Measurements, An Open Letter to All Radio Amateurs; Electronic Research Corp of Virginia SL-65; Family of VSWR/Net Power Indicators; Smoke Detectors, Quads, Verticals and Other Good Things; The CQ Awards Programmes; Learning the Morse Code, Part 2; The Heath and Radio Shack Novice Licence Study Materials; The Keyer is the Key; Solar Energy for the Future; QRP-420XC Transceiver Corrections.

QST June 1979
A Medium-Power Solid-State Transmitter; Build Your Own 5/8-Wave Antenna for 148 MHz; An LED Readout for the HW-2036; An Accurate, Low-Cost Antenna Evaluation System; Installation Techniques for Medium and Large Yagis; An Audio Transducer for the Deaf; Measuring Transmission-Line Velocity Factor; The Practical Side of Toroids; The Wee-Keyer; Aeronautical Mobile — The Only Way to Fly; Dr. Strangetone; High-Speed CW, Anyone; Results, 1978 Simulated Emergency Test; Results, Sixth Annual ARRL 10 Metre Contest; Novice Roundup Revisited; Diversity; Viva la Difference . . . Baton Rouge; Amateur Radio and the Kingdom of Tonga; Action on Capitol Hill.

RADIO COMMUNICATION July 1979
A Solid-State 1.8 and 3.5 MHz Exciter; Sinclair PFM200 Frequency Meter; Some Experiments with Audio Filters; A Simple Multi-purpose Memory; Some Refinements for the G3PLX VDU; FM Channel Locator for T158/59 Calculators; A VHF Visit to VK Land.

RADIO COMMUNICATION August 1979
Amtor, An Improved Radioteleprinter System, Using a Microprocessor; Roadrunner Wiring System and Holdings FT101 Improvement Kit; A CMOS Keyer with Memory; Ambit 96640 VHF NBFM Monitor Receiver; The "Tele-Scope"; The XJK; RAE Courses 1978-80; Visual Sunspot Records; HF Propagation Study; Will the RST System Last Until Judgement Day?

SHORT WAVE April 1979
The Datong ASP Automatic Speech Processor; Home-Built SSB Transmitters: Practical or Not; Beam Antennas, Rotators, Masts and Guys; Power FETs and RF.

RADIO ZS March 1979
Transmissions from Space.

RADIO ZS April 1979
The Devil's Sea; User's Report on the Kenwood TS-120V All Band Solid-State SSB/CW Transceiver; Baluns.

73 June 1979
Add Digital Display for $50; High-Performance Receiver Add-Ons; A Solution to the Home-Brew Housing Shortage; How Do You Use ICs; Customize Your HT1448; Ultra-Simple CMOS Logic Probe; The Voice of Wolf Creek; CB to 10; At Last, A Really Simple Speech Processor; New Life for Tube-Type Dippers; You Ought to be In Pictures; How to Toot Your Own Horn; A Junk-Box HT Charger; Protect Your Home-Brew Panels; Now You Can Possess Instant Recall; Calicu-Trip; Charging Up the WE-800; Where Have All the kHz Gone; The Ramsay 2m Amp Kit; An Improved Display for the TR-7400A; Inexpensive Scope Tuner; The Resistance Substitution Box; Vodka Amongst the Penguins; Protect Yourself with a GFI; Poor Man's CW Memory; Power for Mobile Operation; Project Update.

Syd. VK3ASC.

As I sit here writing the "Magazine index" for what is very likely to be the last time (I retired on August 31st), my mind goes back over the years since joining the "Magazine Committee" as it was then known.

Over approximately twenty years of assisting with the work of producing "AR" a number of Editors have come and gone. First there was that stalwart of Amateur Radio, Ron Higginbotham, then Ken Pincott, Kelvin Cocking, Bill Roper and our present editor, Bruce Bathols. There may even have been one or two others I have failed to acknowledge, if so, my apology. Venues have varied from the private homes of members through Victoria Street to the present headquarters in Toorak. Techniques have probably changed most of all, for over this twenty years the solid-state revolution has occurred and the sixt foot racks have shrunk to desk top transceivers of a complexity we would never have believed possible.

During this time operating opportunities have been limited to sporadic forays on to the HF bands (mostly 40) and two metres. I hope that my opportunities in the future will be much enhanced and that I will have the pleasure of sharing eyeball QSOs with some of these contacts as my XYL and I expand our horizons. To all those who have offered a friendly word or a handshake along the way I say a "BIG" THANK YOU.

Syd. VK3ASC.

(The passing of an era? Who would like to see these reviews continue?—Ed.) ■

AWARDS COLUMN

Bill Verrall VK5WV

7 Lilac Ave., Flinders Park, S.A. 5025

AUSTRALIAN COMMONWEALTH ELECTORATE AWARD
This award was instituted by CHC Chapter 66 and has been available for some years. Publication of the rules in this issue may encourage some portable/mobile operators to plan "DXpedition" to some of the rarer electorates during the coming summer months.

OBJECT OF THE AWARD
(a) To foster an interest by Australian and overseas radio amateurs in making contacts with amateurs in all Federal electorates.

(b) To encourage Australian amateurs to more fully occupy the allotted frequencies, particularly those required for short range communication.

(c) To encourage Australian amateurs to cooperate with overseas and local stations in obtaining contacts with electorates with few or no active amateurs by undertaking mobile or portable operation from some electorates.

(d) To provide a Premier Award in Australia comparable with the NZ Counties Award.

AWARD REQUIREMENTS
(a) An initial certificate will be issued for 25 confirmations which must include VK2-9, VK3-6, VK4-4, VK5-2 and one each for VK1, VK6, VK7 and VK8.

(b) Endorsements will be issued for 50, 75 and 100 confirmations. These additional confirmations may be random contacts from any State.

(c) A special certificate will be issued for confirmations from all 125 electorates.

(d) Separate certificates may be obtained for different bands and/or modes.

(e) The operator on an electorate DXpedition may claim that electorate for his own ACE credit.

(f) Only contacts made on or after 1-1-73 are eligible for the award.

(g) In general all CHC rules are applicable.

APPLICATION
(a) All applications for award/endorsement must be made on the prescribed check list and certified in the space provided by either one CHC member or two licensed amateurs.

(b) The check list remains a complete record of all electorates confirmed, endorsements obtained and will be returned after each application.

(c) Applications for award, endorsements, check lists, etc., should be made to the Awards Custodian, Mr. Allen Smith VK2AIR, 111 Corthcott Road, Seven Hills, NSW 2147, Australia.

FEES
(a) Basic Award (25 confirmations), $1.00 Aust. Subsequent endorsements, 12 cents each. Final Certificate (125 confirmations), 50 cents. Check lists, 20 cents each.

(b) An additional fee of 50 cents will be charged if award or final certificate are required air mail. Endorsements/check lists will be automatically returned air mail.

(c) In order to reduce costs, IRCs or mint stamps from the applicant's own country to the equivalent Australian value are acceptable.

FEDERAL ELECTORAL BOUNDARIES
(a) To provide a permanent and stable basis for the award, boundaries existing at 1-5-73 and as defined on official electoral maps will be adopted as a standard.

(b) Official maps priced at $1.50 each are available from Commonwealth Electoral Offices in each State and with the exception of Tasmania, each State has two maps.

A full list of the electorates is too detailed to include in this column. All enquiries should be directed to Allen Smith, who will forward the required check list and application form.

AUSTRALIAN AWARDS
I continually receive enquiries for details of "Australian Awards" but am unable to provide a satisfactory reply. All I can do is refer the enquirer to back issues of "AR" and the various commercial ham radio publications. (See the 1979 Call Book. —Ed.) There are now so many awards available from within Australia, it is beyond the scope of this column to publish details of all awards because insufficient publication space is available anyway.

I will endeavour to include details of all new awards as they become available. It is also worthwhile to repeat such details at intervals as is the case for the ACE Award.

In collaboration with Jack Swiney VK6NAG, we are looking at the feasibility of compiling a directory of all awards, including WIA Awards issued from within Australia. It is a very time-consuming and expensive task to research back issues of "AR" and other magazines and write to the various award sponsors for details and samples of their awards. Then it may be possible to produce a directory similar to the CHC directory or the "Canadian Amateur Radio Awards" Directory. Any such publication could be made available at a nominal fee to cover costs, etc. The very least we could do is prepare an index of Australian awards with a cross reference to the page No. and issue of "AR" which contains the details.

WIA AWARDS
I wish to draw to the attention of all future applicants for WIA awards the following points:—

(i) Verification — Rule 4.3.
This rule states that the OSL (or other written evidence) must contain the six bits of QSO information to qualify for award acceptance. I still receive some applications which are unacceptable because some essential information is missing. This frequently occurs when applicants are submitting lists certified by two other hams (see Rule 4.5). The most frequent omission is the location of the station worked.

(ii) Applications — Rules 5.1 and 5.2.
The WIA makes no distinction between members and non-members and will issue awards to any ham who submits the required QSLs for qualification. However, approximately half the applications or general enquiries requiring a reply, which are received from our full members, do not contain any SASE or donations for postage. Brian VK5CA handed this job over to me in a reasonably healthy financial state, but the financial reserve is gradually dwindling. Within a few months I may not be able to reply to enquiries which do not contain return postage.

Good hunting. ■

AR ADDRESS LABELS

Please check your call sign, name, initials, address, grade and other details on your address labels.

Advise any corrections NOW to your Division or direct to WIA, Box 150, Toorak, Vic. 3142.

- The coding on the label reads: Letter Numeral Two digits One digit Two digits Grade Division Unused Distribution Zone.
- The Call Book data derives from the same EDP file.

CONTESTS

Wally Watkins VK2DEW
Box 1065, Orange 2800

October:

6/7	VK/ZL/OCEANIA PHONE
13/14	VK/ZL/OCEANIA CW
13/14	RSGB 21/28 MHz PHONE
20/21	RSGB 7 MHz PHONE
20/21	JAMBOREE ON THE AIR
27/28	CO WORLD WIDE DX PHONE

November:

3/4	RSGB 7 MHz CW
3/4	ARRL CW SWEEPSTAKES
17/18	ARRL PHONE SWEEPSTAKES
24/25	CQ WORLD WIDE DX CW

1979 CQ WORLD WIDE DX CONTEST

Phone October 27-28 and CW November 24-25. Starts 0000 GMT Saturday, ends 2400 GMT Sunday.

Objective: For amateurs around the world to contact other amateurs in as many zones and countries as possible.

Bands: All bands 1.8 through 28 MHz.

Type of Competition: Single operator, single or all band. Multi operator all band operation only, single or multi transmitter. QRP single operator, not over 5 watts output.

Number Exchange: Phone, RS report plus zone (5705). CW, RST report plus zone (57905).

Multiplier: 1. A multiplier of one for each different zone contacted on each band. 2. A multiplier of one for each different country contacted on each band.

Stations are permitted to contact their own country and zone for multiplier credit.

Points: 1. Contacts between stations on different continents are worth three points. 2. Contacts between stations on the same continent but different countries one point. 3. Contacts between stations in the same country are permitted for zone or country multiplier but have zero point value.

Scoring: All stations, the final score is the result of the total OSO points multiplied by the sum of your zone and country multiplier.

Awards: This year first place certificates will be awarded to Australia only, not for each call area due to poor number of entries in the past. Single operator stations must show a minimum of 12 hours of operation. Multi operator stations must operate for a minimum of 24 hours.

Full details in "CQ" magazine.

REMEMBRANCE DAY CONTEST 1979

There were two errors in the rules as set out in July Amateur Radio and Amateur Radio Action. I can assure everyone that the correct rules were sent to the editor but they were changed without my consent or knowledge. The example of the SWL log was changed from that submitted and caused confusion and some hard words during the contest as well as some strongly worded comments on logs submitted. Due to the late delivery of July "AR", mid-August in NSW, I will be taking a lenient view of logs where the minor changes are involved. ■

AROUND THE TRADE

NEW DC-10MHz OSCILLOSCOPE FROM BWD

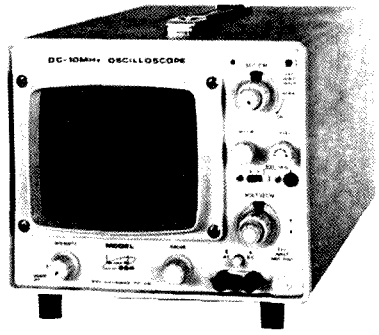
The new BWD 804 just released by BWD Electronics Pty. Ltd, is an economically priced Single Beam Oscilloscope.

A most useful feature of the BWD 804 is its isolated ground.

The vertical amplifier sensitivity range is from 10 mV/cm to 50V/cm and it has a constant DC-10 MHz 3dB bandwidth.

The time base ranges from 200nSec to greater than 0.1 Sec/cm in six calibrated steps and has a continuously variable vernier control.

Calibration is better than 5 per cent over a wide temperature range and an input supply voltage range of 200 to 265V or 100 to 132V as selected.



In addition to normal oscilloscope applications in audio, industrial, education and servicing fields, it is an excellent X-Y-Z monitor for analogue or digital displays.

Further details are available from BWD Electronics Pty. Ltd., Miles Street, Mulgrave, Victoria 3170, or PO Box 325, Springvale, Victoria 3171. Telephone: (03) 561 2888, or from their authorised National or International representative. ■

GFS Electronic Imports have just announced the release of three new MFJ Electronic Morse Keyers and four new antenna couplers.

The MFJ-484 Grandmaster is the top of their range with a memory of up to 400 characters which may be used as up to twelve 25 character messages, plus one 25 to 100 character message. Also featured on the Grandmaster are a built-in monitor, speed, weight, tone and and delay repeat controls, plus built-in memory saver. Other features are dot-dash memories, Iambic operation and solid state keying.

The MFJ-481 Memory Keyer can store up to 100 characters in two 50 character messages. It features speed, volume and tone controls, plus a repeat function for repeating messages, as well as a tune function for transmitter tune-up. Built-in memory saver for loss of power and solid state keying.

MFJ's economy keyer, the MFJ-402, makes use of the new Curtis 8044 Keyer IC. It offers variable speed, internal pre-set weight control, built-in paddle, dot-dash memories and solid state transmitter keying.

Top of the line antenna tuner is the new MFJ-984, "3 kW Versa Tuner IV", which features a built-in 0-10 amp RF ammeter, SWR/0-200, 0-2 kW power meter, dummy load, 7 position coax switch and 4 : 1 balun. It is suitable for matching coax line and balance line up to 3 kW PEP power. Both tuning capacitors are 500 pF and rated at 6000 volts.

Next in the line is the MFJ-982, "3 kW Versa Tuner IV", which has all the features of the MFJ-984 except the SWR/power meter, RF ammeter and dummy load.

Lower down the power scale are the models MFJ-962 and MFJ-961, "1.5 kW Versa Tuner IIIs".

For more information contact GFS Electronic Imports, 15 McKeon Road, Mitcham 3132, Victoria. Phone (03) 873 3939. ■

LINEAR AMPLIFIERS

Vicom announce the availability of a new line of VHF Linear Amplifiers produced by the Tono Corporation for 146 MHz, 435 MHz and 28 MHz, with out put powers ranging from 30 to 130 watts.

Initially, the 146 MHz units will be available: the MR-1300E and the MR-900E.

The MR-1300E has an output power of 130 watts when driven with 15 watts and the MR-900E 90 watts under the same conditions. Both units employ a receiving RF amplifier which gives a gain of 13 dB.

Technically, these amplifiers offer increased performance because of a stabilised bias voltage using a special AVR circuit. Changeover from receive to transmit can either be manually controlled or carrier operated using a Schmidt circuit.

Further details can be obtained from Vicom, 68 Eastern Road, South Melbourne. Phone 699 6700. ■

AUTOMATIC ANTENNA TUNER

Daiwa Corporation of Japan have automated one of the last areas of amateur equipment to be automated.

Daiwa's Australian representative, Vicom, have just announced 500W PEP and 2.5 kW versions of an automatic antenna tuner.

The principal behind the operation is the use of the voltage sensed in a mismatched condition to control a servo motor which in turn can vary inductance or capacitance, thus reducing the detected reverse power from the load to a minimum.

In operation, either unit is switched to the band desired and the antenna to be used is selected. Provision is made for either of two antennas to be used. Matching is roughly done manually so that SWR is around 5 : 1 and when switched to automatic, final matching is completed by automatic control. When minimum SWR ratio is achieved it will be below 1.5 : 1. If required, finer tuning can be done manually.

Each unit contains a cross needle meter to indicate actual SWR, and a dummy load is included for initial setting up on the frequency it is desired to use.

Power required is 13.8 volts at about 0.2 amp and output impedance that can be matched range from around 10 ohms to 300 unbalanced.

LED readouts are used to indicate power ranges and motor action.

It is claimed that frequency excursions over a band will be simplified during base station contest working, and also for mobile operation where major frequency changes currently require returning of antenna or matching network.

Full details and pricing are available from Vicom, 68 Eastern Road, South Melbourne. Telephone 699 6700 or their dealers. ■

VICOM GAINS EXPERIMENTAL LICENCE

Vicom International Pty. Limited has received approval to run a VHF/UHF colour television translator and an FM transmitter at the coming EEEMC Exhibition to be held at the Sydney Showgrounds from 16-19th October.

The translator will be a Hirschmann 10W unit featuring high quality construction with unique failsafe systems and meets the Australain Broadcasting standards and CCIR specifications.

Hirschmann is an Austrian based company specialising in VHF/VHF and VHF/UHF television translators from 1 watt to 2 kW.

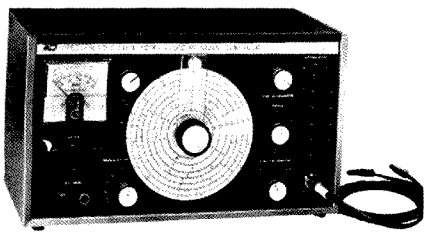
The FM transmitter will be run on equipment supplied by CCA Corporation of USA and will operate on 88.90 MHz.

The equipment can be seen running at stand 28 at the EEEMC Exhibition. ■

SOLID-STATE RF SIGNAL GENERATOR

The new B & K Precision Model E200D RF signal generator features solid-state circuitry. Six indi-

vidually shielded step attenuators plus variable fine output level control with calibrated meter provide widest range of outputs with known signal levels. Double shielding eliminates spurious radiation even at outputs at 1 uV and the internal crystal calibrator has an accuracy of better than 0.1 per cent. Generates 100 kHz to 54 MHz on fundamentals and 54 to 216 MHz on harmonics.



For further information contact Bruce McCarthy, Parameters Pty. Ltd., 68 Alexander Street, Crows Nest, NSW 2065. Phone: 439 3288. ■

EDDYSTONE DIECAST BOXES

The Eddystone Company have added two new water-resistant boxes and one new conventional type size to their range.

The water-resistant models are fitted with a Neoprene sealing ring and finished in Hammer Grey stove enamel. An earth connection facility is provided inside the boxes.

The new conventional type box measures 119 mm x 93 mm x 32 mm.

Full details are available from R. H. Cunningham Pty. Ltd., PO Box 4533, Melbourne, Vic. 3001. Telephone (03) 329 0633. ■

VICOM HAM NEWS

Vicom have just released their latest Ham News which is their Newsletter bringing news new releases, and technical tips.

Icom have released their IC511 which is a 6 metre companion to the IC211 and the IC701. A very welcome addition to the range.

Japan Radio Co. have released a very fine transmitter — the NSD505 — as a companion to their NRD505 receiver.

Vicom also have a synthesised two metre handheld.

Also included in the newsletter is the announcement of the expansion of the Professional Division of Vicom during 1979.

A very newsy and informative newsletter from Vicom. ■

VICOM APPOINTED LEADER DISTRIBUTOR

Vicom International Pty. Limited has been appointed Australian distributor for Leader Electronics Corporation. The agency was previously held by Warburton Franki Industries.

Leader manufacture an extensive range of high quality test instrumentation, including oscilloscopes, counters, chart recorders and specialist audio equipment.

The range is well priced for both hobby and professional use and is backed up by technical support from Vicom's Melbourne office and their interstate distributors. ■

DIVISIONAL NOTES

VK2

1979 GOLD COAST HAMFEST

The second annual Gold Coast Hamfest will be held on Saturday, 3rd November.

The Hamfest will feature mini lectures; trade displays; a demonstration station with HF UHF, ATV and RTTY; flea market; junk shop; book shop; competitions; plant sale; cooking demonstration and many other items for the whole family.

Amateur Radio Awards will be on show and the Ham of the Year Award for the Gold Coast area will be made.

The Hamfest will be held at the Burleigh Heads Scout Hall on Saturday, 3rd November.

A Hamfest Contest will be held from Saturday, 27th October, to Saturday, 3rd November.

One contact per band per 24 hour period with a member of the Gold Coast Amateur Radio Society.

Full details may be obtained from the Club and logs may be returned at the Hamfest or by post at PO Box 558, Southport 4215, before Saturday, 17th November. ■

BLUE MOUNTAINS AMATEUR RADIO CLUB FIELD DAY

The Blue Mountains Amateur Radio Club will be holding its annual Field Day on Sunday, 25th November, 1979. The venue this year will be Springwood High School, Grose Road, Springwood. Home-brew competition, auction and various events will be staged throughout the day. Registration will be $2 for adults and $1 for students if competing in the events, otherwise free admission to all. So come and meet your fellow amateurs in the mountains and have an enjoyable day. Further details from PO Box 54, Springwood 2777.

VK3

AMATEUR RADIO LTD.

During the late sixties when the Victorian Division was located at 478 Victoria Parade it was apparent that we would need to look for new premises. To this end to increase the value of the property the Council decided to buy up neighbouring properties. The potential for borrowing money was soon exhausted and the Council considered selling Debentures. Because the Division had no charter to sell debentures a subsidiary Company was set up for that purpose which was called Amateur Radio Limited.

Two hundred and eighteen $50 debentures were sold to members with a rate of 4 per cent per annum. The debentures became due for repayment in December 1978. Because the continually rising cost of running the Company (AR limited) offset the low rate of interest the Council decided to completely pay out all money owed. The Company will be kept in some form to protect the name. To close all activity of Amateur Radio Limited members were asked to either donate their debentures for the purpose of mortgage reduction or claim their money back.

As at 17-6-79 $2,200 has been donated for the reduction of mortgage and $5,350 has been redeemed. The total of $7,550 eliminates most of the debt owned by AR Limited. We would like to gratefully acknowledge the names of the following persons who donated their debentures for the reduction of mortgage of the Victorian Division. A number of others not listed here have donated their debentures to WARC and other Institute activities.

W. J. Falconer VK3AWF, A. B. D. Evans VK3VQ, K. V. Scott VK3SS, E. Chick VK3GG, Mrs. M. A. Henry VK3YL, W. M. Rice VK3ABP, W. G. H. Daniel VK3NX, A. I. Morrison VK3ZBY, B. L. McCubbin VK3SO, C. H. Utber VK3AHU, R. F. Lloyd VK3KK, A. D. Costello VK3YT, A. J. Stewart VK3AS, E. A. Phillips VK3BIX, F. J. Sullivan VK3ZJ, K. J. Horan VK5IT, Dr. P. S. Lang VK3ADN, H. G. Hodge VK3HE, C. N. Pickering VK3ATP, A. M. Goode VK3BDI, I. Tarbit VK3AL, O. T. Lucas VK3AVX, H. S. Voake VK3AVQ, Dr. F. K. McTaggart VK3NW/VK2BNW, J. B. Payne VK3AZT, E. M. Clyne VK3HZ, W. R. Blakeley (Deceased), Ron Jones VK3WL, B. H. Thomas VK3ZQF, P. D. Carter VK3AUO, I. C. McKellar VK3ZAM.

Issued on behalf of the Directors of Amateur Radio Limited which is also the Council of the Wireless Institute of Australia, Victorian Division.

MELBOURNE TWO METRE FOX HUNT

The winner of the VICOM competition for the best performance in the monthly two metre fox hunt was won by Greg Williams VK3ZXW. This competition ran over a twelve month period and concluded in July 1979. The competition was sponsored by VICOM and put a great deal of competition into the fox hunt.

Greg Williams VK3ZXW put up a fine performance in a very close contest. Greg was presented with the prize of an IC22S by Russell Kelly VK3NT from VICOM.

Russell Kelly VK3NT of VICOM presenting the IC22S to Greg Williams VK3ZXW.

Greg was pushed all the way by spirited competition from Ewen VK3BMV and Martin VK3YJM.

The fox hunt, which is held on the third Friday of each month, was very well attended during the period. The support of this activity by VICOM in this way is much appreciated. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1979 Call Book.

FOR SALE

Realistic DX-160 General Coverage RX, little use, in good cond., price $110. Brian VK4ST, QTHR. Ph. (071) 91 1172.

Multi 7. Sell xtals T. and R. new for Ch. 44, or swap for Ch. 47 or 43. VK5WG, QTHR.

Slewa SV230 FM Txcvr, 25W, simp. 40, 50, 51, rpts 2, 3, 4, 6, 8. $160. P. Willmot (03) 772 1802.

Grandmaster Memory Keyer MFJ 484, latest model with no less than 12 porgrammable memories, some of which can be switched together for long messages, includes power supply and Browns famous twin paddle, all in mint cond., $160, ONO. VK2BEK, QTHR. Ph. (02) 476 5096.

Kyokuto 2m FM Tcvr., fully synthesised, with manual, accessories, etc. $225; Yaesu FT75B HF mobile or base rig, 80-10 SSB 120W PEP, AC and DC supplies included, manual and accessories, $375; HA800 Lalayette Rx, AM USB, LSB, 160 through 6m, good cond., manual and accessories, $100; Barlow Wadley RX, .5 to 30 MHz, USB, LSB, cont. coverage, $150; miniscope soldering iron and transformer plus spares, $20. VK2AOE, QTHR. Ph. (02) 449 6364.

ICOM IC 280 2m FM Transceiver, 8 months old, mint cond., $400, ONO; may consider trade of IC22, A-S. VK3YMW. Ph. (058) 21 9458.

Galaxy V Mk. 2 Transceiver with external remote VFO, instruction manual and spare output valves, $250. Bill Thomas VK5BE, QTHR. Ph. (08) 258 6070.

FT620 6m Transceiver, 50-54 MHz coverage, good condt., recent Tx and Rx check to spec., LO board improved, $350. VK4ZZI, QTHR. Ph. (07) 224 6875 Bus.

Xtls 10 to 2 MHz IF Rx R1, 2, 4, 6, 7, 8, Simplex 40, 49, 50, 51, R3 Input Rx, $5 each. VK3YNB, QTHR.

Kenwood TS120S 200W PEP HF 10-80m Transceiver, brand new with English manual, $580. Bill VK3SB, QTHR. Ph. (03) 550 3521.

QST, January 1945-December 1975; what offers for the lot; repeat, the lot. VK3AKZ, QTHR. Ph. (03) 24 6149 A.H.

Standard C6500 Comm. Rx, 0.5-30 MHz, AM, SSB, CW, 240V AC or 12V DC, as new in carton, $285. VK3UJ, QTHR. Ph. (03) 874 5632.

Tandy TRS80 Home Computer, 16k ram, level 1 basic, with chess, machine language and assembler programmes, cost $1300 sell $950; QM70 70 cm linear with blower, 40W output, $75; Hills telescopic aerial pole, 5 sections 10 to 50 ft. high with guys, $50; 10 el. 2m yagi, $25. Ph. (02) 888 2475.

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Teletype Model 19 Page Printer-Perforator and model 14 transmitter distributor. Ph. (02) 623 1137.

Yaesu 101B, one owner, all plugs, matching loudspeaker, mic., hand book, in excellent cond., no mods., $585. VK6HE, QTHR. Ph. (09) 293 2160.

Kyokulu 2m Transceiver, $280; Tram XL5 transceiver, modified to 10m, $180; Kenwood KP202, $140; all good cond. VK2WW, QTHR. Ph. (02) 546 1927.

Kenwood TS520S, absolutely new, never used, in original package, urgent sale because of illness, still in warranty, genuine bargain, $550, ONO. 17 William St., Henley, via Gladesville 2111. Ph. (02) 89 2530.

Yaesu 101E, as new, few hours use only, c/w box, book, fan, AC/DC, mike, etc., $650; also FT101, looks and works like new, $450; both used by myself only. VK3SS, QTHR. Ph. (051) 47 2265.

Icom IC22S VHF Transceiver S/N 62013629, perfect cond, completely unmodified and complete with all accessories and RF cable, $250; amateurs only. Ph. (07) 48 7434 A.H.

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Mocom 35 UHF Mobiles: 2 x 2 ch. 10W 450-570 MHz FM tcvrs, suit amateur conversion, one complete with mic., mounting cradle and h/book, other missing knobs and front panel, both very good cond., $120 the lot, or will separate. D. Horton VK3ZHY. Ph. (03) 347 0439.

Microwave Modules MMT 432/28 Transverter, brand new, $180; MFJ941, ATU, 1.8-30 MHz, includes SWR, power meter and 5 pos. antenna switch, ideal for portable use, brand new, $80. G. H. Herden VK5ZK, QTHR. Ph. (08) 297 4950.

Yaesu FT101E, AC-DC with CW filter, $650; TH3JNR with balun, as new, $130; SL55 audio notch filter, $85; HC500 ATU, $90, or offers. VK2NQI. Ph. (02) 636 2414.

Ampex 7003 1 in. Video Tape Recorder, B. & W., modified to high band, only requires corrector for colour, c/w 6 tapes. Ph. (063) 62 3464 A.H.

FM144 2m Transceiver, $270; KP202 2m transceiver, $150; freq. counter DFM 600, $360; multimeter Sanwa EM300, $50. VK3GQ, QTHR. Ph. (03) 306 8336 after 16.30h.

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Rotator COE ARR22XL with control box, hardware, inst., little use, as new, in carton, $95; mic. desk, Turner super side kick, in-built preamp, mint cond., inst., circuits, carton, $35; monitorscope, Yaesu YO 301, complete accessories, inst., manuals, mint cond., carton, $285; KW E-Zee Match ATU, $40. VK2BXU. Ph. (02) 57 4648.

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Kenwood TS520S, 3 months old, perfect cond., unmodified, in original package, never used, still has 3 months Kenwood warranty, $650. David VK2VBD, Wollongong. Ph. (042) 61 1635.

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WANTED

Radio and Hobbies, May 1939 (Vol. 1, No. 2), August 1940 (Vol. 2, No. 5), Novmeber 1940 (Vol. 2, No. 8). Jim Gordon VK3ZKK, QTHR. Ph. (03) 870 1745.

Duo-Band or Small Tri-Band Beam (TH3JR or similar, will pay top price for good unit, will reimburse all correspondence costs. VK3VFK, QTHR. Ph. (051) 52 3137 Bus., (051) 56 8310 A.H.

Urgently. Copy of instruction manual or circuit diagram (with voltages) for Heathkit oscilloscope, model OM3. T. Tongs VK7TT, QTHR.

Geloso SSB Tx, model G4/225, any cond., VK2ATE, QTHR. Ph. (048) 61 2725.

Early Spark Gear, helix and interruptor coils, hornspeakers, old morse keys, any cond., battery B/C sets, table cylinder horn phono, early TV eqpt. VK4SS, 35 Whynot St., West End, Brisbane 4101.

Dead Ken KP202, hand-held or sim., in any cond., for spare parts and/or possible resurrection. Richard Cowles. Ph. (02) 699 9403 A.H.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. D. S. T. J. SORAGHAN	VK2PU
Mr. N. F. TAYLOR	VK2ASQ
Mr. C. A. WALCH	VK7CW
Mr. E. L. BENNETT	VK3YHB
Mr. H. D. BOAST	VK3AX
Mr. D. G. SEMMENS	VK3AEY

OBITUARY

FRED CARRUTHERS **VK2PF**

Fred Carruthers QRT on 10th July, 1979, following an intermittent illness which had plagued him for the past year. He was 74 years of age, and had lived a full and happy life. Although he was an active amateur operator for most of his life, his amateur activities were particularly rewarding for him in his later years.

His Certificate of Proficiency was issued on 12th May, 1933, and in his early years as an amateur he was very active in WIA work. His technical skill was put to good use in the service of his country when in 1940 he was called from the reserve and entered the Army Signal Corps as an officer, where he served throughout World War II. On return from active service, he resumed his amateur activities, and soon became recognised as an avid DXer and award hunter. He held DXCC No. 105, issued on 15th July, 1967, and also the Certificate Hunters' Club membership No. 3435, bearing the Achieved 50 Awards seal. He also held the ARRL Old Timers' Club membership issued on 20th September, 1966, and the Old Timers' Club (Aust) membership issued on 11th May, 1977. In addition, he was a member of the Royal Signals Amateur Radio Society.

On the local scene, he was a keen member of the Summerland Amateur Radio Club at Lismore and used his expertise as a lawyer to give much valued guidance in the formative years of the Club. He was a regular caller on the VK2 so-called 3695 net, which is a perpetual morning feature in the eastern States, providing a forum for debate on any subject known to man. Right up to the time of his last illness, and even afterwards direct from hospital when he was well enough, he could also be heard regularly on the morning net through Summerland Repeater VK2RIC.

He is sadly missed by his family and all who knew him.

From Fred Herron VK2BHE.

Valves, 4X150A (7034, CV2519) or 4CX250B, also base and chimney to suit. Box 70, Frenchs Forest 2086. Ph. (02) 451 0818.

National HRO Rx or similar, also circuit for Marconi CR150 Rx. VK2AJT, QTHR. Ph. (044) 22786.

EXCHANGE

Icom IC22S 2m FM Tcvr, in mint cond., for HF QRP transceiver and cash, adjust either way. VK2BVH, QTHR. Ph. Brian (02) 525 2547.

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QSL Cards, Log Books, Contest Sheets — send 20c stamp for samples and prices to Linda Luther VK4VV, PO Box 498, Nambour, Qld. 4560.

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Before you invest in new amateur communications equipment or accessories, spare 60 seconds to read this advice.

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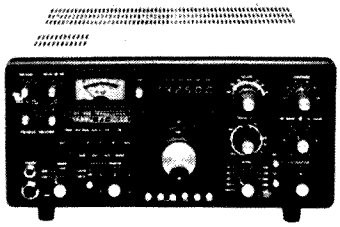
A selection of the equipment available from Bail.



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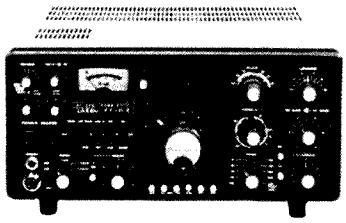
High-performance HF Transceiver with today's technology backed by a proud tradition. This rig includes variable IF bandwidth, digital plus analog frequency display, a built-in RF speech processor, and wide receiver dynamic range.



FT-101Z, Analog Model:
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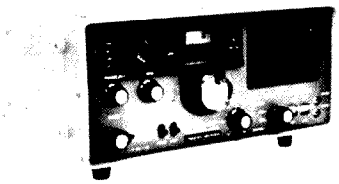

FRG7 Synthesized Receiver.
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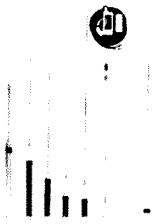
YH 55

YD-844



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BAIL ELECTRONIC SERVICES

HAM RADIO SPECIALISTS

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 11 NOVEMBER 1979

FEATURED IN THIS ISSUE:

- ★ DIAMOND JUBILEE OF THE S.A. DIVISION
- ★ SUNSPOTS, DX AND GETTING AMONGST IT
- ★ WHAT'S LEFT FOR THE NOVICE
- ★ REPEATER TIMER TIMER
- ★ 1979/80 ROSS HULL MEMORIAL CONTEST RULES

Registered for posting as a Publication — Category "B".

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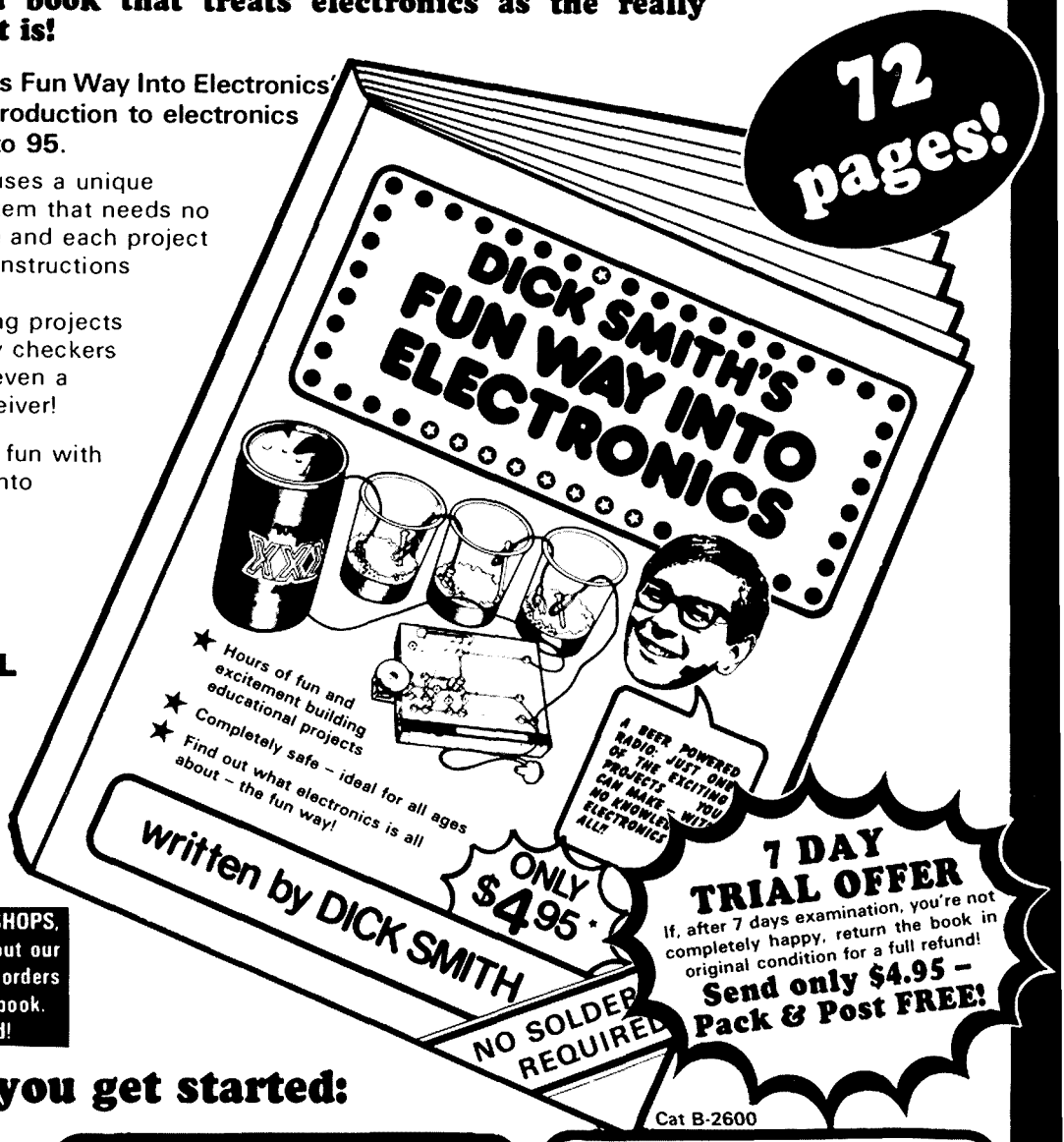

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This kit contains slightly more specialised components which, with the components in kit 1, will enable you to make the last ten projects, including radio receivers & transmitters, audio amplifiers, etc.

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PO Box 2611W, GPO Melb., 3001

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GENERAL

DEPARTMENTS

Cover Photo

STILL GOING STRONG!

Eric Bierre VK2BEK at his amateur station, is in his 80th year and has been licensed since 1924. Eric describes his first rig as a receiver with regenerative detector and two audio stages.

The transmitter was a 210A valve with a Ford coil supplying plate voltage. This created ICW and also bad QRM locally. He was told to stop using this until he could provide filtered DC for the plate supply. This was smartly done using a dynamotor run from a 6 v[illegible] battery and supplying 500V DC. He could then transmit for an hour and then charge the battery for the next 23 hours. The aerial was the last word in those days — an 8 inch cage and a counterpoise.

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VIC.:
President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. J. A. Adcock VK3ACA
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Gen. Mtg. — 2nd Wed., 20.00.

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Broadcasts— 1825, 3580, 7146, 14342, 21175, 28400, kHz; 2m (Ch. 42, 48): 09.00 EST.
Gen. Mtg. — 3rd Friday.

SA:
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Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.
Gen. Mtg. — 4th Tuesday, 19.30.

WA:
President — Mr. Ross Greenaway VK6DA.
Secretary — Mr. Peter Savage VK6NCP.
Broadcasts— 3560, 7075, 14100, 14175 kHz. 28.485, 52.290 MHz. 2 metres Ch. 2 Perth, Ch. 6 Wagin. Time 0130Z.
Gen. Mtg. — 3rd Tuesday.

TAS.:
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Secre'ary — Mr. P. T. Blake, VK7ZPB
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Secretary — Graeme Challinor VK8GG
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Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

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HISTORY

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QSP —

It is fitting that this QSP should come from South Australia, as it was on 5th November, 1919, that the first General Meeting of the South Australian Division, at which a constitution was adopted and office bearers elected, was held. Thus this month the VK5 Division celebrates its Diamond Jubilee. The first meeting at which interim office bearers were appointed had been held earlier in the year on 10th September, 1919.

Ever since, the members of the Division have had their rights protected by the constitution and have been able to have their say by voting on any and all matters affecting the running and representation of their organisation. I believe that all of the Divisions within the Wireless Institute of Australia have followed a similar path.

In later years with the formation of the Federal organisation the same democratic process has been followed right through from Divisional level to the Federal level and the policy making Federal Conventions.

It has often been said that for a group of people who are supposed to be communicators we are sometimes not very good at communicating.

To communicate anything, several functions must be carried out. Firstly, develop an idea. Secondly, find someone to transmit the idea to. Thirdly, the person receiving MUST LISTEN.

By listening one can become informed, but herein lies the crux of the matter. If the original idea or statement is incorrect in fact, the person listening will therefore become ill-informed. As in radio if the receiver adds distortion the true and correct message is not received. If the original idea is not quite right the person listening can act as a HISTORY, your legacy; Democracy, your privilege, CONTRIBUTIONS, your responsibility **filter, provide feedback, either positive or negative, make a conversion process etc., thus improving the "signal" which may then be transmitted far and wide.**

(continued page 5)

WIA (FEDERAL) DIRECTORY

MEMBERS OF EXECUTIVE
Dr. D. A. Wardlaw VK3ADW, Federal President.
Mr. P. A. Wolfenden VK3ZPA, Exec. Vice-Chairman.
Mr. K. C. Seddon VK3ACS, Member.
Mr. H. L. Hepburn VK3AFQ, Member.
Lt.-Col. J. McL. Bennett VK3ZA, Member.
Mr. C. D. H. Scott VK3BNG, Hon. Treas.
Secretary: Peter B. Dodd VK3CIF.

IARU LIAISON OFFICER AND IMMEDIATE PAST FEDERAL PRESIDENT
Mr. M. J. Owen VK3KI.

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Mr. A. W. H. Chandler VK3LC.

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FEDERAL CONTESTS MANAGER
Mr. W. A. Watkins VK2DEW

FEDERAL AWARDS MANAGER
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Mr. K. G. McCracken VK2CAX.
Mr. L. Janes VK3BKF.
Mr. G. C. Brown VK3YGB.

AMATEUR SATELLITES
Mr. R. C. Arnold VK3ZBB.

FEDERAL WICEN CO-ORDINATOR
Mr. R. G. Henderson VK1RH.

VK/ZL/O CONTEST MANAGER (VK)
Mr. N. R. Penfold VK6NE.

FEDERAL VIDEOTAPE CO-ORDINATOR
Mr. J. F. Ingham VK5KG.

FEDERAL COUNCILLORS
Please see main Directory.

ALTERNATE FEDERAL COUNCILLORS
VK1 — Mr. A. Davis VK1DA.
VK2 — Mr. P. B. Card VK2ZBX.
VK3 — Mr. A. R. Noble VK3BBM.
VK4 — Mr. D. T. Laurie VK4DT.
VK5 — Mr. C. J. Hurst VK5HI.
VK6 — Mr. P. J. Savage VK6NCP.
VK7 — Mr. P. D. Frith VK7PF.

When you think about it, isn't this the mechanism of the democratic process the WIA follows? By debate at meetings, suggestions, action of committees, we develop a line of approach hopefully producing in the final analysis a result for the betterment of amateur radio and your organisation.

One thing you do know and that is "that if there is no input you will get no output."

One of the most important aspects of these functions as regards the WIA, is the fact that, like it or not, for member and non-member alike, the Institute is recognised by the authorities as the only official spokesman for amateur radio in this country.

So, let's all be transmitters and provide an input. Also act as receivers and become informed. Filter out un-informed information, don't take notice of divisive and distorted views. Distortion is one thing to be well rid of. Use the democratic process, proven by tradition and time, which is open to you. It is in your own interests to support your hobby and your organisation in this way.

The oldest amateur radio organisation in the world with proud traditions can only retain its pride and effectiveness through YOU, the member. Make sure that you can be proud of your contribution to YOUR hobby and YOUR organisation. Contribution is YOUR responsibility.

Help provide a united front for amateur radio.

To use an old and traditional cliche: "In unity lies strength".

IAN HUNT VK5QX,
Divisional President of SA Division. ■

QSP

EXHIBITION OF APPARATUS
According to a publicity release the Fair Association of Vincenza in collaboration with the ARI (Italian Association of Radio Amateurs) is arranging an exhibition, including components and amateur radio equipment, in Vincenza from 8th to 10th December. The exhibits also include microwave processor systems and various industrial equipment and will provide a meeting place for everybody to exchange ideas, comparisons and experiences. ■

IYC
1979, the International Year of the Child. A brochure asks "What can you do?", and then goes on to list examples of what can be done. Most of these look rather familiar in the context of amateur radio activities year in and year out as an ongoing commitment. One has only to think of dedicated amateurs instructing the young in Youth Radio schemes these many years, JOTA and other activities involving amateurs locally, not forgetting the international aspects of this first class leisure activities. ■

WIANEWS

TV CHANNEL 5A

The following is the text of a letter dated 20th September received by the Federal President from Mr. A. A. Staley, Minister for Post and Telecommunications —

> *"On the 27 March 1979 you forwarded to me a copy of your Report on Increasing Usage of Television Channel 5A. The Secretary of your Institute (Mr. P. B. Dodd) has also sent me copies of attachments to the report.*
>
> *I have already advised you that I agreed that there should be no further allocations of Channel 5A until a detailed report is prepared following WARC 79. The question of allocations already made, but where the stations concerned are not yet in service, is still being studied.*
>
> *I have read your report with interest and it is being carefully studied at present by my Department. However, the questions raised are complex and it will be some time before detailed comments can be produced. You will realise the extreme difficulties involved, both from a financial and timetable viewpoint, in changing the channel of projects that are already well advanced. It is to be expected therefore that a significant number of 5A stations will still come into operation over the next 12-18 months."*

The final paragraph is considered to be of sufficient importance to require clarification, particularly relating to the meaning of "5A stations".

Readers may wish to refer to the Press Release published in June AR.

HANDBOOK

Since publication of the statement on page 31 of September AR a copy of the latest draft of the Handbook has now arrived. This could in fact be the proof for the final printed copy.

The new draft includes a great number of appendices which incorporate the syllabus for the AOCP and Novice theory examinations, 50 sample multi-choice questions for each, 30 sample multi-choice questions on Section "K" (Regulations), the contents of various forms such as the RB125 and RB125A, an update of the pamphlet about good radio and TV reception and other data.

Readers are reminded that the details in any such Handbook cannot conflict with the WT Regulations. The Handbook is merely an interpretation of these Regulations.

The chapter on definitions has been expanded. In general, any new definitions follow the broad ITU equivalents — such as "harmful interference", "occupied bandwidth", "spurious emissions" — whilst others include "operator", "repeater/translator station", "session", "simplex operation", "slow scan television", "television", "third party", "beacon station", "club station", etc. A few definitions have been expanded or clarified, as for example —

> *" 'Mobile station' means a station in the amateur service that is installed in a vehicle, aircraft, ship or any other means of transport and is normally used while the vehicle, aircraft, ship or any other means of transport is in motion, or during halts at unspecified locations. A station carried by a pedestrian is included in the above definition, but see also 42(b) below."*
> *see also 4.2 (b) below."*

It is manifestly impossible to isolate all the various differences between the existing and the proposed Handbooks in the space available here. The "statement" referred to covers many of the main differences.

Identification has been increased from 5 to 10 minutes. RTTY (and similar) stations will have to ident in the mode in use as

well as CW or telephony. Details and parameters are set down lor automatic radio telegraph systems, facsimile, repeaters, beacons, television and SSTV as well as duplex working, maritime mobile operations, aeronautical mobile and also emergency working. The operation of club stations has been more closely defined and details about reciprocal licensing have been spelt out in greater depth.

Paragraph 29 in the existing Handbook has been expanded as follows —

> *"4.2 As a general rule an amateur station licence authorises the operation of an amateur transmitting and receiving station:*
>
> *(a) at a fixed location detailed in the licence;*
>
> *(b) at any temporary premises or any temporary location, including a vehicle which Is normally garaged at the fixed location detailed in the licence, for periods of up to four consecutive weeks in any one instance. Approval to operate from temporary locations for periods in excess of four weeks may be obtained on written applicatio n to the Superintendent, Regulatory and Licensing in the capital city of the State in which it is intended to establish the station . . ."*

It seems obvious that the new Handbook does not come into operation until it has been published and distributed.

Much discussion has been held with the Department about highly specialised items which the WIA believes should not be subject to examination — one example is the repeater conditions.

REPEATERS

And on the subject of repeaters it is understood that the Department has agreed In principle to the licensing of a 6 metre repeater on trial in VK6 — please see AR for July, page 6.

EDUCATION MATERIAL

During discussions in Adelaide the Federal Education Co-ordinator initiated the production of various kinds of visual aids for training purposes. A number of Divisions have been asked to assist in this work.

MEETINGS

At the Executive meeting on 6th September a lengthy discussion was held on the question of the Federal dues for 1980. It had originally been hoped that at the 1979 Federal Convention these would remain unchanged for the fourth year in succession but from the latest data and inflationary trends prudence dictated that a small increase was essential il the budget is not to go into deficit. A modest increase of $1.50 (from $15.00 to $16.50) on all non-concessionary members has been approved.

1979 CALL BOOK

Sales of the Call Book have been going well. To avoid disappointment members should order now before stocks run out.

WARC 79

WARC 79 has begun. The Executive wishes to acknowledge with grateful thanks the receipt of the following donations from members —

LIST No. 7

VK3ABH	$20.00	VK5KJ	10.00
VK2NDJ	5.00	VK2APW	5.00
VK5ZRL	10.00	VK4QO	20.00
VK3ADR	50.00	VK3BT	10.00
VK3AUC	8.65		

■

THE DIAMOND JUBILEE OF THE SOUTH AUSTRALIAN DIVISION OF THE INSTITUTE

Ian Hunt VK5QX
8 Dexter Dr., Salisbury East 5109

The Wireless Institute of Australia holds the proud position of being the oldest amateur radio society in the world, having been formed before such other well known organisations such as the Radio Society of Great Britain and the American Radio Relay League.

I thought you may be interested to know a little about the formation of the South Australian Division of the Institute which this year celebrates its sixtieth year of operation.

Mr. C. E. Ames, who became the first secretary of the Division, fortunately had the foresight in his time to prepare an account entitled *How the South Australian Division of the Wireless Institute of Australia came to be Formed*. This document, together with the original Minute Book of the Division, have luckily escaped the ravages of time and, still in fair condition, are held by the Divisional Historian, Maurie Philips VK5ZU. The Council of the Division are taking steps to ensure preservation of these documents for posterity.

Access to these documents therefore allows me to provide you with the following information, some of it taken directly from the account by Mr. Ames who, in the year 1914 as a licensed experimenter, held the call sign of XVG.

I now quote directly from that account:—

Ail pre-war radio experimenters will remember that simultaneously with the outbreak of war came notices that all wireless gear was to be dismantled, packed in cases and handed in to the nearest official Post Office. At the cessation of hostilities in 1919, notice was received that our apparatus would be returned to us on application to the postmaster at the office to which it had been delivered in 1914. The same notice made it clear that restrictions on the use of such apparatus still remained in force, and that a continuance of the prohibition against all private wireless experiments must be rigidly observed in accordance with the War Precaution Regulations.

This, with hints thrown out by the press, made it appear that we experimenters were going to have a hard fight to obtain anything like our pre-war freedom, and I began to realise that if we could organise the experimenters, and others interested in wireless development, into a solid body, that we would then be in a position to press our claims.

I well remember passing down a certain street in Mile End, one day on my way home from work, and seeing an aerial which had been erected, and on making enquiries at the house found that it belonged to Mr. Malpas, with whom I had become acquainted in pre-war days as a wireless operator. I mentioned to Mr. Malpas my idea of forming a Wireless Intsitute in this State and he was very enthusiastic about it and encouraged me to go ahead with it. Mr. Malpas was the first person to whom I mentioned the idea of forming the Wireless Institute of South Australia.

I then got in touch with Mr. Malcolm Perry, who was at that time Secretary of the Wireless Institute of New South Wales, and acquainted him with my ideas, at the same time pointing out the advantages that would undoubtely be obtained by the amalgamation of the Wireless Institutes in the various States, and bringing them together as the Wireless Institute of Australia.

I received much encouragement from Mr. Perry and on the 4th April, 1919, at the annual meeting of the Wireless Institute of New South Wales I became a member of that body.

I then caused advertisements to be inserted in the various newspapers in Adelaide calling attention to the desire to form a Wireless Institute in this State, and also wrote to all the pre-war experimenters with whom I could get in touch and received a very encouraging reply from Mr. Hambly Clark, who afterwards became our President.

As a result of advertisements I became acquainted with Mr. Adam Mather, who proved a great help in gathering in members.

The result was that on 10th September, 1919, a meeting was held at my house at Carlton Parade, Torrensville, at which the formation of the Institute to be known as the South Australian Section of the Wireless Institute of Australia was endorsed and a committee was formed, with the object of drawing up a code of rules, comprised of the following members. President, A. Mather; Vice-Presidents, Ralph Lee and Hably Clark; and Messrs. W. H. Smith, D. G. Malpas, H. C. Coles, R. M. Dunstone, R. Wyatt, C. J. Poole and C. E. Ames, Secretary.

It was decided to adopt the rules of the NSW Section until our own new constitution could be drawn up and adopted. The annual subscription was fixed at 10 shillings and sixpence per year.

Present at that meeting were the following, who all became members of this Section: Messrs. A. Mather, R. L. Lee, D. G. Malpas, D. A. Smith, W. J. Bland, H. C. Coles, R. O. Wyatt, C. J. Poole, J. M. Honnor and C. E. Ames. Absent members elected were Messrs. R. M. Dunstone, A. B. Cox, W. Jenkinson, C. J. Spencer and C. Barlow.

A second meeting was held at Carlton Parade, Torrensville, on the 24th September, at which six new members, namely Messrs. T. M. Heagney, R. O. B. Matthews, B. M. Brimage, J. W. Wilkin, J. R. Finlayson and A. G. S. Paine, were elected.

On the 15th October the Council met at the office of Mr. R. O. C. Matthews, Grenfell Street, Adelaide, for the purpose of drafting a set of rules. This was done and at a general meeting called as the first Annual Meeting on the 5th November at the office of Mr. R. M. Dunstone, Alfred Chambers, Currie Street, this new constitution was adopted. An election took place and the following officers were elected: President, J. W. Hambly Clark; Vice-Presidents, T. H. Heagney and R. L. Lee; Hon. Secretary, C. E. Ames; Hon. Treasurer, R. O. C. Matthews; Council, W. H. Smith, W. Harrison, R. M. Dunstone, D. G. Malpas, H. C. Coles, V. R. Cooke.

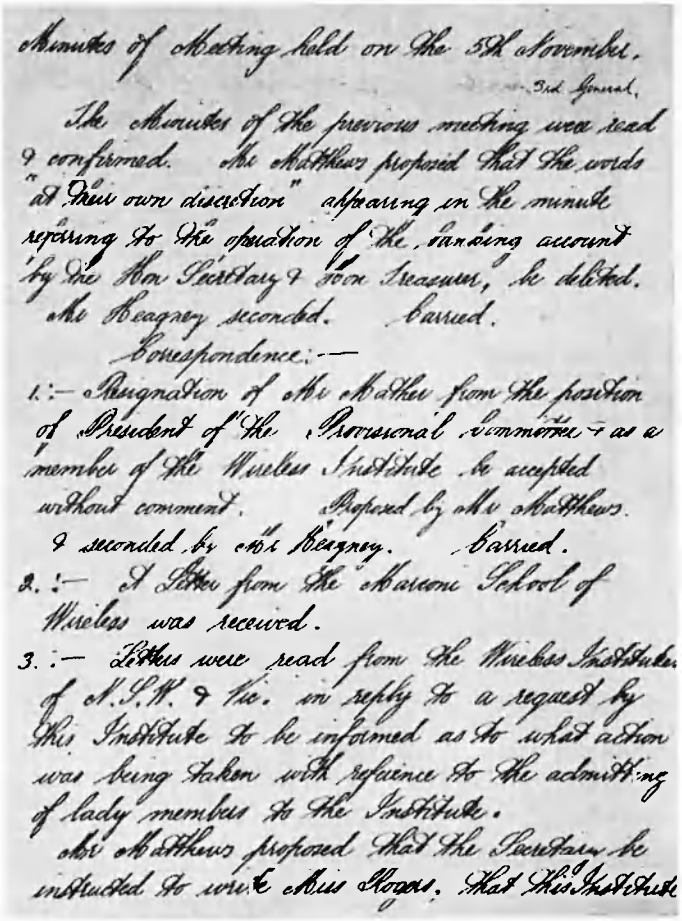
The document written by Mr. Ames is in a most even hand and typical of the old copperplate handwriting which is rarely seen these days. Examples of such writing from the original minute book are reproduced with this article.

It is interesting to note that the Mr. V. R. Cooke mentioned as an elected member of the first Council of the Division is still alive and is an active amateur under the call sign of VK5AC. Roy can be heard most Sunday mornings participating in the 20 metre call-back after the Sunday morning broadcast.

Two interesting snippets from the minute book are the fact that the annual subscription of ten shillings and sixpence, known in those days as "half a guinea", could be paid in two instalments and that very early in the days of the Division it was decided that lady members could not be admitted to the Division.

The Mr. Hambly Clark mentioned as being the first President of the Division was the father of the well known Adelaide identity of the same name who runs a gun dealership in the city.

An excellent book entitled "A History of Radio in South Australia 1897-1977", written by John F. Ross Firee (Aust.), was published last year and includes as the second chapter a total of 66 pages devoted to the history of the South Australian Division and amateur radio



Minutes of Meeting held on the 5th of November.
3rd Annual.

The Minutes of the previous meeting were read & confirmed. Mr Matthews proposed that the words "at their own discretion" appearing in the minute referring to the operation of the Sanding account by the Hon Secretary & Hon Treasurer, be deleted. Mr Beagney seconded. Carried.

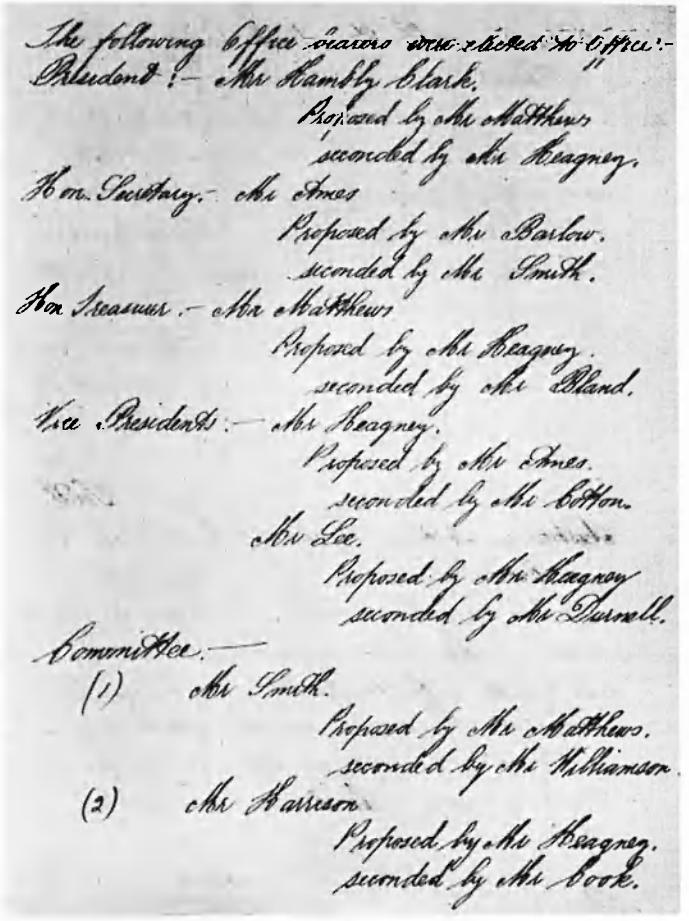
Correspondence:—

1.:— Resignation of Mr Mather from the position of President of the Provisional Committee & as a member of the Wireless Institute be accepted without comment. Proposed by Mr Matthews & seconded by Mr Beagney. Carried.

2.:— A letter from the Marconi School of Wireless was received.

3.:— Letters were read from the Wireless Institutes of N.S.W. & Vic. in reply to a request by this Institute to be informed as to what action was being taken with reference to the admitting of lady members to the Institute.

Mr Matthews proposed that the Secretary be instructed to write Miss Rogers, that this Institute



The following Office bearers were elected to Office:-

President:- Mr Hambly Clark.
Proposed by Mr Matthews
seconded by Mr Beagney.

Hon. Secretary:- Mr Ames
Proposed by Mr Barlow.
seconded by Mr Smith.

Hon Treasurer:- Mr Matthews
Proposed by Mr Beagney.
seconded by Mr Bland.

Vice Presidents:- Mr Beagney.
Proposed by Mr Ames.
seconded by Mr Cotton.

Mr Lee.
Proposed by Mr Beagney
seconded by Mr Durnell.

Committee:—

(1) Mr Smith.
Proposed by Mr Matthews.
seconded by Mr Williamson.

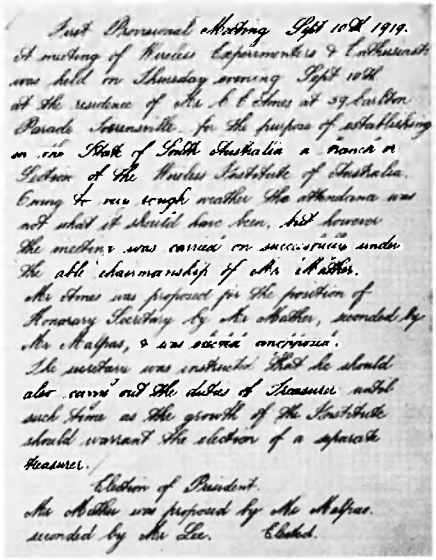
(2) Mr Harrison
Proposed by Mr Beagney.
seconded by Mr Cook.

ABOVE and BELOW: Photographs of Mr. C. E. Ames' handwritten minutes of the WIA SA Division 60 years ago.

operators and contains some of the information given above.

To press forward to later history of the Division, it is noted that in the year 1922 there were 58 financial members on the roll. That compares with a figure of about 1,000 in the year 1979.

Amongst the members listed in that year was a Mr. Robert T. Edgar, who was born in Scotland, educated in Australia, and eventually became an American citizen. His father, the late Robert Edgar, invented several important parts of the great 200 inch Hale telescope on Mt. Palomar, California. Mr. Edgar, Jnr., acted as Honorary Assistant Secretary for the Division and went on to become involved in presenting lectures dealing with space exploration, having previously made predictions about such things as ICBMs, artificial satellites, manned space stations, etc., at which predictions people scoffed. In a brochure in my possession appears the following: *Mr. Edgar, be sure to keep up this good work of inspiring our youth,* said Dr. Wernher Von Braun, world famous rocket expert. At the present time Mr. R. (Bob) Edgar, another member of the same family, is employed as a research scientist at the Defence Research Centre, Salis-



First Provisional Meeting Sept 10th 1919.
A meeting of Wireless Experimenters & Enthusiasts was held on Thursday evening Sept 10th at the residence of Mr C E Ames at 39 Carlton Parade Torrensville, for the purpose of establishing on the Basis of South Australia a Branch or Section of the Wireless Institute of Australia. Owing to very rough weather the attendance was not what it should have been, but however the meeting was carried on successfully under the able chairmanship of Mr Mather.
Mr Ames was proposed for the position of Honorary Secretary by Mr Mather, seconded by Mr Malpas, & was elected unanimously.
The secretary was instructed that he should also carry out the duties of Treasurer until such time as the growth of the Institute should warrant the election of a separate Treasurer.
Election of President.
Mr Mather was proposed by Mr Malpas seconded by Mr Lee. Elected.

bury, South Australia, and holds the call sign VK5RS. Bob has in the past several years had working under his guidance Ron VK5FY, Angus VK5DE, Rick VK5GV, Ian VK5QX, Clive VK5PE, Fred VK5FT, and several other present amateur operators whose names and call signs at the moment I cannot recall, all involved on various scientific projects. So still we can see some possible links with past history of the Division.

So sixty years after its foundation the South Australian Division of the Wireless Institute of Australia is alive and well. Membership is still growing steadily, as is also the case with the organisation on a national basis.

From the beginning described above, with hints made as far back as the year 1919 about the possibility of a Federal body, has grown the organisation which we know today. It would seem that our present-day members are no less enthusiastic than the early experimenters of yesteryear.

We have an organisation with history, tradition and activities of which we can justly be proud.

I am sure that you will wish to celebrate this Diamond Jubilee with the members of the South Australian Division and that all Divisional members would like to have expressed on this special occasion their greetings to all other members of the Wireless Institute, and all other amateurs throughout the world.

I trust that this description of events over the years concerning the operation of our hobby in the State of South Australia has been of interest to you. ■

SUNSPOTS, DX AND GETTING AMONGST IT

Ken McCracken VK2CAX

Amateur radio thrives on unreliability. The VHF fraternity, the DX hounds, and even the dyed in the wool earbasher get much of their enjoyment through exploiting freak conditions. And every single variability in propagation conditions is attributable to our Sun. This article shows how.

INTRODUCTION

Strangely enough, the two most important features of the sun, insofar as the amateur is concerned, is that it is large (diameter approximately one million km) and that it rotates. Consequently it has a strong magnetic field. instabilities in this field cause waves to travel up through the solar atmosphere and heat the corona to a high temperature (approximately one million degrees centigrade). A gas at this temperature emits X-rays which create our ionosphere by ionizing the upper layers of the earth's atmosphere. The X-ray emission rate varies from day to day, from year to year, and consequently radio conditions vary in sympathy.

Occasionally an extremely large instability occurs in the solar magnetic field near a sunspot, and an immense amount of energy is released into a volume about as big as the earth. This results in a magnificent explosion; we call it a solar flare. A burst of X-rays hits the earth 9 minutes later; a magnetic storm occurs about 24 hours later and the Van Allen radiation belts are severely disturbed. Each of these events affects radio propagation to a large degree.

The VHF man also must thank the sun for heating our atmosphere, thereby creating the weather patterns and high altitude winds he needs for tropospheric and sporadic-E propagation.

Finally, a little bit of radio archeology. Historical records of the sun indicate to us that Captain Cook probably would have been able to work London on 52 MHz if Hertz and Marconi had come along a little earlier. The next such occurrence should be about 2126 AD.

The amateur operator is well aware of, and in many cases thrives on, the variability of radio propagation conditions. Daily, monthly, seasonal, and year to year variations are clearly recognised. The year to year variability is well known to correlate with the "Sunspot number", and from this our ionospheric predictions are derived. But we see a sunspot because it is cooler than the rest of the sun; why should the earth's ionosphere get denser as the number of cool spots on the sun increases? Clearly, there is a lot more physics here than meets the casual eye.

In fact, the sun is totally responsible for our ability to communicate via the ionosphere, and every type of variation in radio propagation is attributable to the sun. This article seeks to outline the complex interplay of seemingly unrelated factors that brings this about.

HEATING AND STIRRING

Our sun (an average star) commenced its life as a small condensation of cold dust and gas in interstellar space. This condensation exerted a gravitational attraction on nearby dust and gas which "fell" into the condensation, increasing its mass, thereby increasing its gravitational field and thereby "sucking" in more dust and gas. Thus, it grew bigger and bigger.

As an atom fell towards the infant sun the gravitational force caused it to speed up; then it hit the infant sun, its kinetic energy heated the sun up very slightly. Each new atom increased both the mass and the temperature of the sun. Ultimately the centre of the infant sun reached a tempertaure of 10 million degrees, then "nuclear fusion" commenced. In this process four hydrogen atoms unite to form a helium atom, releasing a great amount of heat in the process. The sun had been "lit", and it was henceforth able to maintain its temperature from its internal resources.

As water goes down the bath hole, it rotates faster and faster the closer it gets to the hole. The same laws of physics affected our infant sun, so that the gas as it fell into the sun swirled around with increasing speed. The lazy motions of the dust and gas prior to the condensation of the sun resulted in a star that was spinning about its axis. The sun now spins about its axis with a period of 25 days. Strangely enough this spinning motion is crucial to the HF operator. if the sun did not spin, there would be no ionosphere! Let's see why.

Gases at 10 million degrees are excellent conductors of electricity; and the infant sun therefore became an immense (about 1 million kilometres in diameter), rotating electrical conductor. A weak magnetic field pervades space, and, as in the case of an electric dynamo, electric currents started to flow in the moving conductor (the sun). These currents in turn generated magnetic fields of their own, which generated further eddy currents. Positive feedback occurred, and ultimately strong magnetic fields were built up inside the sun. The continued rotation of the sun prevents these fields from decaying. Unlike the magnetic field of the earth, the majority of the sun's magnetic field is inside the sun; that is, the majority of the lines of force never emerge from the surface.

SPOTS AND KNOTS

The sun is completely gaseous, and some parts therefore can rotate faster than others. The magnetic fields become especially strong at the interface between such regions, and big kinks and knots are also formed in the magnetic field lines. The regions of strong magnetic field contain less gas than adjacent regions, and they therefore "float" to the surface of the sun, taking the magnetic field with them. Such an occurrence is illustrated in Figure 1. This protrusion of the magnetic field through the surface of the sun is the most important single feature of a sunspot.

The light our eyes see from the sun originates in a layer called the photosphere, where the average temperature is 6000°C. The sunspot magnetic field causes

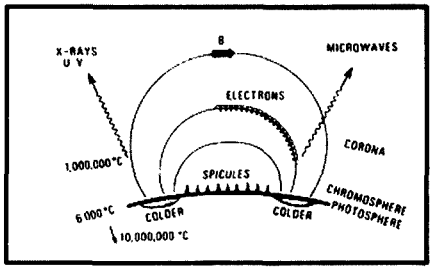


FIGURE 1: The important components of sunspot group. The two sunspots may be up to 100,000 km apart.

the gas in the sunspot (i.e. where the field is strongest) to expand and cool down. The gas is therefore less incandescent, and we see a dark spot. (As is obvious from Figure 1, we usually see sunspots in pairs, one having a "North" magnetic polarity, the other "South"). These dark spots, themselves, have no effect whatsoever on our ionosphere.

Other effects are occurring that we cannot see with our eyes, however, the hot gas below the photosphere rises, setting up convection cells similar to the thunderheads that occur in our atmosphere on hot summer days. The hot, convecting gas causes the magnetic lines of force to vibrate, and powerful waves ("magneto-hydrodynamic waves") propagate away from the sun. They carry much energy with them, which is then dissipated in the region up to several million kilometres above the photosphere. The dissipation of these waves heats the gas to very high temperatures of about 1 million degrees.

All hot bodies radiate electromagnetic radiation, the wavelength decreasing with increasing temperatures. Thus, while the 6000°C photosphere radiates optical wavelengths, the million degree corona radiates X-rays and ultraviolet radiation. It is this radiation that generates our ionosphere, and it is the variation in the number and temperature of the coronal "hot spots" over the sunspots that makes the ionosphere wax and wane.

Other things are happening in the sunspot magnetic field as well.

The gas is highly ionized, and some of the individual electrons are accelerated to relatively high energies by the hydromagnetic waves that are travelling up the magnetic field from the photosphere. These electrons then spiral back and forth in the sunspot magnetic field, in the same way that electrons bounce back and forth between the two hemispheres in the Van Allen radiation belts around our (and other) planets. As they spiral around in the strong fields they radiate microwave radio waves. These waves, themselves, have no effect whatsoever on our ionosphere, but their intensity is determined by the number, size and the magnetic properties of the coronal

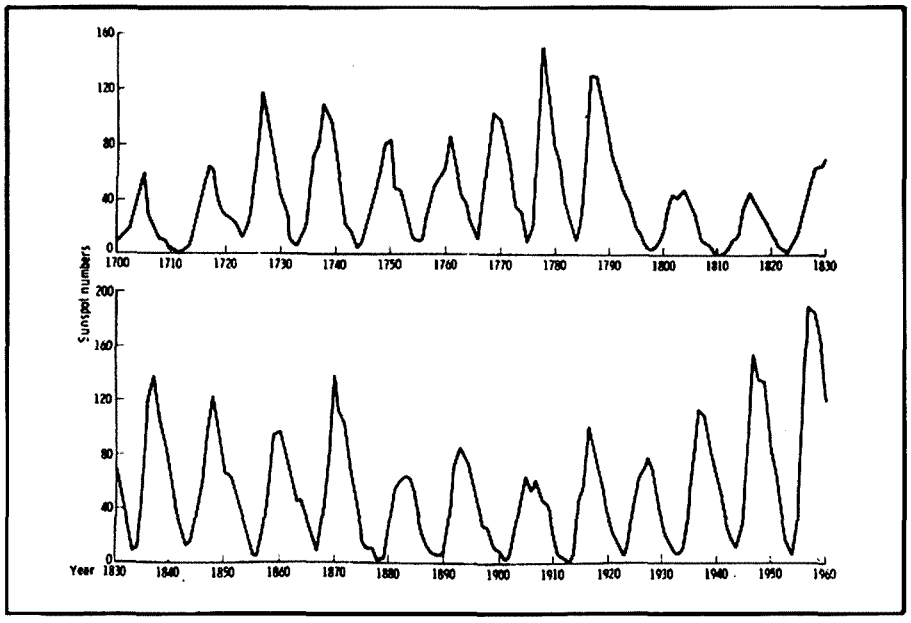


FIGURE 2: The eunepot numbers for the past three centuries.

hot spots. That is, the microwave emission is correlated in a general way with the X- and UV-emissions, and this is the basis for the use of the 10 cm micromave emission index to predict ionospheric behaviour.

ONE LUMP OR TWO

From the above, it is clear that our best way to study and predict the condition of the ionosphere would be to measure the solar X- and UV-radiation intensity. But these radiations are totally absorbed in the topmost 0.1 per cent of our atmosphere, and until recently, we had to make do with the information we could obtain from the optical wavelengths and microwave wavelengths that could penetrate to ground level.

Empirical studies have shown that the number and distribution of sunspots gives a useful barometer that correlates with ionospheric and other geophysical parameters. A rather arbitrary parameter, the Zurich sunspot number RZ = 10G + S is usually used to quantify the sunspot information. In this formula "S" is the total number of Individual spots that can be seen on the sun's disc, while "G" is the total number of separate groups of sunspots (e.g. the sunspot pair in Figure 1). Gallileo was the first man to see sunspots (and got into some trouble over it), and records have been kept ever since. The sunspot numbers for the past three centuries are shown in Figure 2.

The well known "eleven year" cycle is evident in Figure 2. But look closely in the years between 1850 and 1940. Note how every second cycle is systematically lower than the adjacent cycles. Analysis of the light from sunspots indicates that the magnetic properties of the spots also alternate between two different states from one cycle to the next. In reality, the physics of the sun exhibits a (roughly) twenty-two year periodicity. Thus the next sunspot maximum (1980) will be a direct descendant of the high maxima of 1872, 1895, 1918, etc., while the recent 1969 maximum was the successor to the low maxima of 1883, 1907, 1929, etc. *It is therefore possible that the 1980 maximum will be more like that of 1958 than that of 1969.*

MEANWHILE, ON EARTH

The X- and UV-radiation from the sun ionises the earth's atmosphere above an altitude of about 100 km. The number of electrons per cubic centimetre (i.e. the "electron density") is plotted against height in Figure 3. At a time of high solar activity (i.e. high sunspot number and many coronal hot spots) the X- and UV-intensity is greater, and hence the electron density is greater. incidentally, Figure 3 shows that the ionosphere is a single region some 150 km thick, and that the D, E, F1 and F2 regions are not separate layers but correspond to kinks in the electron density curve.

Figure 4 shows how a radio wave is reflected by the ionosphere. The wave travels in a straight line until it reaches the bottom edge of the ionosphere, when its path commences to bend. Provided the path does not reach the layer of greatest electron density before the wave is travelling parallel to the earth's surface, the wave will return to earth.

The frequency which will just be "reflected" back to earth from the point of greatest electron density when the wave is

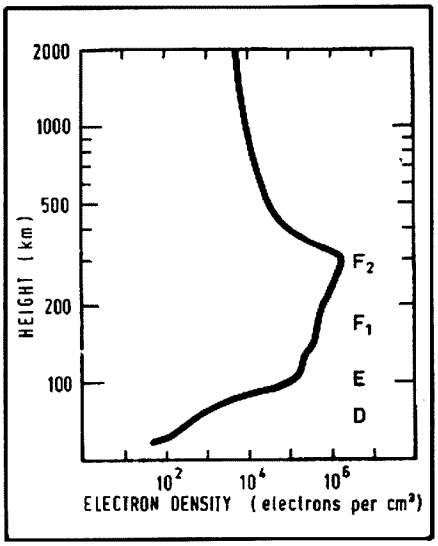


FIGURE 3: The manner in which the concentration of electrons in the ionosphere depends upon altitude.

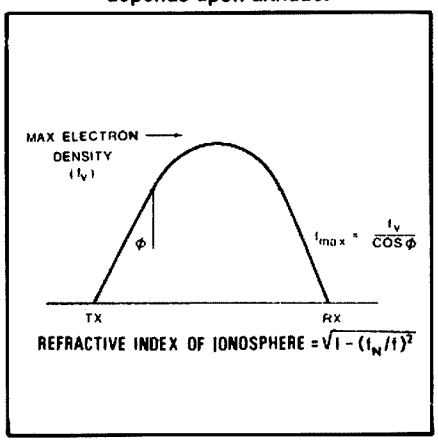


FIGURE 4: A radio wave is gradually refracted as it moves through the ionosphere. This figure shows the path followed by a radio wave as it is returned to earth via the ionosphere.

initially travelling vertically upwards, fv, is a useful parameter that helps us predict radio transmission characteristics. It is usually referred to as foF_2. For a radio wave hitting the ionosphere at an angle of ϕ, the highest frequency that will be reflected if fv/cos ϕ. For example, if f = 12 MHz, and $\phi = 10^6$, then the maximum frequency that would be reflected would be 35.1 MHz. Note that the above formula ignores the curvature of the earth; the earth's magnetic field also complicates the matter somewhat. foF_2 depends upon the maximum electron density in the ionosphere according to the formula:

$$foF_2 = 9.002 \times 10^3 \sqrt{n}, \text{ in Hz}$$

As the sun's activity increases (i.e. more coronal hot spots) the increased X- and UV-radiation causes p to increase, and more coronal hotspots) the increased X- thus foF_2 must increase. This effect, wherein foF_2 increases as the Zurich sunspot number increases, is illustrated in Figure 5.

CRYSTAL BALL DEPARTMENT

Using historical data that relates the world wide foF_2 values to solar activity, and for an assumed prediction of future solar activity, the Australian Ionospheric Prediction Service (IPS) makes predictions of the MUF for paths of length), and 3000 km.

Figures 6 and 7 are examples of the MUF (3000) charts issued by the IPS on a monthly basis. To find the maximum frequency for a given 3000 km path, the value of frequency at the midpoint of the path should be read. Note particularly that these maps predict the *median* MUF; that is, for 50 per cent of the month the MUF will be lower, for 50 per cent of the month it will be higher. The variability of the MUF is a result of the fact that sunspot regions (and consequently, coronal hotspots) are not distributed evenly around the sun. Consequently the number of coronal hotspots that can affect the earth varies from day to day as a result of the rotation of the sun.

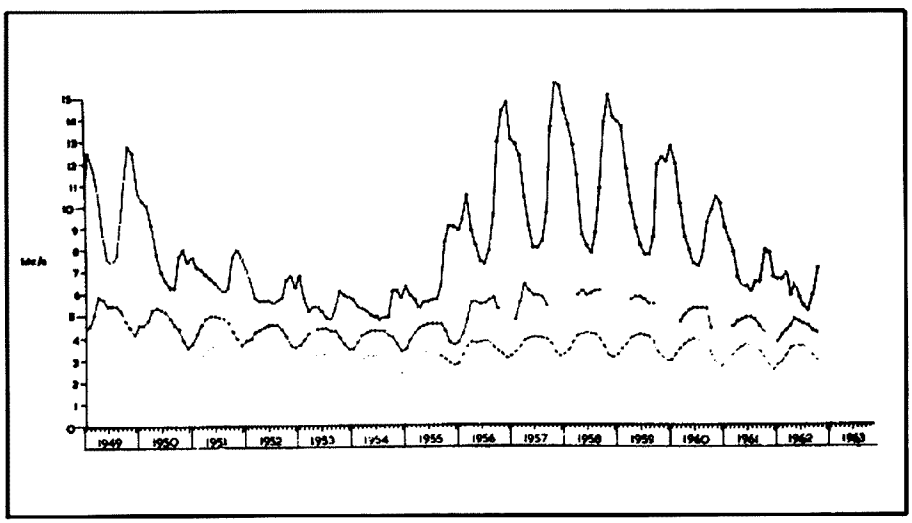


FIGURE 5: The variation in the critical frequency (that is, the highest frequency that will be reflected) of the F1 and F2 layers in England throughout the sunspot cycle 1954-1963.

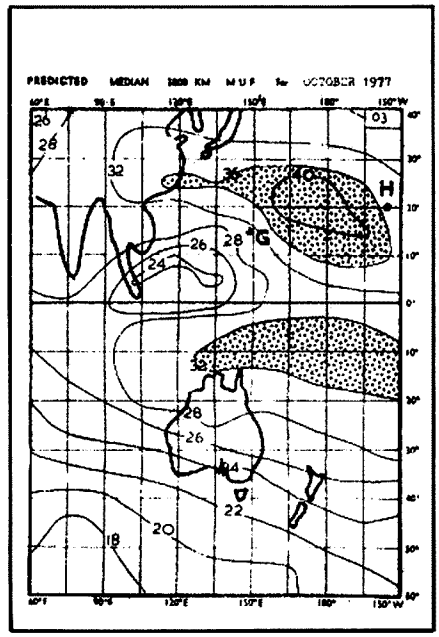


FIGURE 6: The maximum usable frequency (MUF) over paths of 3000 km for the Australasian region at 0130 UT for October, 1977.

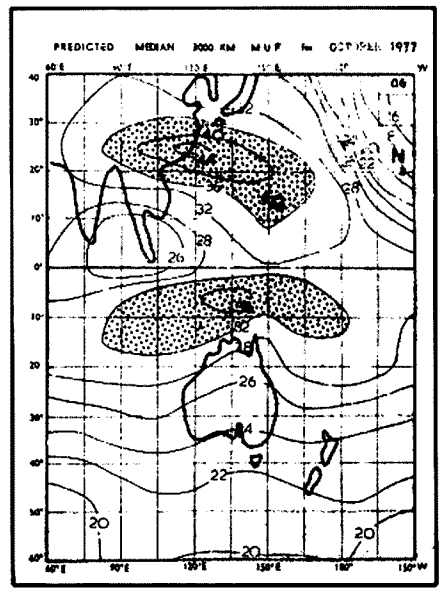


FIGURE 7: The maximum usable frequency (MUF) over paths of 3000 km for the Australasian region at 0630 UT for October, 1977. Note how the regions of high MUF have moved westward.

Comparison of observed and predicted MUFs suggests that the MUF will be about 1.5 per cent high for 10 per cent of the days in the month. The maximum distance for one-hop transmission is 4000 km, and the MUF for 4000 km Is 1.1 times the MUF

for 3000 km. Thus for 10 per cent of the month, the MUF for 4000 km will be

$$M\ (4000)\ [10\%] = 1.15 \times 1.1 \times MUF\ (3000)$$
$$= 1.27 \times MUF\ (3000)$$

Figure 7 gives the median MUF at 0600 UT for October 1977, at which time the first real 50 MHz DX of this sunspot was being observed in the Pacific. Figure 7 immediately shows part of the reason. Look at the Guam to Japan path (roughly 4000 km). The midpath MUF from the map is 42 MHz. Thus for 10 per cent of the month, the 4000 km MUF would have been 1.27 × 42 = 53 MHz. That is, the path would have been open by simple one-hop F2 transmission. Four hours earlier (Figure 6) the region of high MUF lay between Hawaii and Guam, and two-hop F2 propagation was possible on 6 metres for 10 per cent of the time.

Both Figures 6 and 7 show two regions of high MUF north and south of the equator. Simple theory says that there should only be a single region of high MUF, and the observed fact that there are two was called the "equatorial anomaly". Six metre operators should be eternally thankful that theory was wrong!

Figure 8 is a schematic representation of the ionosphere along the path from Darwin to Southern Japan. The two patches of high electron density, north and south of the earth's magnetic equator, can be seen. The path followed by a 6 metre wave leaving the transmitter at a low angle is shown. It can be seen that the refraction of the waves in the southern patch of high electron density is insufficient to return the waves to earth. However they are then refracted again by the northern patch, and the wave then reaches the earth. This is "chordal hop" transmission, and refers to the day time trans-equatorial propagation mode (TEP). Evening TEP will not be discussed here, other than to say that it is less well understood, and presents the amateur with an excellent opportunity to perform meaningful research of world-wide significance.

THROUGH A GLASS, DARKLY

What then are the prospects for VHF DX during the 1980 solar maximum?

Despite an excellent set of records of the previous "form" of the sun in its last 25 races (Figure 2), the pundits find it very hard to set the odds for this next race. Predictions vary widely. For interest, however, Figure 9 is one of the more optimistic predictions of the way in which the Zurich sunspot member will behave. It predicts a maximum that is comparable to that of 1958!

Assuming that Figure 9 were correct, what would the propagation conditions be near solar maximum? Roughly, the MUFs in 1980 would be about 1.3 times those in Figures 6 and 7. Thus the median MUFs for 4000 km would be 1.43 times those in the Figures, and for 10 per cent of the time they would be 1.65 times greater. The actual contours of MUF would be very different in the other seasons of the year, and other times of day, however the general features remain.

Applying the above factors to Figures 6 and 7 predicts the following possibilities for 6 metre DX in 1980:

Perth to Singapore; single hop F2; 50 per cent of the time.

Darwin to South India; two hop F2; 10 per cent.

Brisbane to Hawaii; two hop F2; 10 per cent (also chordal hop).

Sydney to Guam; one hop F2; 10 per cent.

Darwin to Tahiti; two hop F2; 50 per cent.

Northern Australia to Peru; just possible (four hop F2).

Northern Australia to South Africa; possible (three hop F2).

Northern Australia to Southern Russian (longitude 75°E); chordal hop.

Furthermore, such paths will be extended to higher latitudes, and greater distances, if there is sporadic E at either end of the path. Six metres to Eastern Europe, Africa and South America certainly seems feasible.

Finally it should be recognised that the average 6 metre station has improved significantly over the past 11 years, and even more so since the solar maximum of 1958. Higher power, narrower bandwidths, better antennas and lower noise front ends have all increased the station gain between most stations. Reasonable numbers for each of these factors suggest an increase in average station gain, compared to 1969, of between 12 and 15 dB; i.e. some 2 to 2¼ S points. This, plus a greater number of stations, means that there will be a considerably greater probability that a path will be used when it is open. Longer multiple hop paths will become workable.

In summary, worked all continents on 6 metres from Australia is conceivable in the years ahead. Certainly, widespread communications with Asia and the Pacific and Indian Ocean regions via F2 propagation is a certainty. Openings may often be short, however, and will frequently go unnoticed through lack of amateur stations. It will be fruitful to test strange paths (e.g. due east to South America via the corridor of high ionization (MUF) in Figure 6) at the right times. The sun will cause these paths to open; the problem is to be there at the right time.

Be in it!

(Reproduced from the Proceedings of FACT Symposium 1978.) ■

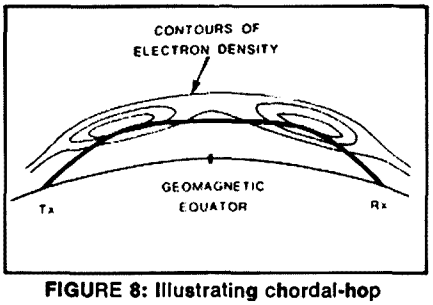


FIGURE 8: Illustrating chordal-hop propagation.

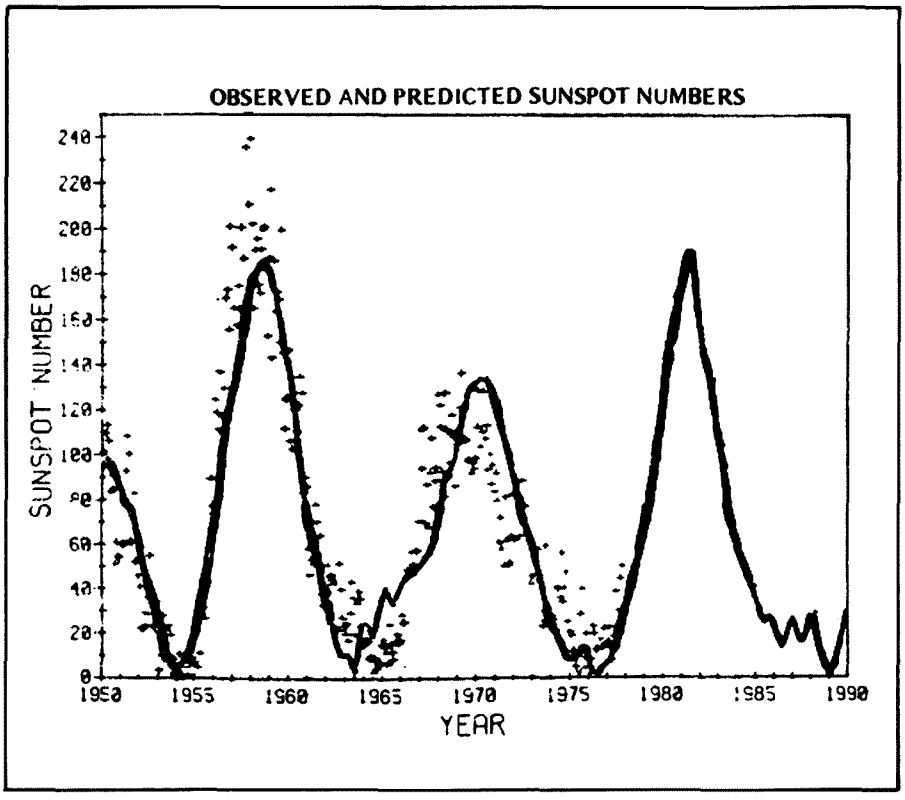


FIGURE 9: The predicted sunspot number of the present sunspot cycle.

REPEATER TIMER TIMER

Dave Cooper VK7ZDC
PO Box 212, Bellerive 7108

Here is a device which gives the operator an audible warning prior to the repeater time out. It can be fitted to most transceivers via the auxiliary socket, in which case no modifications are required.

The time interval can be varied over a large range (with values shown, R2 limits provide 1.5 mins to 4.0 mins). As can be seen, the circuit has been kept as simple as possible, consistent with reliable operation.

The circuit is based on the 556 (LM556, NE556, etc.), being a dual version of the 555 Timer in a single package. The operation of the device is easily understood and will not be explained here as it is adequately covered on the manufacturer's data sheet.

CIRCUIT OPERATION

During the receive mode, pins 4 and 10 (resets) are held low by R7 disabling both sections of the device. (Note: C2 is discharged.)

Operation of the PTT switch raises pins 4 and 10 to 12V. Pin 6 (Trigger) goes low momentarily providing the trigger to set the time in operation. Pin 5 (Output) goes high holding C3 charged via D1, thus disabling the audio oscillator. The timing period is now under way, dependent on the values of R1, C1, and the setting of R2. When the upper trigger point is reached, pin 5 goes low, enabling the audio osccillator.

The audio oscillator is a basic stable configuration, the frequency being set by R5, R6 and C3. The output level is set by the value of C4.

The circuit can be reset at any time by releasing the PTT switch.

CONSTRUCTION

The circuit was built on a PCB (Fig. 2) and mounted in a Kodak slide container (20 slides x 35 mm), this being attached beneath the transceiver with rubber bands. The four external connection plug into the auxiliary socket of the transceiver.

COMPONENT LIST

R1—2M Ohm
R2—10k multiturn trimpot
R3—47k
R4—1k2
R5—12k
R6—1k2
R7—1k2
All resistors ¼ watt
C1—47 uF 15V electrolytic
C2—4.7 uF 15V electrolytic
C3—0.056 uF ceramic
C4—0.022 uF ceramic
D1—1N914 (or any small diode)
IC—556 (or 2 x 555)
Speaker—A rock armature earpiece from an old telephone or smal speaker.

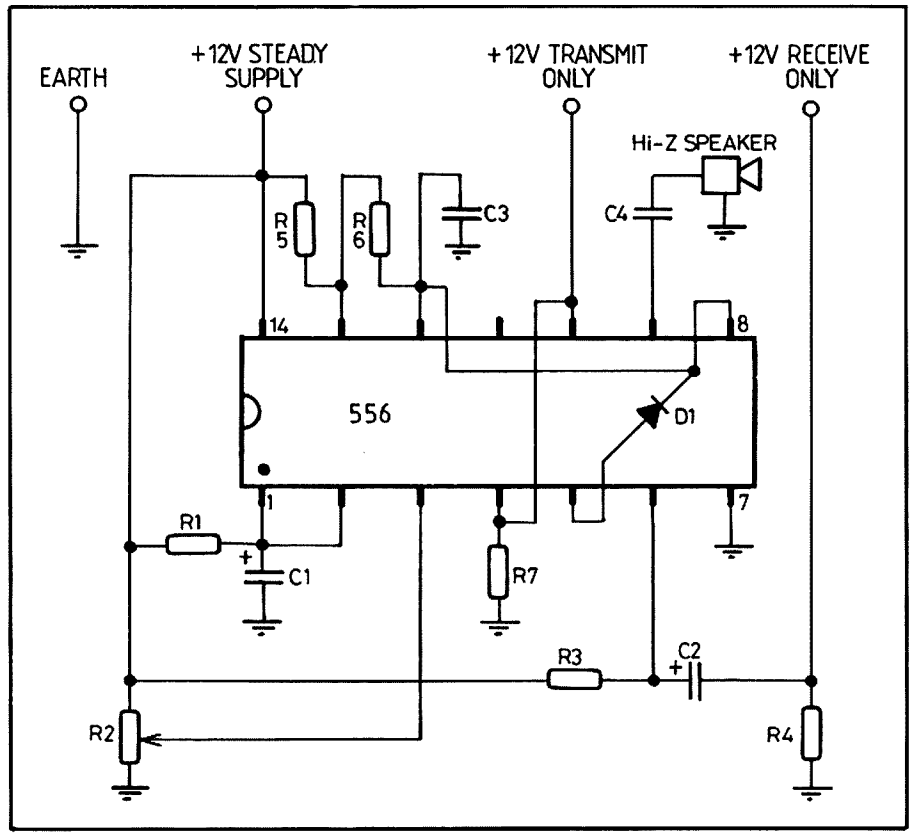


FIG. 1: Circuit diagram.

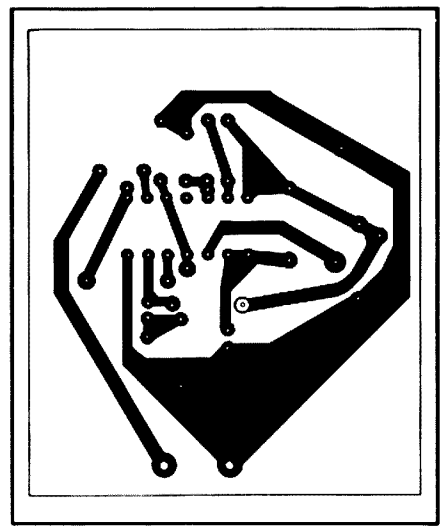


FIG. 2A: PCB layout, copper side. Approx. half size

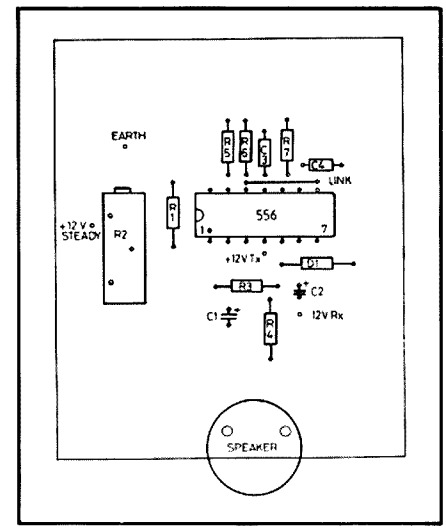


FIG. 2B: Component layout.

SUGGESTED REFINEMENTS

If several time intervals are required, several resistors could be switched in place of R1.

If a repeater/simplex switch is available this could be used to disable the device during simplex operation. ■

MODIFICATIONS TO SOLID STATE VIDEO SWITCHES

C. Maude VK3ZCK
2 Clarendon St., Avondale Heights 3034

After reading the article by Andrew Pierson in AR March 1979, I decided to build one of his type 1 switches using 4016s.

I designed a printed circuit board similar to the one shown here with the component layout; the circuit worked very well. I am associated with DPTV10 (Melbourne's Cable TV station at Debney's Park) and was not happy with the use of toggle switches for routing video around the console. The first switch I made eliminated some of the toggle switches and some screwed connections. What was then needed was a switch to provide one input to two outputs.

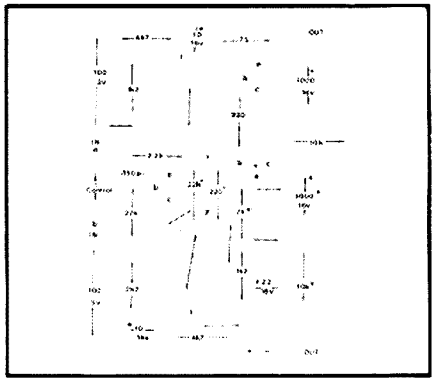


FIG. 3: Component Placement.

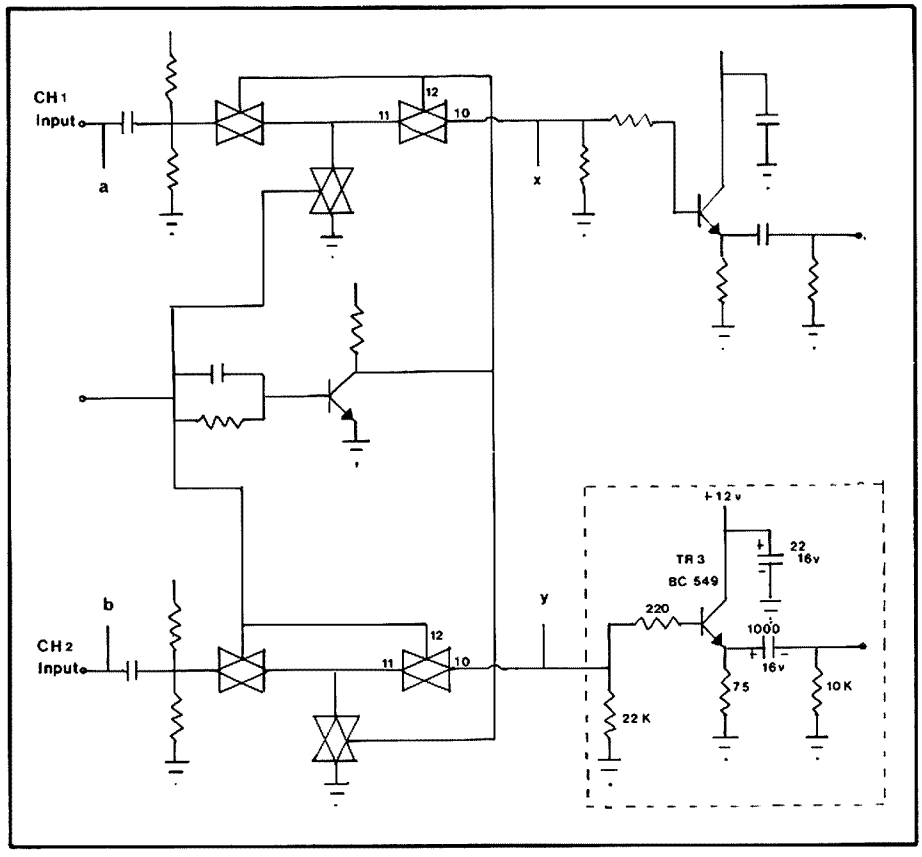


FIG. 1: Modified Circuit Diagram.

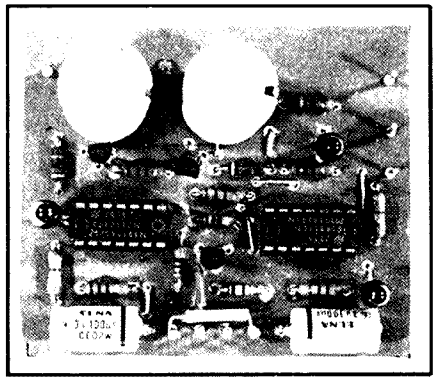


FIG. 4: PCB, Component Side.

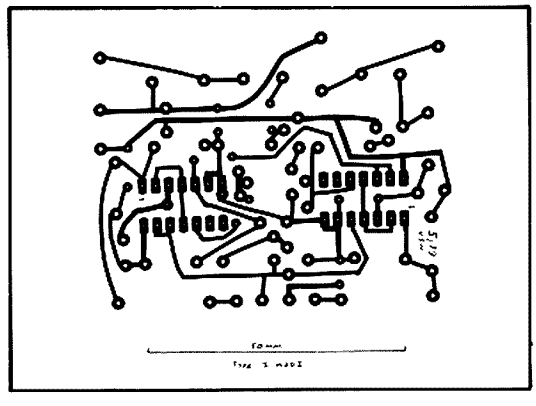


FIG. 2: PCB, Copper Side, Full Size.

A modified circuit was produced together with a printed circuit board, Figs. 2, 3, shown here. The board can be used for either the modified function or for the original circuit. The components in the circuit diagram, Fig. 1, which are labelled are those required for the new circuit. The unlabelled ones are as in the original article. The components inside the dotted box can be left out and links X and Y joined if the original circuit is required. Two switch one input to two outputs join A and B and include the circuitry in the box. The component layout shows these components marked with a star.

Both versions worked very well indeed and I thank Andrew Pierson for the original article. ■

WHAT'S LEFT FOR THE NOVICE?

By Lance Ferris VK2NVF
PO Box 40, Casino, NSW 2470

Here's a duo-band yagi for 10 and 15 metres for those of you with a spirit of adventure.

Rhonda VK2NWF and Lance Ferris VK2NVF.

When I attained my Novice licence in June 1978, I began to realise that the field of electronics had moved far ahead of its time and there appeared to be no obvious avenues for experimentation or invention by the newcomer. Rigs have become a "no-deposit, no-return, throwaway" shelf item exhibiting different brands and price tags, all doing much the same job. On the other hand, antennas seem to be "branching out" (pardon the pun) into many weird and wonderful designs.

One day I met Bert, an electrician, who was in the process of installing a power point. I stuck my chest out and told him I had just qualified as an amateur (I somehow forgot the word "Novice") and gave him some general advice in relation to the safety aspects of the installation of power points. In reply to my advice, he told me of his hobby, more than ten years experience in tracking satellites. I didn't need to open the door when I left the house, I found I could fit quite well through the crack at the bottom. His knowledge on antennas was mind boggling and I was delighted when he offered to send me some material on "circular polarisation".

For the next week, my brain was a whirling mass of antenna designs, one of which was circular polarisation on HF with crossed yagis. My four element home-brew yagi worked well, but being horizontal, propagation to local mobiles was limited. I needed a high gain system for vertical polarisation.

I tried 4 x 4 crossed yagis on 10 metres and the array seemed to be okay, although QSB still seemed to be a problem. Locally, because of rather mountainous terrain, mobile signals suffered and I also noticed QSB on DX skip contacts. On DX, however, I was able to eliminate quite a bit of QSB by switching back and forth from vertical to horizontal. For instance, when signals began to fade on the horizontal, quite often they improved by switching to vertical.

With the word "circular" still in mind, I saw a paragraph in the RSGB Amateur Handbook which read, "The use of circularly polarised antennas for general transmission and reception at HF is to be recommended where possible, since such an aerial offers the best compromise solution to the randomly varying elliptical polarisation experienced by waves undergoing ionospheric propagation and reflection". I then began to wonder, "What kind of mirror is the ionosphere?". The myth of it being a smooth, shiny, glass-like reflector has now been amended in my books. To me, it appears like the face of the moon, with mountains, craters, holes, humps, bumps and the lot. One also must consider the ground as it also is involved in the reflection process, and it certainly is not flat. It is these factors that obviously twist and turn the polarisation of the radiated signal, causing the received polarisation to differ, or in the case of "skip" to even become circular or elliptical. My crossed yagis catered for two aspects of polarisation.

Then the booklet arrived from Bert. The words "NASA — USA", heading the top of the page, had me boasting for two days, and when I had settled down, construction began on a bank of relays and an appropriate phasing harness. To obtain circular (axial-fire) polarisation from crossed yagis, the arrays are fed with a coaxial phasing harness which phases one antenna 90 degrees behind the other. By swapping the feed points the "sense" is determined, i.e. clockwise or anti-clockwise. The principle is widely used on VHF and above with crossed yagis and the "Helix". Why not on HF? Maybe the size of the array causes concern. Weight is only marginally increased with the extra elements on the common boom.

Results were amazing. I found QSB on DX caused by polarisation changes was reduced and in many cases eliminated by a conservative 60 per cent of contacts. Similarly, ground-wave QSB caused by reflections was also considerably reduced and with the increased range, mountains and timbered country barely caused a problem with propagation to mobiles.

George W5KHN called me from Texas one day, and told me of his success story with his axial-fire yagis. He included a snippet about his friend Jim W4YHF, from Smyrna, Georgia, who "replaced his quad" with crossed axial-fire yagis, and "heard stations he had never heard before". That may sound, as it still does to me, somewhat surprising, but on many occasions I have heard signals of around 4/0 on the horizontal or vertical. By switching to circular, I have witnessed dramatic increases to 5/3. On one occasion, by switching to circular, I completely eleminated a back-scatter or long-path echo that was making a 30 km contact with Ross VK2NUD almost unreadable. On another occasion whilst talking to a VK5 on horizontal, Bill VK2VDI (another local) came over the back of the beam about 5/3. I switched to circular and I thought Bill had switched off. His signal was virtually eliminated. And one I'll never ex-

QSP

EXPERIMENTS RECEIVING LICENCE — 1913
Graham Austin VK3ANZ has forwarded to us a photograph of an Experimenters Receiving Licence, issued to his father-in-law, Ted Holder, and signed personally by the then Postmaster-General, Agar Wynne, dated 5th December, 1913.

The receiving licence was issued under the Wireless and Telegraphy regulations of 1905. These regulations still form the basic part of our current regulations today — only slightly amended.

In part, the licence authorised Mr. Holder to ". . . establish, erect, maintain and use at the station specified in the First and Second Schedules hereto, appliances for the purpose only of receiving messages by means of wireless telegraphy . . ."

The First Schedule authorised the use of a detector, condenser, tuning coil and telephones.

The Second Schedule depicted the authorised circuit the above components were to be used in — a simple crystal set.

Those were the days!! ■

SATELLITES
It is interesting to read details about the 158 satellites launched during the year 1978 as published in the Telecommunication Journal of the ITU. A few have a mass of 7 tonnes, where mass details are provided, others range around 1 to 1½ thousand kg. The two USSR amateur radio satellites, Radio-1 and Radio-2 appear to have been launched from Plesetsk piggy-back with Cosmos-1045 on 26th October with a perigee of 1688 km and apogee of 1724 km. Amsat-Oscar-8, however, launched 5th March, showed 897 km and 914 km respectively. ■

BANNED COUNTRIES LIST
"There is no banned countries list. (American) amateurs may presently communicate with other amateurs in any country without violating (FCC) rules."—QST July 1979. ■

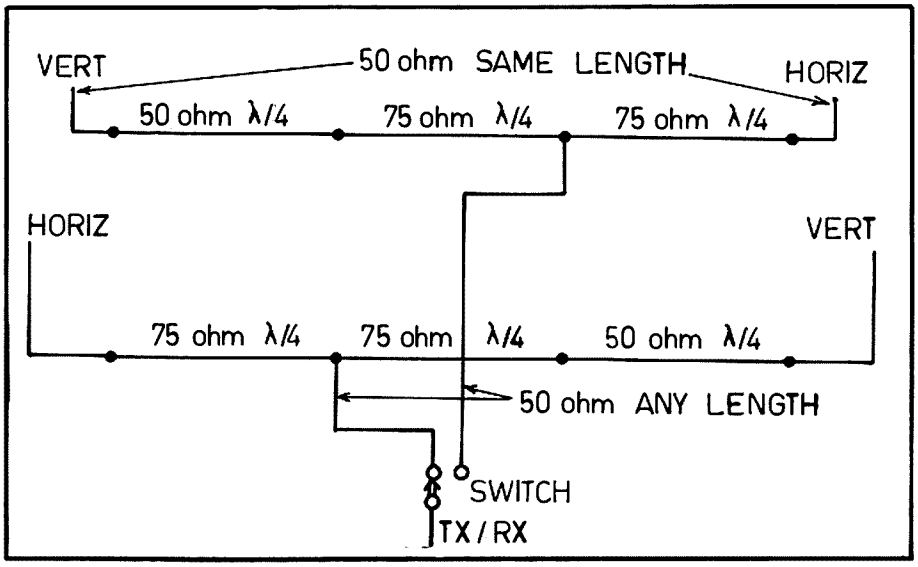


FIG. 1 (Above): Original harness circuit.

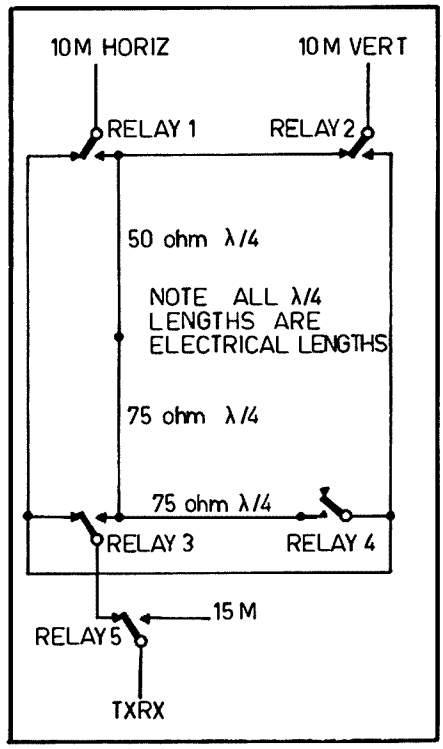
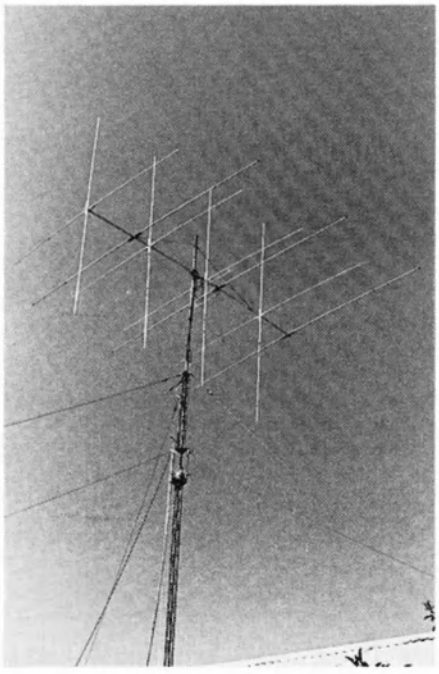


FIG. 2 (Right): Homebrew modification with relay system requiring one harness only.



The antenna at the home QTH.

plain . . . when working a DX station and a local calls in off the side of the beam, I can usually switch to a mode WITHOUT turning the antenna, and lift the local to 5/3 or better WITHOUT affecting my signal to the DX station.

Discovery of new properties of the array seem to be never ending and I would be particularly interested to hear from any amateurs who have tried a similar system on HF.

Three elements interlaced for 15 metres caused no problems with interaction, and allowed for wide spacing of elements on both bands, facilitating broader bandwidth, easier tuning and optimum gain. The basic layout of the horizontal elements can be found in the ARRL Radio Amateur Handbook, modifications being the elemination of the fourth element on 15m, and the addition of four vertical elements on 10m, coincident on the boom with the four horizontal 10m elements. Driven elements are gamma matched.

The relays used were "Siemens" mini relays, and a bank of five allowed for the four modes on 10m and switching to 15m. Although not coaxial relays, they have now been operational for almost 12 months and no problems have developed. It appears that this type of relay is not critical when used on HF, however I would not advise switching during transmission as this could probably cause arcing and burn the relay points.

The array, affectionately named "Tracker 11", sits atop a modified, winch-up, fold-over tower at a height of 17 metres. With 30 watts PEP the antenna has proved itself with excellent reports on both bands.

What's left for the Novice? . . . Read the fine print. Avenues are abundant. ■

AMATEUR RADIO ACTIVITIES

(STATE AWARD CONFERENCE)

The occasion was a visit by the Governor-General, Sir Zelman and Lady Cowen to the State Award Conference of the Duke of Edinburgh's Award Scheme held at the "Namaroo" Conference Centre, Lane Cove, NSW, on Saturday, 7th July, 1979.

On that day, over 100 young people from all over the State were on hand to provide demonstrations of the many facets of Award Scheme activities, including those associated with community service requirements, expedition, and physical skills.

A number of hobbies and interests were also on display for the benefit of the general public, friends of the Scheme, as well as parents of awardees, all of whom attended in large numbers.

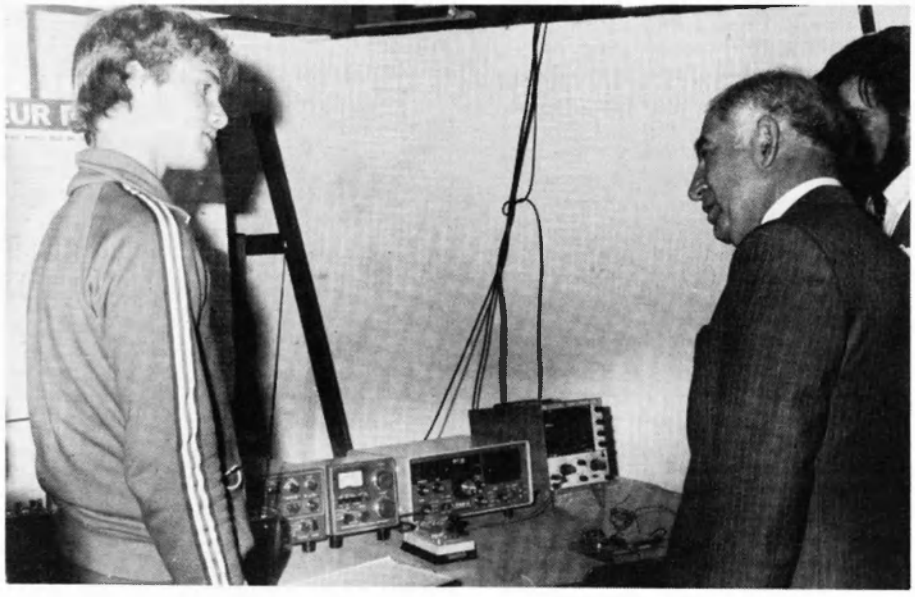
One such exhibit was an amateur radio station operated by James Woodhill (VK2YKH/VK2/NYW), a Duke of Edinburgh's Award candidate and a student at Hurlstone Agricultural High School, Glenfield, NSW. Jim was supported by a well known South Coast amateur, Brian Wade (VK2AXI), and other students from the Hurlstone Amateur Radio Club, whose members are mostly candidates for Bronze, Silver, or Gold Duke of Edinburgh's Awards.

The station operated throughout the day using 80, 15 and 10 metres on HF, and simplex and repeater channels on VHF. Call signs used were VK2VQW and VK2YNH, the call signs of the Hurlstone Amateur Radio Club. Contacts were not, unfortunately, numerous, though the station and associated displays were well received through the day. The Governor-General stayed for some time and appeared particularly interested in the efforts of those concerned.

Appreciation is expressed to the WIA (NSW Division), for publicity material borrowed to support the display, and in particular to Tim (VK2ZTM) for his personal efforts in making such material available at short notice.

The accompanying photograph shows Jim (VK2YKH) with Brian (VK2AXI) answering a question from Sir Zelman Cowen.

Submitted by Ross Wilson (VK2VDH), Senior Resident Master at Hurlstone Agricultural High School, Glenfield 2167. 6th August, 1979. ■



The Governor General Inspects the display.

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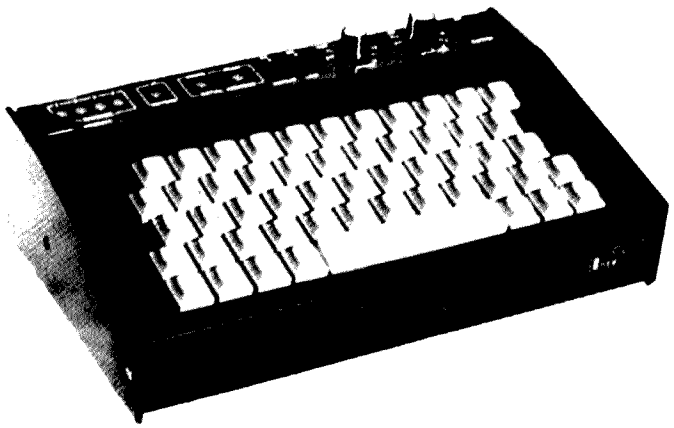

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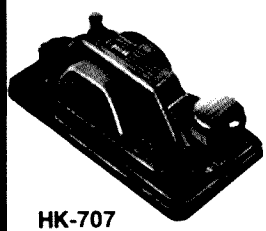
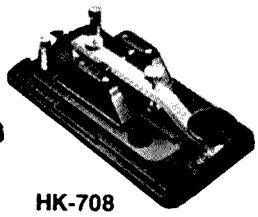
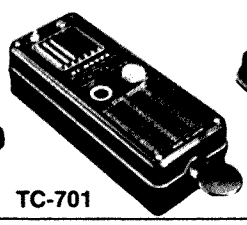
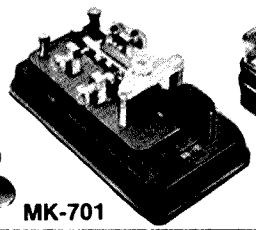
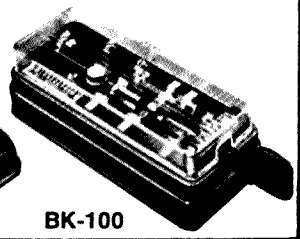

HK-707


HK-708


TC-701


MK-701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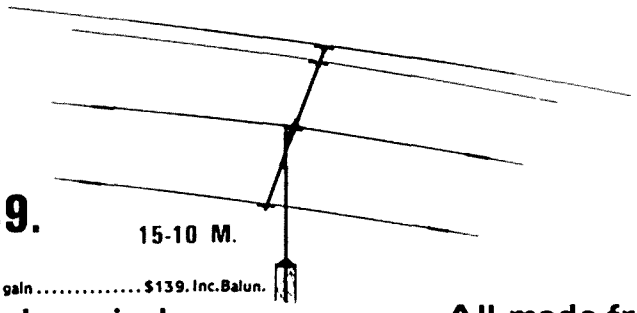

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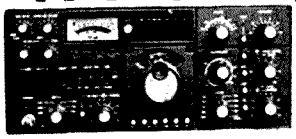

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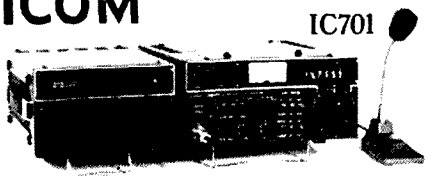

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CANADA-AUSTRALIA TV SATELLITE TRANSMISSION TESTS

By Bob Cunningham VK3ML

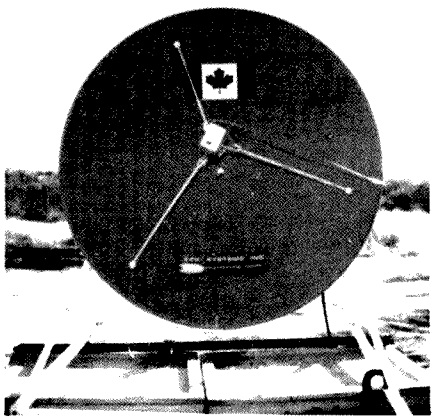
I was in Townsville at the commencement of these TV tests and, in company with Peter Snell VK4APS, I journeyed to Charters Towers on Sunday, August 5th, 1979, where the public had been invited to a demonstration at the RSL Hall.

The object of these tests was to prove that, with simple equipment, TV programmes could be sent to remote areas, such as in Australia, via satellites. The P. and T. Department arranged for the demonstration. The transmission emanated from Ottawa, Canada, and was picked up by a 1.2 metre diam. dish at a frequency of 12 GHz. The dish looked at an elevation of 7 degrees and a bearing of 85 degrees. The polarisation at the equator was horizontal but from the actual location it was 73 degrees.

The incoming signal was converted from 12 GHz to 1.2 GHz via a down converter which was placed at the focus of the dish. The output of this converter is fed via coaxial cable to and experimental 1.2 GHz receiver then to a standard TV monitor.

The exhibition on this occasion was carried out by two well known Queensland hams Brian Rickaby VK4RX and Neville Maddern VK4EK, both from the P. and T. Department.

i witnessed perfect colour reception and according to the press the experiment was well received by the public. ■



Front view of the 1.2 metre dish for 12.4 GHz reception.

SAFETY EXPERT'S STORY:

PLANNING SAVED FAMILY FROM FIRE

Submitted by Alan Isaachsen VK5IR

I have been a safety engineer for too many years not to retain a certain amount of professional detachment in the face of a major emergency, even when my family is involved. We safety engineers tend to be pragmatic about disaster and preach that we must be prepared for it through preplanning. Do we practice what we preach?

The storm of Monday, June 5, 1978, caused a disaster at my home, and I would like to share the experience with you. The lessons learned may prevent loss of life at your house.

At 7.45 p.m., my wife and two youngest children (5 and 10 years old) were home alone. I was at a friend's house helping him install a new cooler. My wife was listening to her CB radio. She calls it "copying the mail". The two little girls were playing in their bedrooms.

A sudden gust of wind bent the top of the radio antenna mast over until the tip came into contact with the power lines that run behind the house. The high voltage power was fed back down the antenna coax cable and into the radio, which immediately exploded. My wife, fortunately, was not touching the radio or microphone. If she had, she would have been electrocuted instantly. The ball of fire from the explosion resulted in flash burns on the side of her face and some singed hair.

The electricity then left the radio via its power connection and entered the house wiring system, looking for ground. It found ground in the washer in the utility room, and the washer exploded. This caused a second fire that my family did not see until later. Then the fuses blew, plunging my house and the entire neighbourhood into total darkness.

My wife called the children while getting our fire extinguisher and ordered them to take our three cocker spaniels and leave the house. The children went across the street to a lamp post where we had agreed we would meet and waited. Meanwhile my wife extinguished the fire at the radio and called the fire department. She then joined the children.

While talking to my wife, a neighbour spotted the fire in the utility room. Thanks to preplanning, my family did not re-enter the house.

The fire department arrived about two minutes later. After determining that no one was still in the house, they began fighting the fire. The paramedics treated my wife at the scene and suggested she be seen at the hospital by a doctor.

This precaution was necessary to ensure that her vision had not been affected. She agreed and called me from the neighbour's.

I arrived shortly thereafter to find the fire out and the firemen starting clean-up operations. The children were safe, so we went on to the hospital. The burns were only superficial. All we lost were "things". All my friends and neighbours commented on how lucky we were. True.

We were lucky that I had purchased a fire extinguisher for the home years earlier. Lucky that I taught my wife and all the children how to use it. Lucky that I made sure periodically that it was serviceable.

We were very lucky that we had sat down as a family and discussed, in advance, what we would do in an emergency. Lucky we picked a nearby place to meet so we would know everyone was out safely, and lucky, too, that one of the rules is that once you are out, you stay out.

Yes, it was a beautiful disaster. Everyone did just exactly the right thing. Lucky? I don't think so. I think it was the result of the planning we had done much earlier. You can count yourself lucky, too, if you:

1. Have a home fire extinguisher and make sure everyone in the family knows how to use it, and where it is kept.

2. Have a plan for getting out of the house in an emergency. This includes a nearby meeting place so Mu mand Dad can count noses.

3. Agree ot some rules in advance: (a) once you are out, stay out; (b) no favourite possessions are worth your life; (c) call the fire department even if you think the fire is out.

4. Install smoke detectors.

In this case it would not have made any difference, but most fires do not start so violently. Smoke detectors may buy you enough time to get out.

Pat Robinson, Motorola Inc. Semi-Conductor Group. ■

ASIA-PACIFIC/AUSTRALIAN SCOUT JAMBOREE

The 4th Asia-Pacific/12th Australian Scout Jamboree is to be held at Perry Lakes, Perth, Western Australia, from December 29th, 1979 to January 7th, 1980. Western Australian Scouts are excited about the prospect of presenting their first ever Jamboree, and a cordial invitation has been extended to Scouts from all over Australia and from Overseas, to share in this great activity.

The Jamboree has further special significance for Western Australians in that it will form part of a year long programme of celebrations for the State's 150th Anniversary, and will be a fitting climax to those celebrations.

The vast distances and small potential of people power do not deter Western Australians from thinking big. Although covering one-third of the Australian continent making it the biggest State in the world, the West has only eight per cent of its population at about 1.2 million people.

1979 is the State sesquicentenary (150th anniversary) year so many years ago the WA Scout Branch applied for the regular three yearly Australian Jamboree, always previously held in the populous Eastern seaboard States. This was agreed and the Jamboree becomes the final event in a year long birthday party embracing the whole population from all towns utilising all activities which could be imagined.

World Scout Bureau gave it regional status as the 4th Asia-Pacific Jamboree. Subsequently, with the postponement of the 1979 World Jamboree in Teheran, Iran, it became one of the 1979 World Jamboree Year Camps. About 8000 Scouts from Eastern States and over 100 from 30 overseas countries will mix with 2000 locals for eight days of camping, activities, sight-seeing, shopping, trying new skills, fraternisation and fun.

Because Amateur Radio amplifies many of these Jamboree concepts, e.g. new skills, fraternisation and fun, local amateurs are preparing one of the biggest VK6 stations ever mounted. Facilities will include:

A high frequency station on 20 or 15 metres operating round the clock beaming the world, including eastern States.

A high frequency station on 15 or 10 metres operating all day beaming eastern capitals.

A high frequency station on 40 or 80 metres operating as required with dipole aerials favouring north/south.

RTTY station operating most of the time as signals are available.

Amateur TV on UHF with special receivers located in sub-camp fraternity areas.

Three or more VHF stations on 2 metres and 6 metres and perhaps other bands.

A workshop will be included where, under the supervision of Amateurs the Scouts will be able to build a simple electronic working project. In addition a broadcast band radio station on 1610 kHz is in preparation so that items of news, happenings, instruction and music can be conveyed quickly to all Scouts and for their entertainment.

It is expected that the stations will be busy with Amateurs in contact and that the special Jamboree Badge QSL Card will be in demand. It is hoped also that Scout Groups and units with Radio Amateur capabilities or friends will make a special time to get together during the Jamboree to make contact. Further, it is expected that many Groups round the world will want to make contact to find out how the Jamboree and their particular people are progressing. To assist these contacts SKEDS WILL BE ACCEPTED for a particular frequency, date and time BY MAIL to:—

Scout Amateur Radio VK6SH,
12th Australian Jamboree,
Box 467 PO, West Perth,
Western Australia 6005.

To test propagation conditions as far as is possible all skeds will be acknowleged by trying all contacts with one of the VK6 Amateurs on the organising team exactly FOUR WEEKS to the day and hour on which the contact is asked for. If that sked does not work another will be tried a week later — THREE WEEKS from the Jamboree.

The sooner that skeds are requested the better can the arrangements be.

The Jamboree is being held at Perry Lakes Stadium and associated grasslands — an international track and field site established for the Empire Games in Perth in 1962. The radio station is to be sited on the top floor of the stadium building using most of an area 250 ft. long by 11 ft. wide.

For further information contact:

JAMBOREE
Mr. Alex Shaw,
The Scout Association of Australia.
(WA Branch),
Box 467 PO,
West Perth, WA 6055.
Phone 321-7217
(Mr. Doug Napier)

RADIO
Mr. Peter Hughes,
Asst. Branch Commissioner,
58 Preston Street,
Como, WA 6152.
Phone 367 1740
(mornings 364 7588) ■

COMMERCIAL KINKS

With Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley 3150

After a long absence the FT-200 returns to our column, but before that a quick and easy modification to a not so well known two metre FM transceiver. The MULTI-QUARTZ 16 is certainly not well known in Victoria. Perhaps there are more around in other States. Available up until about a year or so ago, they were a real bargain at $175, complete with eight repeater and two simplex channels installed. At the time I obtained one for a friend, but of course tried it out before passing it on. Performance was quite good with one exception, the received audio quality was very woofy. There was a decided lack of high frequency response to the point the readability was poor under mobile conditions.

In checking out the trouble an audio signal was fed into the receiver audio section which proved to be almost hi-fi in quality. The lack of highs was traced to the discriminator which had apparently been designed with too much de-emphasis. Two capacitors were removed: C72, a .1 mF disc ceramic, and C73, a .02 mF green cap. It was not necessary to use a soldering iron, a quick twist with a pair of long nosed pliers was all it took. Received audio was now normal.

Now to the FT-200. Ian Huser VK5QV was having trouble with strong local signals overloading the receiver. A simple modification changed the AGC from RF to audio derived with apparently excellent results. Let's see how it was achieved.

The problem of strong RF fields operating the AGC in an FT-200 can be overcome by using audio derived AGC rather than the RF derived AGC used in the original circuit.

The conversion is simple, and can be completed in about 5 minutes once the components have been identified.

Remove the 100 pF capacitor (C127) and the "gimmick" capacitor (C165).

Connect a 0.047 uF capacitor between the top end of the volume control and pin 2 of the AGC amplifier (V102b).

Connect a 0.47 uF 150 volt polyester capacitor across C126.

Re-peak L101, and the modification is complete. ■

QSP

MEMBERSHIP STATISTICS
The address label control totals for August AR show that for the first time ever two Divisions exceeded one thousand each. VK4 recorded 1028 labels and VK5 recorded 1014. This is a far cry from only a few years ago when the totals were only 400/500 each. For the same issue both VK2 and VK3 were very close to 2000 each. ■

FINANCIALLY SPEAKING

Courtney Scott VK3BNG

The WIA is a service organisation dedicated to the amateur radio fraternity In Australia and, in particular, providing services to its members.

The extent of the services is limited by cost.

If income could be boundless then the imagination could run riot with all sorts of grand ideas but, of course, this is not the case.

Actually, much time and thought is put in by councillors and executives at the convention and at meetings to produce a balanced budget.

Balancing the budget in the most simplistic terms means providing an acceptable service at the lowest cost to the members.

The term "acceptable service" will mean different things to different people. There is no way of achieving total agreement amongst all members in this regard.

It is generally agreed that Amateur Radio and the publication of the Amateur Radio Call Book are highly desirable services.

However, all thinking amateurs will be aware, particularly in this day and age, that representation at the appropriate places in protection of our hobby is a vital service: The need to speak with one voice.

Couple with these the diverse activities that are provided or are available to members and the sum total is that the WIA is not as stodgy as some would have you believe in servicing its members, and in some respects, non-members.

Illustrated is a general breakdown of income and expenditure for the year ended 31st December, 1978, of the Federal body. Full details were given in AR for July, 1979.

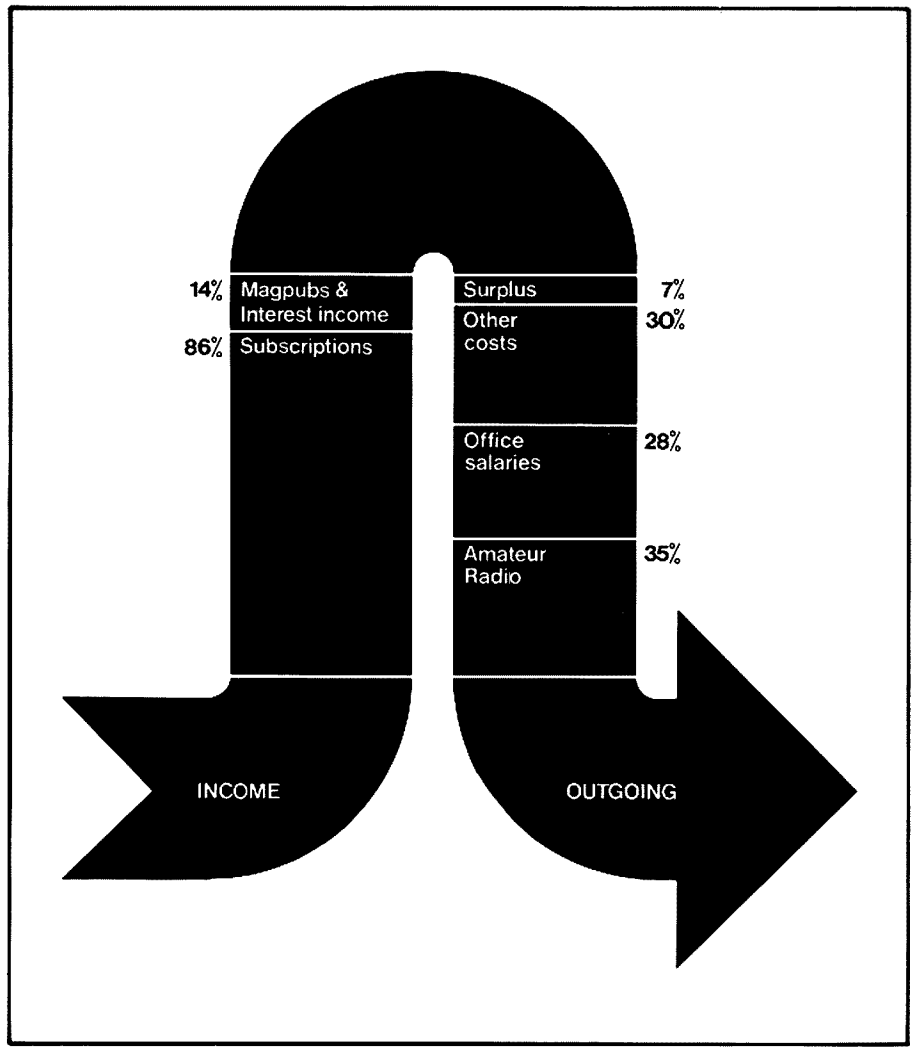
It will be seen that Amateur Radio takes 35 per cent of the income.

"Other Costs" refer to expenses other than AR and Office Salaries, and include office rent, computer time, printing and stationery, etc.

Office salaries take 28 per cent of income. It is difficult to put a cost on some services but WIA could not exist with any strength without professional administration.

On the income side, note particularly that subscriptions do not fully cover expenditure and we rely on the sale of publications and interest to make up the short-fall and provide a small surplus.

The Federal portion of subscriptions is a fixed amount per member. No one can say when inflation will cease and costs will invariably rise. So must the Federal dues. Either that or standards must fall. ■



AMATEUR RADIO MOBILE SOCIETY

OBJECTS OF THE SOCIETY

It was formed in 1959 to cater for all interests of mobile amateur radio on a world-wide basis. It is a truly international organisation. Members are in all continents; some countries represented are Australia, Canada, New Zealand, South Africa, the USA and many European countries.

MEMBERSHIP CONDITIONS

Australian amateurs are automatically eligible for Corporate membership as our licences permit mobile operation.

OVERSEAS REPRESENTATIVES

Overseas representatives exist in many countries, and the society is administered in the United Kingdom. The present secretary is Norman Fitch G3FPK, 40 Eskdale Gardens, Purley, Surrey CR2 1EZ.

MOBILE NEWS

Mobile News is the name of the society journal, published eight times a year. It contains technical articles, reviews of equipment, antenna ideas, interference suppresion, etc. It also contains news of world-wide mobile events, reciprocal licensing, and so on. It is produced offset in A5 size and is of a high standard.

HEADQUARTERS STATION

Headquarters Station has its distinctive call sign G4AMS, which is used at events in the UK. It was operational in a weekly net for the benefit of overseas members in particular, on 21 MHz, but the co-ordinator recently discontinued the proceedings due to lack of support. As there are quite a few members in VK, it might be worth exploring the setting up of a local net for members or interested parties, at any rate on a trial basis. It is not suggested that participants should necessarily be mobile at the time of the net!!!

AWARDS PROGRAMME

The premier award is the "MOBILE CENTURY AWARD" for contacting 100 countries whilst operating mobile.

The WAC/Mobile certificate is for members only and is self-explanatory. The Maurice Margolis Award is a special members only award, named after G3NMR, who did much for the society in the past and was a keen mobile DXer. Individual trophies are awarded each year for retention by the winners, who submit the best aggregate score in terms of the point-to-point distance in kilometres lor up to three mobile-to-mobile contacts in each calendar year.

Contributed by Dick Ashton VK5DQ, PO Box 11, Woomera, SA 5720, who will endeavour to answer any queries upon receipt of a SASE. Membership enquiries should be addressed to G3FPK, 40 Eskdale Gardens, Purley, Surrey CR2 1EZ, United Kingdom. ■

QSP

LOTTO FACTS

Jonathan Kitchin VK6TU

The possible combinations of 6 out of 40 is 3,838,380.

Arranging the 40 numbers into three groups the possibilities in each group can be determined. The net possibility is the product of each group multiplied with the other groups. The three groups are

1-14	14
15-26	12
27-40	14

If all 6 numbers are put in the first group then none are left for the second and third groups. This is written as 6 0 0 .

The tables below are written in this manner, the possibilities of each combination are shown alongside. They total the figure above, 3,838,380.

6 0 0	3003	
0 6 0	924	
0 0 6	3003	
		6930
5 1 0	24024	
5 0 1	28028	
1 5 0	11088	
0 5 1	11088	
1 0 5	28028	
0 1 5	24024	
		126280
4 1 1	168168	
1 4 1	97020	
1 1 4	168168	
		433356
4 2 0	66066	
4 0 2	91091	
2 4 0	45045	
0 4 2	45045	
2 0 4	91091	
0 2 4	66066	
		404404
3 2 1	336336	
3 1 2	397488	
2 3 1	280280	
1 3 2	280280	
1 2 3	336336	
2 1 3	397488	
		2028208
3 3 0	80080	
3 0 3	132496	
0 3 3	80080	
		292656
2 2 2	546546	
		546546
	Grand Total	3838380

The table with 3 2 1 has obviously the greatest number of possibilities.

The line 2 2 2 has the greatest possibilities on its own.

To make 8 entries use 6 from the 3 2 1 table one from each line, and 2 from the 2 2 2 line. Take the 2 2 2 line, the first 2 means any 2 numbers from 1 to 14, the second 2 means any 2 numbers from 15 to 26, the third 2 means any 2 numbers from 27 to 40.

Good luck. ■

QSP

WHITE STICKS

A report in the Telecommunication Journal of July 1979 gives an outline of the projected production of 1,000 sticks for the blind as developed by or for the Swedish National Department for Technical Development. The sticks are equipped with a laser device emitting an invisible beam which is reflected by any solid object at a distance of 2m from the path of the person carrying the stick, whereupon a sound signal is triggered. The sticks are made of carbon fibre and plastic. Also reported is a system using underground cables and a portable receiver for shopping centres. The receiver ticks quietly as long as the user follows the path, but emits a special signal when he deviates from it on either side. ■

VICOM OPENS IN NEW ZEALAND

The active communications group, Vicom International Pty. Limited has opened an office in New Zealand to handle the increasing interest there in consumer and professional communication products.

Their first target is the amateur radio market, which Vicom feels has been neglected by the traditional sellers.

A spokesman for Vicom said that most amateur equipment was sold conservatively in New Zealand and the hams there had not had the opportunity to buy from a professional organisation properly geared for their market.

"We hope to provide well-priced equipment backed by sound technical expertise and technical support. This has been a key to our success in the Australian market," the spokesman said.

Vicom's New Zealand office is located at 10 Lion Court, Upper Hutt. Phone: (4) 28 7946. ■

"LISTENER" ACQUITTED

In the Melbourne Magistrates' Court on the 2nd May, 1979, Mr. Walker, S.M., dismissed two charges against a Melbourne man brought under the Wireless Telegraphy Act. The charges related to the use by the defendant of a Bearcat 210 scanning receiver. It was alleged by the informant, an officer of the Postal and Telecommunications Department, that the receiver was used in contravention of the Wireless Telegraphy Act. The Bearcat 210 receiver covers the frequency bands 32-50 MHz, 146-148 MHz, 148-174 MHz, 450-470 MHz, 470-512 MHz and 416-450 MHz.

Evidence was given that the defendant had admitted to receiving amateur, CB, marine and police transmissions. Evidence was also given that the receiver was capable of receiving the Wireless Institute's Sunday morning broadcast. The defendant gave evidence that it was his belief that he did not require a special licence to use the receiver.

In dismissing the charges, Mr. Walker stated that he accepted the submission of Counsel for the defendant that the Bearcat 210 receiver was a receiver capable of receiving broadcasting programmes and by virtue of Section 130 (2) of the Broadcasting and Television Act a licence was not required for this receiver under the Wireless Telegraphy Act. The Magistrate also found that, in any event, the defendant had an honest and reasonable belief that the receiver in question was capable of receiving broadcast programmes, ruling in effect that he would have dismissed the charges on this ground alone. ■

DUAL LICENCE HOLDERS

At the last count of the WIA alphabetical computer listings a little over 250 amateurs throughout VK held two calls, either a limited/novice each or two full calls each. ■

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pacesetter in amateur radio
APPOINTED DEALER

LATEST RELEASE TS 180s...

FEATURES DFS (DIGITAL FREQUENCY CONTROL) ALL SOLID STATE * 160m to 10 METERS * TWO BUILT IN MICROCOMPUTERS * FOUR MEMORIES * PLUS MANY OTHER EXCLUSIVE FEATURES.

TS 520S $630.00 WHILE STOCKS LAST
TS 120V TRANSCEIVER
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TR8300 *Special*

UHF FM 10 WATT TRANSCEIVER
wide band width, suitable for present and proposed 70 cm. band plan. Optional Crystals available to order.
PRICE: $365.00

KENWOOD MICROPHONES:
MC - 10 **Price: $20** MC - 50 desk **Price $55**
MC - 35, noise cancelling **Price $25**

KYOKUTO FM 2016 A

144 MHz DIGITAL PLL SYNTHESIZER FM TRANSCEIVER
ALL ELECTRONIC MEMORY, 4 CHANNELS PLUS SCANNING. 10 KHz STEPS
PLUS 5 up., 1,000 CHANNELS
PRICE AMATEUR NETT: $360.00 (PACK & POSTAGE $5.00)

MML 50/25
25 WATT 50MHz LINEAR POWER AMPLIFIER & LOW-NOISE RECEIVE PREAMP

MML 144/25
25 WATT 144 MHz LINEAR POWER AMPLIFIER & LOW-NOISE RECEIVE PREAMP

* RUGGED 65W DISSIPATION PA TRANSISTOR * ULTRA LOW-NOISE RECEIVE PREAMPLIFIER * EQUIPPED WITH RF VOX AND MANUAL OVERRIDE * L.E.D. STATUS LIGHTS FOR POWER & TRANSMIT
* SSB/FM, AM and CW.

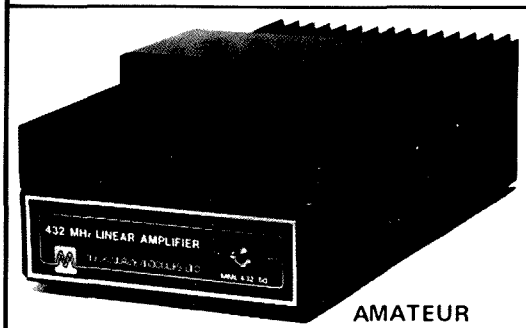
MML144/25 SPECIFICATION MML 50/25

LINEAR AMPLIFIER
Power profile: 25 watts typical output for 3 watts input
Frequency bandwidth: 144-148 MHz at – 1dB
Power requirement: 13.8 volts at 2.8 amps for 25 watts output
Quiescent current : 75mA nominal at 13.8 volts

RECEIVE PREAMP
Overall gain: 10dB typical
Overall noise figure: Better than 2.5 dB
Frequency bandwidth: 144-148 MHz at – 1 dB

Weight : 300g
Overall size: 150 x 65 x 47 mm

NEW PRICE AMATEUR NETT $105.00 Pack & Post $3.00



PRICE MML 432/50 AMATEUR $265.00 NETT

NEW MML 432/50
50 WATT 432 MHz LINEAR POWER AMPLIFIER AND LOW-NOISE RECEIVE PREAMP

FEATURES – * 50 watt minimum output, 6dB typical gain * Rugged 145w dissipation PA transistor * Ultra low-noise receive preamplifier * Equipped with RF vox and manual override * Led status lights for power and transmit

SPECIFICATION.
LINEAR AMPLIFIER. **Power profile:** 50 watts typical output for 10 watts input. **Power gain:** 6 dB typical **Frequency bandwidth:** 430-440 Mhz @ - 1 dB **Power requirements:** 12.5 volts @ 8amps for 50 watts output. 13.8V maximum **Quiescent current:** 1amp nominal @ 12.5 volts.
RECEIVE PREAMP. **Overall gain:** 10dB typical. **Overall noise figure:** Better than 3.0dB. **Frequency bandwidth:** 430-440 MHz @ -1dB. **Receive current:** 75mA nominal @ 12.5 volts.
GENERAL. **RF input connector:** 50ohm BNC. **RF output connector:** 50 ohm 'N' type. **Weight:** 4 Kg (8lb. 13oz.) **Size:** 315 x 142 x 80mm (12 3/8 x 5 5/8 x 3 1/8).

AMATEUR ELECTONIC IMPORTS IS THE EXCLUSIVE AUSTRALIAN DISTRIBUTORS FOR THESE PRECISION BRITISH MADE UNITS FROM MICROWAVE MODULES LTD.

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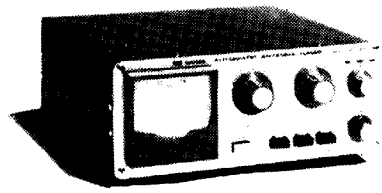
AUTOMATIC ANTENNA TUNER

CNA 1001 200W $269
CNA 2002 2.5 KW $569

A new concept in antenna tuning.
Patent pending. Write for details.



SWR & POWER METERS

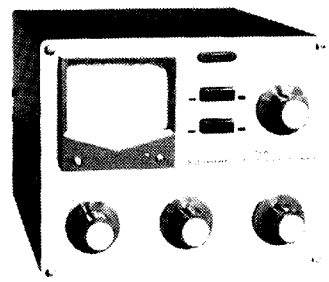
Model	Freq.	PWR	Cross-Needle	Price
CN620	1.8-150 MHz	20/200/1KW	yes	99.00
CN630	140-450 MHz	20/200	yes	135.00
CN650	1.2-2.5 GHz	2/20	yes	169.00
SW210A	1.8-150 MHz	20/120	no	99.00

Cross-needle type offer DIRECT readings.

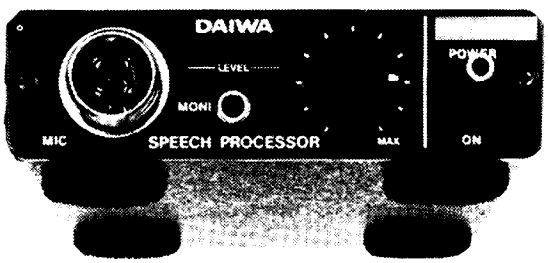
ANTENNA COUPLERS

CL67A	1.9-28 MHz, 500 wpep	135.00
CNW217	Includes SWR/PWR Meter, 200W	165.00
CNW417	Includes SWR/PWR meter, 500W	199.00

High quality couplers, 2 models includes cross-needle SWR/PWR meters.



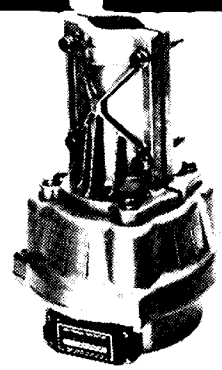
SPEECH PROCESSORS



RF660	Phasing type dc	109.00
RF440	Phasing type ac/dc	126.00
RF550	Fitter type, ac/dc	169.00
MC330	Speech compressor	99.00

Increase talk power with splatter free operation. RF clipping (not in MC330) assures low distortion. Simply install between microphone and transmitter.

Typical specs RF660:
Talk power: Better than 6dB
Freq. Response: 200Hz-3000Hz at 12dB down
Distortion: less than 3% at 1 KHz, 20dB clipping.
Power Req.: 13.8 Vdc at 50mA.



ROTATORS

DR7500S	Medium Model	189.00
DR7600S	Heavy Duty Model	259.00

* High dependability: weather sealed
* Quiet operation
* Complete with attractive controller

	DR7500S	DR7600S
Rotation Torque	500 Kg-cm	600 Kg-cm
Braking torque	2000 Kg-cm	4000 Kg-cm

COAXIAL SWITCHES

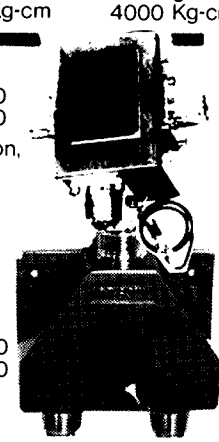
2	Position model CS201	23.00
4	Position model CS401	59.00

Professionally engineered cavity construction, high isolation.
Power rating: 2.5 KW pep, 1 KW CW
Impedance: 50 ohm
Insertion loss: less than 2dB
Maximum frequency: 500 MHz
Isolation: Better than 60dB at 300MHz.

COAXIAL RELAYS

CX2L	100W pep max model	45.00
CX2H	200W pep max model	69.00

Quality change-over relays use 10-15 vdc.
Frequency Range: CX2L 1.8-170 MHz.
CX2H 1.8-450 MHz.



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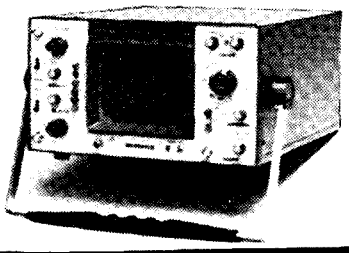
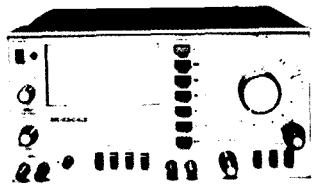
LBO 508A OSCILLOSCOPE



Bandwidth DC-20 MHz.
Sensitivity 10mV/cm.
130mm highly C.R.T.

$899

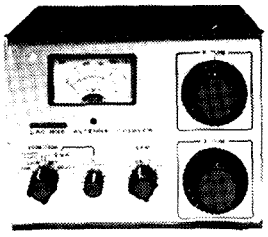
LDM 170 DISTORTION METER



20Hz-20kHz 0.3% F.S.
Measures distortion, signal-to-noise ratio, signal levels.

$490

LAC 895 ANTENNA TUNER



Built-in SWR and in-line Watt meter. 5 bands from 3.5 to 28 MHz. 500W pep transmitter input.

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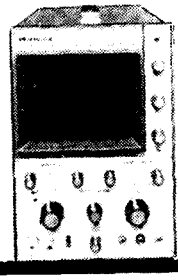
LBO 510A OSCILLOSCOPE

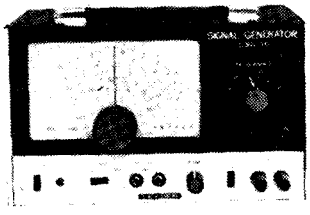


20 mV/4MHz.
FET'S input

BUDGET PRICED

$399

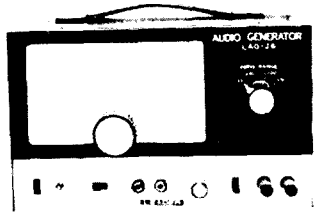
LSG 16 RF SIGNAL GENERATOR



100KHz-100MHz
Solidstate RF signal generator. Suited for aligning the IF circuits in AM, FM and TV sets.

$119

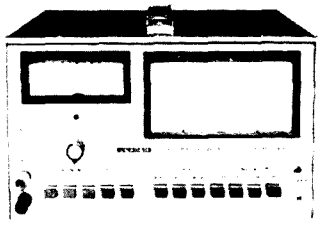
LAG 26 AF SIGNAL GENERATOR



20Hz-200kHz
Stable generator for all types of audio circuit.

$166

LFM 39A WOW AND FLUTTER METER



For accurate and easy determination of the wow and flutter characteristics of tape recorders to JIS, CCIR and DIN standards.

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LMV 181A AC MILLIVOLT METER

AC Voltages from 100uV up to 300V. 5Hz-1MHz.

$189

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HC-1400

NDI HC 1400

Microprocessor controlled
PLL circuitry
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800 Channels with 5KHz
Spacing 144-148MHz
3 Memory channels
LED Displays both TX &
RX frequencies
***25 Watts** Power Output (5 watts on Low)*

ALL FOR ONLY **$399**

MOST YAESU HF PRODUCTS IN STOCK

SPECIAL FT101E's with fan, DC-DC converter & mic for only **$829.00** **(no hidden price extras)**

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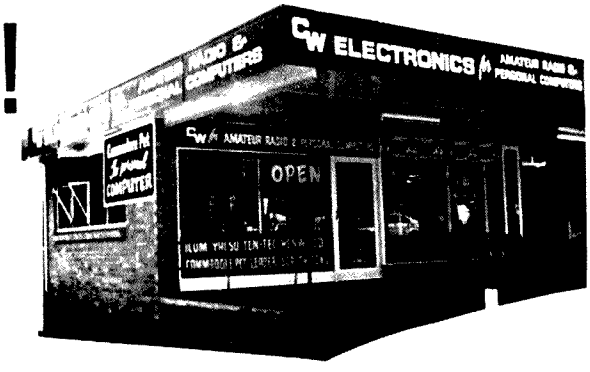

CW ELECTRONICS GETS RID OF THE NORTHERN AMATEUR RADIO OPERATOR'S BLUES.

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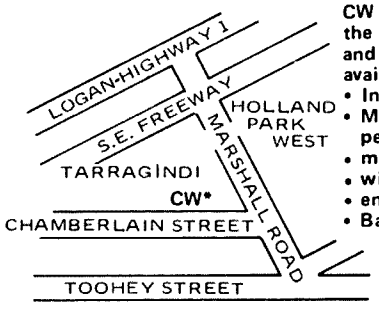

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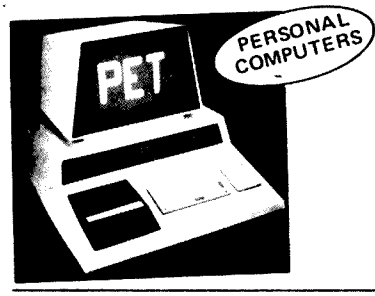

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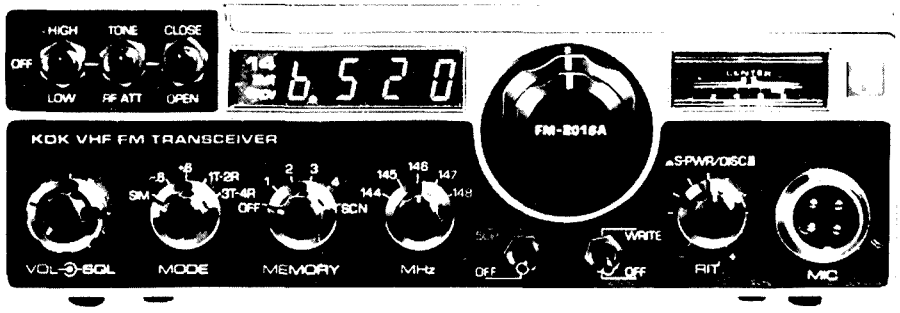

NEW KYOKUTO 15W. Output $360 Available Now

From: SIDEBAND ELECTRONICS
SALES PH: 438 4191
AMATEUR ELECTRONIC IMPORTS
PH: 547 1467

SPECIFICATIONS - FM-2016A / FM-2016E

GENERAL

FREQUENCY COVERAGE:	*144.000 - 148.995MHz, 10KHz steps & +5KHz, 1000 channels.*
	144.000 - 148.995MHz, Ditto above receive only, FM-2016E
	144.000 - 145.995MHz, Transmit, FM-2016E
SEMI-CONDUCTORS	*11 FET, 33 Transistors, 17 IC's and 65 Diodes*
MEMORY CHANNELS:	*4 Channels*
SCANNING:	*Scanning of 4 memory channels for open and closed channels.*
FREQUENCY STABILITY:	*Better than +.002%*
USEABLE TEMPERATURE RANGE:	*-20°C to +60°C*
POWER SOURCE:	*DC 13.8v, ±10% (negative ground)*
ANTENNA IMPEDANCE:	*50 ohms nominal, unbalanced*
CURRENT CONSUMPTION:	*Less than .4A receive standby, .6A maxium volume*
	Less than A 15watts, 1.3A 1 watt
DIMENSIONS:	*180w x 60h x 195d mm*
WEIGHT:	*2.5Kgs, transceiver only*

FM — 6016 50 - 54 MHz FM 800 CH. 25W. $330

NEW! SKY-BAND MOBILE ANTENNAS

THIS NEWLY DESIGNED UNIQUE MOBILE ANTENNA HELICALLY WOUND EXTRA HEAVY DUTY. SIX FEET LONG, AND CAN HANDLE UP TO 400 WATTS P.E.P.

FEATURES:
Light weight.
S.W.R. better than 1: 1.05 at resonance
Covered with highest grade fireproof insulation
Chrome base with 3/8 24 tpi. thread
Available in colours, grey, white, blue, green burnt orange, brown and black.

AVAILABLE:
SKY. 80M 3.5 Special Novice
3.65
SKY. 40M 7.06
SKY. 20 14.150
SKY. 15 21.100 and up.
SKY. 10 28.5 and up.
SKY 10/15 special

PRICE LIST:

SKY 80 6 feet long 3.5 MHz	$28
SKY 40 6 feet long 7.060	$26
SKY 20 6 feet long 14.150	$26
SKY 15 6 feet long 21.100	$25
SKY 10 6 feet long 28.500	$24
SKY 10/15	$30

All Sky-Band Antennas are carefully designed and have been individually tested. High quality fibreglass rod, wound with optimum thickness of wire to keep weight down, but maintain High Q. An elegant design to those who only want the best. All antennas are factory tuned for the lowest portion of the desired band and can simply be trimmed for your chosen frequency. Yes it is allAustralian made! You don't pay for large overheads, instead we use the best material available and offer a mobile antenna which will resonate to our frequencies, unlike the previous overseas designed antennas.

ORDER NOW AND SPECIFY THE COLOUR YOU REQUIRE

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TRY THIS

WITH THE TECHNICAL EDITORS

SUPER QUAD

An unusual stacked coupled quad antenna, which is both simple to construct and has a high gain claimed for it, appeared recently in the magazine OM.

The antenna described by HB9BIX has a claimed gain of 11.5 dB over a half wave doplle and a front to back ratio of 25 dB.

The antenna is a combination of four quads which are coupled together by sharing common elements.

Constructional details are shown in the Figures 1 to 4. ■

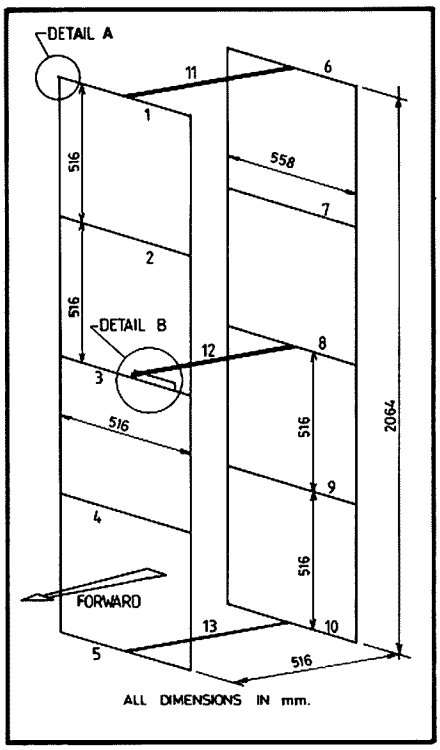

FIG. 1: The general arrangement of the antenna, showing dimensions.

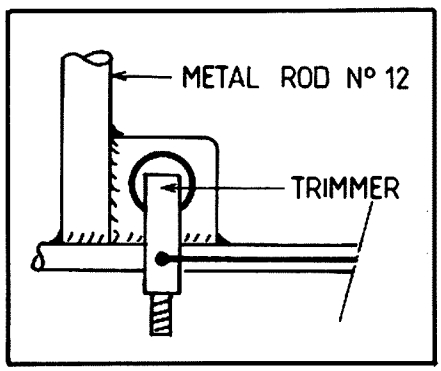

FIG. 2: Part of detail B showing the gamma matching tuning capacitor.

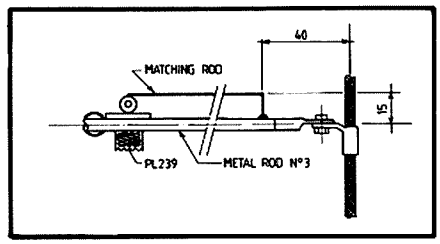

FIG. 3: Part of detail B showing the gamma match.

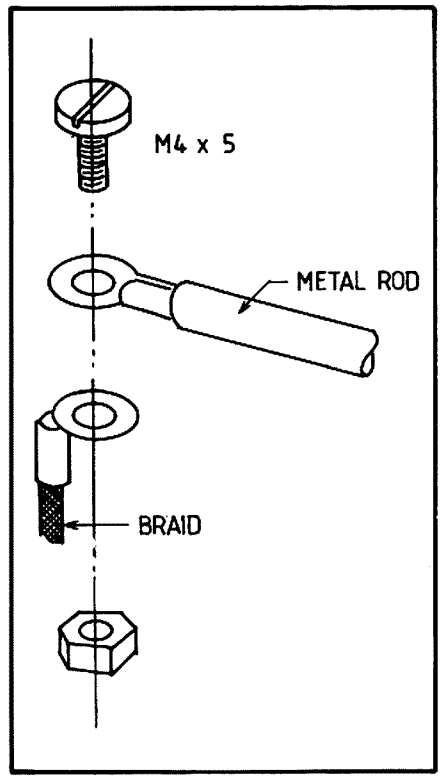

FIG. 4: Clamping method for gamma match.

QSP

SENARC 1980

The 26th national ARRL Convention will be held in Seattle, Washington, from 25th to 27th July, 1980. The theme of the Convention is "World Friendship through Amateur Radio". ■

POSTAGE STAMP

Most amateurs know something, even if by name only, of the Barlow Wadley receiver. ZS5CO, in a short article, reports that Dr. T. L. Wadley, the "radio wizard" behind the development of this receiver and many other radio developments, has been honoured by a South African postage stamp to appear in February. Dr. Wadley's name is equally well known in the geodetic survey field relating to the Tellurometer system of radio distance measurement. ■

NEW ITU PREFIX

Radio Communications August 1979 reports the allocation of H8A to H9Z to the Republic of Panama. ■

NOVICE NOTES

HAVING TROUBLE WITH SOVIET QSLs

It has been pointed out that a large number of VK Novices and some full calls have been omitting to put the operator's name on their QSL cards to the USSR.

A Russian made this statement when asked why we seem to be getting such a poor return from his country. Many Soviet stations are club stations. The operator will of course give his name and it is advisable to carefully note the spelling. Also try to be as accurate as possible as to the time in GMT when the QSO took place.

Many cards have been useless to the Soviets because the Australian amateur has not put the name of the Russian operator on the card. The club then has difficulty in confirming which particular operator was on the air at the time, especially if the times do not correspond.

Whether in fact this is the reason for the sometimes sparse response from the USSR is debatable, but it would certainly seem worth a try when next sending a card for Box 88, Moscow. ■

☆ ★ ☆

PARASITICS

From a report in a DOT newsletter comes a reminder of the danger of parasitics.

This gave details of an investigation into a fault which involved Distance Measuring Equipment and caused some considerable concern. A large amount of time was spent in tracing the fault and considerable inconvenience resulted.

The fault was eventually traced to an amateur transmitter which had developed a parasitic. The fault was subsequently fixed and happily the report records that the DOT staff received full co-operation during their tests.

This incident should serve as a timely reminder not to be complacent about parasitics and spurious radiations. Commercially manufactured equipment is also liable to develop such undesirable radiations and it is upon us to make sure our gear is clean and stays clean. In particular we should check after any modification or any change in operation.

Run a clean station and continually check station performance. The radiation of spurii and parasitics should be avoided. The amateur service is one which depends to a great extent on the ability to keep one's own house in order. Don't let the side down by sloppy maintenance and poor signals. ■

100 WATTS ON 6 METRES!

An additional model now available. IC 551D with 100W output.

GRAB THAT DX!

IC551D* 100W $850
IC551 10W $799

*This model does not have FM option. Operates from 13.8 v.d.c.

Features:

* **50-54 MHZ ALL-MODE TRANSCEIVER INCORPORATING A MICROCOMPUTER**
CPU control with ICOM's original programs provides various operating capabilities. No-backlash dial controlled by ICOM's unique photo-chopper circuit. Band-edge detector and Endless System provides out-of-band protection. No variable capacitors or dial gear, giving problem-free use. All mode capability: SSB, CW, AM and FM. Operating mode is indicated on the display unit.

* **MULTI-PURPOSE SCANNING**
Memory Scan allows you to monitor three different memory channels. Program Scan provides scanning between two programmed frequencies. Adjustable scanning speed. Auto-stop stops scanning when a signal is received, in all modes. Auto-start restarts scanning after a pre-set interval.

* **TWO VFO'S BUILT IN**
No extra equipment needed for split-frequency operation. Easy writing and reading of the three memory channels. Smooth and easy tuning with a 5KHz-per-turn dial marked in 100Hz increments. Complete 4MHz coverage without a band select switch.

* **EASIER OPERATION AND LIGHTER WEIGHT**
The most compact, lightest weight all-mode 50MHz transceiver. First to use a pulse power supply in communication equipment, for lighter weight. 50mm-diameter large tuning control knob for smooth and easy tuning. Trouble-free controlling knobs for both receiving and transmitting LED indicator for transmit and receive modes.

* **MOST SUITABLE FOR BOTH FIXED AND PORTABLE STATIONS**
Built-in 240V AC and DC power supplies. Convenient Dial Lock switch for mobile operation. Easy-carry handle. Effective Noise Blanker to reduce outcoming pulse noise. IC-SM2 high quality stand microphone is suitable for fixed station operation. Powerful audio output, 2 watts at 8 ohm, for easy listening even in noisy surroundings.

* **EXCELLENT SPURIOUS AND INTERMODULATION CHARACTERISTICS**
ICOM's specially designed helical cavities at both the input and output of the RF amplifier provide excellent intermodulation characteristics. Newly developed high quality FET's for improved S/N ratio. Dual-gate MOS FET's for IF amplifier. Newly developed compact high quality crystal filter for better selectivity. Variable RF output power.

* **ACCESSORY CIRCUITS**
ICOM's original effective Noise Blanker to reduce pulse noise. AGC selection to reduce OSB effect. RIT circuit to shift the receiving frequency without effecting the transmitting frequency. Includes voice control unit for smooth VOX operation. ICOM's famous bandpass tuning to improve selectivity in the receive mode. RF speech processing in the transmit mode for that extra 'talk power'.

* **BACKED BY VICOM**
90 day warranty and technical/spares support.

IC551 Specifications: □General. Number of Semi-conductors: Transistors 51. FET 13. IC (includes CPU) 30. Diodes 114. □ Frequency Coverage: 50 — 54MHz. □ Operationable Temperature: — 10°C — +60°C (14°F — 140°F). □ Frequency Stability: Less than ±500Hz after switch on 1 min to 60 min, less than 100Hz per 1 hour after 60 min, and less than ±1KHz in the range of — 10°C to +60°C. □ Antenna Impedance: 50 ohms unbalanced. □ Power Supply Requirements: 13.8V DC ±15%, negative ground, or 117V/240V AC ±10%. □ Power Consumption: Receive at min. audio level DC 0.9A AC 35W. at max. audio level DC1.1A AC41W. Transmit in SSB/CW modes DC 3.3A AC 98W. in AM mode DC 3.0A AC 92W. in FM mode DC 3.3A AC 98W.
□ Dimensions: 111mm (h) x 241mm (W) x 311mm (D). □ Weight: 6.1 kg. □ Transmitter Emission Modes: A3J SSB (USB/LSB). A1 CW. A3H AM. F3 FM. □ RF Output Power: SSB 10W PEP (1 — 10W adjustable). CW 10W (1 — 10W adjustable). AM 4W (0 — 4W adjustable). FM 10W (1 — 10W adjustable). □ Modulation System: SSB/AM Balanced modulation. FM Variable reactance frequency modulation. □ Max. Frequency Deviation*: ±5KHz. □Spurious Emission: More than 60dB below peak power output. □ SSB Carrier Suppression: More than 40dB below peak power output. □ SSB/AM Unwanted Sideband: More than 40dB down at 1000Hz AF input. □ Microphone: 600 ohm dynamic or electret condenser microphone. □ Receiver. Receiving Mode: A1 (CW), A3J (USB, LSB), A3H (AM), F3 (FM). □ Receiving System: SSB/CW/AM Single Superheterodyne (Triple Superheterodyne when Pass Band Tuning unit is installed). FM Double Super heterodyne. □ Intermediate Frequency: SSB/CW/AM 9.0115MHz. (When Pass Band Tuning Unit is installed: 2nd IF: 10.75 MHz, 3rd IF: 9.0115MHz). FM 1st IF: 9.0115MHz, 2nd IF: 455KHz. □ Sensitivity. SSB/CW/AM Less than 0.5 uV for 10dB S N/N. FM More than 30B S+N+D/N+D at 1 uV. □ Spurious Response Rejection. Ratio: More than 60dB. □ Selectivity: SSB/CW/AM More than ±1.1KHz at — 6dB. Less than ±2.2KHz at — 6dB. When Pass Band Tuning Unit is installed: less than 1KHz at —6dB). FM more than ±7.5KHz at — 6dB. Less than ±15KHz at —60dB. □ Squelch Sensitivity: SSB/CW/AM 1 uV. FM 0.4uV. □ Audio Output Power: More than 2 watts. □ Audio Output Impedance: 8 ohms.

Check it out at your VICOM dealer.

VICOM

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South Melbourne Vic 3205
Ph (03) 699 6700
Telex AA 36935 PROVIC

Amateur Radio Division.

SIDEBAND ELECTRONICS IMPORTS

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WAREHOUSE 213 HAWKESBURY RO., SPRINGWOOD
TELEPHONE (047) 541-392

SPECIAL ANNOUNCEMENT: In the future we will be operating under a slightly different format. Arie Bles-VK 2AVA will withdraw gracefully into the background whilst Roy Lopez-VK 2BRL will continue to operate the business using the same good, old fashioned, close-to-the-bone price structure which has proved so successful in the past. In the retailing of Amateur Radio Equipment Sideband Electronics Imports is no "Johnny-come-lately". Arie can be said to have fathered the introduction of commercially built amateur radio equipment into Australia, and to a great extent he has been responsible for ensuring that retail prices have been maintained at a sensible low level. Have a look back through old issues of Amateur Radio over the past 15 years, and more recently Amateur Radio Action, and you will see what I mean.

A MATTER OF PRINCIPLE: Arie's style will be maintained in the future, and under no circumstance will Sideband Electronics Imports assist in, or be a party to, the selling of Amateur Radio Equipment to known radio pirates or to the conversion of relatively high powered Amateur Radio Equipment for use on the 27-Mhz CB-band. Such sales and conversions which are both unethical and illegal, may eventually lead to the revoking of the custom by-law which allows radio transceivers for strictly amateur consumption to be imported duty free, causing such equipment to attract heavy import duties with a subsequent increase in retail price. It is an unfortunate fact that some licensed Radio Amateurs involved in the retailing of amateur radio equipment are, for a price, carrying out such illegal conversions and sales. OUR ADVICE — DON'T PATRONISE THEM!

ROY LOPEZ

HENRY RADIO — A brand new linear amplifier
1KD-5 10-80M 1200W PEP linear $850

HY-GAIN ANTENNAS

TH6-DXX 10-15-20M 6-el yagi $275
TH3-MK3 10-15-20M 3-el yagi $240
TH3-JR 10-15-20M 3-el yagi $160
18-AVT/WB 10-80M vertical $110
204-BA 20M 4-el Tiger Array $200
BN-86 balun for beam buyers $20

HY-Q (USA) 50-ohm 1KW balun $15
HY-Q (USA) multiband 10-80M dipole kit, wire, balun insulators, spreaders, etc $45

ROTATORS & CABLES

All rotators now come with bottom brackets and control-indicator boxes wired for 28V AC operation
KEN KR-400 medium duty $110
CDR BT-1A light duty 4 position push-button programmable $90
CDR Ham III heavy duty $175
CDR tail-twister extra H.D. $225
RG-8U foam coax cable, per metre $1.00
8-cond. rotator cable, per metre 75c

ACCESSORIES

Voltage regulator 18V AC input 12V DC 3A output $23
240/18V AC transformer $10
5 meter RG-58U coax cable with PL-259 one end $2.50
Mobile bumper mounts 3/8" 24 thread $5
Mobile gutter mounts 3/8" 24 thread $3

KYOKUTO FM-2016A 800 channel 2 meter FM transceiver with 4-channel memory & scanner 15W $360

TRIO-KENWOOD PRODUCTS

VFO 820 for TS 820S $150
VFO 520 for TS 520S $130
LF 30A low pass filter $30
SP 120 for TS 120 series $36
BS 8 adaptor TS 820 to SM 220 ..... $50
DK 520 adaptor TS 520 to DG 5 ..... $15

All further Trio-Kenwood accessories and transceivers at competitive prices

CO-AX CONNECTORS

PL-259-SO-239-cable joiners ea. 75c
Right angle & T connectors, ea. $1.50
GLP right angles RG-58U to SO-239 w/lock nut and cap, ea. $2.50
Double female connectors, ea. 80c
MLS right angles RG-58U to PL-259, ea. 90c
In-line mike sockets 3 & 4 pin, ea. 75c
Mike sockets 3 & 4 pin, ea. 75c

YAESU MUSEN PRODUCTS

FRG-7 .5 to 30 Mhz receiver $300

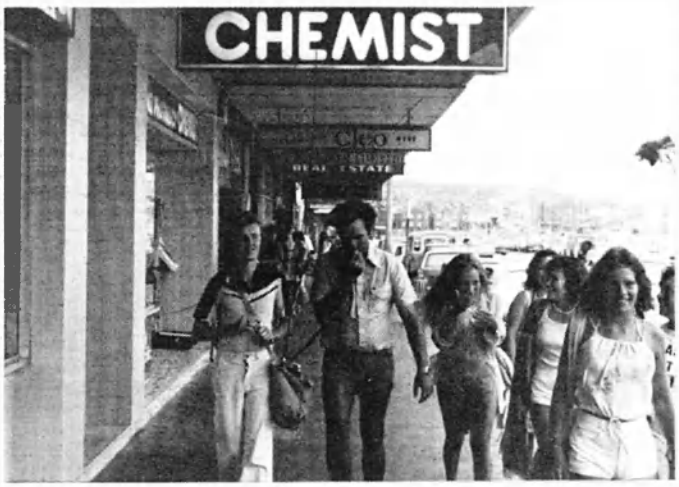
NOVICE SPECIALS — TRANSCEIVERS

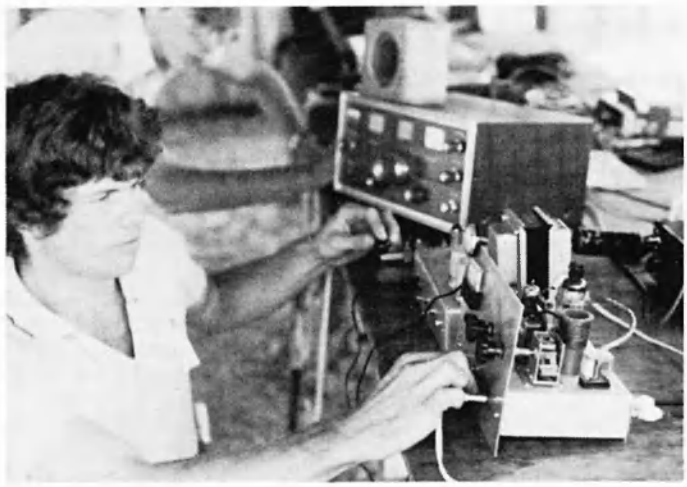
10M Sideband SE-502 USB/AM 15W PEP-240V AC 12V DC-inbuilt SWR/RF meter 28.3-28.6 mhz-clarifier tuning transmit and receive $90
10M Universe 224-M USB/AM 15W PEP 12V DC 24-ch. 28.480 to 28.595 mhz, 5-khz steps-clarifier tuning transmit and receive $100
CONVERSION CRYSTALS for amateur licence holders — set of 8-crystals to convert 23-ch. 27-mhz CB units to 28-mhz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above — CRYSTALS and instructions $40

All Prices are NET, ex Springwood, NSW, on a pre-payment with order basis. All risk insurance is free of charge, allow for freight charges by air, road, rail or postal, excess will be refunded. Prices are subject to change without prior notice. All orders cleared on a 24-hour basis after receipt of order with payment.

Arie Bles (VK2AVA) Proprietor **Roy Lopez (VK2BRL) Manager**

MORE VK/CB CLUB ACTIVITIES





Although not much information has been forthcoming from the Amateur and Citizens Radio Club (VK/CB) over recent months, nevertheless the members are still very active in the pursuit of our hobby and general public relations.

The photographs tell only part of the story, and depict another excellent example of our younger amateurs assisting interested CBers in attaining an amateur licence.

It is this sort of activity which helps to inform the public of our hobby, and the members of the club are to be congratulated for their efforts.

Wouldn't it be ideal if all of the WIA Divisions and various clubs conducted similar activities on a more regular basis?

It seems only too easy to sit back and let somebody else do most of the work.— VK3UV.

PHOTO No. 1

Garry VK2NZI (left) and Ron VK2DAE (talking) operating hand-held pedestrian or 10 metres walking down Bondi Beach Road shopping centre.

Both have worked into Europe on 10m in this way. They often help out at the weekends giving newcomers a taste of QRP DXing.

PHOTO No. 2

Did you know there are a lot of people in Kings Cross, Sydney — just looking for interesting things to do?

Members of the Amateur and Citizens Radio (VK/CB) Club found lots of interest when they set up this display at the Kings Cross fountain.

Local rangers were pleased to see such a worthwhile display at the Cross and Indicated that the group would have no difficulty in obtaining a permit to conduct regular such displays at the Cross.

PHOTO No. 3

Members of the Amateur and Citizens Radio (VK/CB) Club holding a display at Bathurst, central NSW, during the flea market event which attracted hundreds to the area.

The Club also demonstrated amateur radio to those manning a CB display organised by the Bathurst CB Club.

PHOTO No. 4

Neville VK2QF, well known locally in the instructional field, met the members of the Amateur and Citizens Radio Club and set up for display a working home-built AM and CW 80 metre station at Hillend In the Central West of NSW.

PHOTO No. 5

On the sidewalk of Bondi Beach.

The Sydney amateur radio PR team in action.

PHOTO No. 6

Andrew VK2VHH enjoys a nice bus trip using 2 metres FM under full call supervision.

Andrew and his friends, Chris and Dave (both looking this way), you will probably recognise helping at the amateur weekend.

PHOTOGRAPHS FOR AR

Don't keep them to yourself

SEND THEM IN — NOW

AMATEUR SATELLITES

Chas Robinson VK3ACR

OSCAR NET

The OSCAR Net organised by Peter VK4PJ is active on 3680 at 2000 EST on Sunday. There are obviously some propagation problems but no doubt these will be circumvented; perhaps by moving to an alternative band.

OSCAR INFORMATION

There has been an increasing interest in monitoring the ARRL RTTY information bulletins through WIAW and a great deal of hard and original work has gone into the necessary facilities. Alan VK2RX, Charlie VK3ACR and Peter VK4PJ are all active recorders (while I'm working!) and provide me with the latest news — thanks, fellows, for your help. Also, thanks to Charlie and Peter for offering to write these notes for November and December while I am wandering around the world.

SOLAR ACTIVITY

It now appears that the high solar activity a few months ago was responsible for the change of OSCAR 8's orbital parameters which now seem to be settling down to routine once again.

The lower altitude satellites (below 1000 km or so) were the ones affected, whereas satellites such as OSCAR 7 at 1465 km continued on their predicted courses. Now you know why Skylab came down much earlier than anticipated.

OSCAR 7

Perhaps the sunspots have revitalised AO7 as several very good contacts have been made through this satellite. As in earlier years, Mode B is outstanding in its clarity and of course the 20 or more minute pass makes for a really fine QSO. The only problem is its reliability; only observation can tell you whether it is on Mode A, Mode B or just OFF. With no (or rarely) beacons for assistance, OSCAR 7 is now real fun!

Regulars on 7B include ZL1BDU, P29ZFB, VK2RX, VK3ACR, VK2ZI and VK4ZRF. Jim P29ZFB has been a great OSCAR operator during his residence in PNG, being active on Modes A, B and J through both OSCARS 7 and 8. He is returning home at the end of August and hopes to acquire a VK4 call. We shall be looking for you, Jim.

MODE J CLUB

Charlie VK3ACR and myself have received the most attractive Mode J Club certificate as described in last month's notes. Our awards are numbered 78 and 79, which is quite remarkable as the potential for this award in Europe and North America must be enormous — possibly Mode J is more demanding than we thought.

DUAL SATELLITE OPERATION

Every few weeks our two operating satellites are located in a position where communication between them is possible for ten or so visible orbits.

During August this situation obtained and with AO7 performing well, excellent results were achieved. The procedure is to transmit on 432.15 into AO7, the 145.95 downlink from AO7 is received by AO8 and re-transmitted on 29.45 or 435.15 (the frequencies given are nominal centre frequencies of the transponder Modes A, B and J involved).

The distance between the two satellites may be between 550 km (the altitude difference) and 2000 km, and this can be predicted by somewhat complicated calculation.

This is yet another interesting facet of satellite communication.

References: Klein, P. I., and Soifer, R. "Intersatellite Communication Using the AMSAT OSCAR 6 and OSCAR 7 Radio Amateur Satellites." Proc. IEEE October 1976, p. 1526.

"Interspacecraft Distance for Satellite in Circular Orbits and Close Encounter Curves for AO7 and AO8." AMSAT Technical Note, August 1978.

Davidoff, M. "Predicting Close Encounters: OSCAR 7 and OSCAR 8." Ham Radio, July 1979, p. 62.

PHASE III COUNTDOWN No. 1

AMSAT Phase III-A is a high altitude, long lifetime satellite to be launched in March 1980 as a secondary payload aboard an Ariane mission. The European Space Agency will provide the launch opportunity from a site in Kourou, near the coast of French Guiana. The satellite will be inserted into an initial (temporary) elliptical orbit with a projected inclination of 17°, an apogee of 35,000 km and perigee of 200 km. After a few weeks in this orbit when the spacecraft has stabilized and the onboard microcomputer has determined that the satellite is in the proper orientation to the sun, to the earth, and at the proper position in its orbit, a one-shot onboard perigee kick motor will fire (a solid propellant motor that will burn for one 20-second period). This will lift the perigee to its projected final 1,500 km altitude and raise the inclination to 57°. This orbit will have a period of approximately 660 minutes and a longitude increment of about 165° west per orbit. Please note that these figures are only preliminary estimates; the final data cannot, of course, be known until precise measurements are made after launch. These figures, however, are suitable for giving the potential satellite user a sense of what the orbit will be like.

This orbit will favour the Northern Hemisphere at first, as the apogee after the perigee kick motor firing will occur at about 26° N latitude. Over the course of the first two years, the latitude of the apogee will drift gradually northward to its highest point, 57° N latitude. From this time on the apogee will drift southward until after another year or so it will occur over the equator. From this point on, the Southern Hemisphere will be favoured and the second of the AMSAT Phase III missions will have been launched, again initially favouring the Northern Hemisphere. Throughout its lifetime, however, the AMSAT Phase III series satellites will be accessible throughout the world at some point during the day; those regions falling under the illumination at apogee will simply have greater access times.

AMSAT Phase III-A will carry a Mode B transponder. Its uplink will be In the 70 cm band and downlink in the 2 metre band. The passband will accommodate SSB, CW, SSTV, RTTY, and whatever digital modes are approved for use through the satellite. There will be several Special Service Channels that will deal exclusively with such areas as data exchange, education, scientific study, officially authorised traffic, and general interest/information bulletins from throughout the world. A general beacon for routine telemetry and Codestore information, and an engineering beacon for more sophisticated management purposes will be at the very edges of the passband. To access the satellite, a user will need about 1000 watts ERP on 70 cm—but high gain antennas to achieve this effective radiated power economically are feasible as near apogee (plus or minus 3 hours) AMSAT Phase III-A will move very slowly and through a comparatively small arc; tracking will be a fairly simple task.

From Steve Place WB1EYI, AMSAT Phase III-A Education Special Service Channel Co-ordinator.

☆ ★ ☆

With reference to Bob VK3ZBB's article on the new Phase 3 project, further information, via Harry JA1ANG's newsletter, has come to hand and is as follows:

Beacons for Phase 3 spacecraft have been established: General Beacon 145.810 MHz. Engineering Beacon 145.990 MHz.

AMSAT advises that the Phase 3 Flight Ready Spacecraft has to be at the launch facility by 3rd December, 1979, and launch is still scheduled for 5th March, 1980. Checkout of the Flight Computer is being accomplished and everything thus far looks like a goer.

The Flight Transponder is coming along well and should meet schedule requirements. As of now 4,077 solar cells are in hand and 39 battery cells. Preliminary indications show we should have a very good positive power budget for the Phase 3 spacecraft. This is great news.

Preparation of back-up documentation for the WARC delegation on Amateur Satellites is under way at AMSAT and should be on schedule.

Phase 3 solar panels are undergoing thermal testing in vacuum chambers and vibration tests are completed and have proved very, very good. The wire bundle harness for the spacecraft is also progressing well and will meet schedule. The IHC prototype is in the debugging stage and all is going as expected. The 435 MHz uplink antenna is in the design and testing stage. Spacecraft modules and structure are in for the final paint process.

Biggest problem facing AMSAT at this time is the long lead time required for some space qualified components. Delivery of these items will not meet our target date. Don't give up, AMSAT is working hard to overcome these problems.

Harry JA1ANG asks — Are we ready for Phase 3-A satellite? Although we will not know for sure until about the end of November, or even later than that, "Phase 3-A" is due to be launched on March 5th, 1980, from ESA's (European Space Agency: member countries are Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Spain, Sweden, Switzerland and the United Kingdom. Austria, Canada and Norway participate as observers) launch site or Kourou, French Guiana (QTH: 5.4N/52.7W). The launch vehicle: "Ariane" — a three-stage $888 million rocket, 154 ft. long. Launch time: Approximately 9.00 a.m. local time. FY7 local time = minus 4 hours UTC. So it will be around 1300 UTC, which will correspond to our evening of March 5th, 1980.

Please Note that all information mentioned here is subject to change.

Uplink Frequency: 435.277-435.153 MHz (centre of uplink band: 435.215 MHz).

Downlink Frequency: 145.838-145-962 MHz (centre of downlink: 145.900 MHz).

ERP required when satellite is at or near apogee: Approximately 1,000W. Note: To those who have AO-7 Mode B experience, this will mean that you will need 10 dB *more* effective radiated power.

Strength of downlink signals: Approximately 7 dB *less* than those from AO7 when in Mode B.

Modes usable: A1, A3J, SSTV (using SSB) and RTTY (using A1 — either "mark" only or "space" only — ref. AO-7's RTTY (excluding 435.1 telemetry) telemetry, which is *not* frequency shift keyed, but "space" only "keyed").

The Phase 3-A satellite, after leaving the launch vehicle, will go into a "transfer" or "interim" orbit. The inclination will be about 17 degrees apogee approximately 36,000 km and perigee approximately 200 km. It will stay in this "transfer" orbit for about 10 to 14 days, then the KICK MOTOR, a small rocket on board the satellite, will be fired to put the satellite into its final orbit of: inclination approximately 57 degrees; apogee approximately 36,000 km; perigee approximately 1,500 km; period approximately 661 minutes (approximately 11 hours).

WARNING

While the satellite is in its Interim or "transfer" orbit all official ground stations will be reading the telemetry and will make RANGING measurements using the transponder. While this is being done, during the first 10 to 14 days, general users are *warned "not to use the transponder"* under any circumstances.

The above is very important, because based on these preliminary measurements, the timing the firing of the kick-motor will be determined. The kick-motor uses solid fuel, therefore it is going to be a *one time only firing.* In other words, they will not be able to "do it over again" (once fired, it will burn to the end — no stopping, like in the case of liquid fuel) — therefore it is essentially important that they "do it right" and to enable them to do so, a "quiet" transponder will be needed during the first 10 to 14 days after launch. *So, no uplinking by general users, PLEASE!*

Please listen to the beacons: one on 145.810 (which may not be on for the first several days, and the other (the ENGINEERING BEACON) on 145.990 MHz, which will be turned on as soon as the satellite becomes available to general users it will be "announced" over the general beacon on 145.810 MHz, by CODESTORE.

Also, listen to the GENERAL BULLETIN, which will be on approximately 145.965, on one of the SPECIAL SERVICE CHANNELS (SSC).

The following is the proposed "bandplan" for the satellite (keeping in mind that this could be changed: Downlink 145.838 to 145.880 MHz, CW only; 145.880 to 145.920 MHz, mixed CW and SSB; 145.920 to 145.962 MHz, SSB only; RTTY (mark only or space only, CW type) on 145.880; SSTV (using SSB) on 145.920.

The transponder passband will be approximately 150 kHz wide, BUT please refrain from using the band edges below 145.838 and above 145.962 BECAUSE there will be SSCs (Special Service Channels) *reserved* for bulletins, code practice, scientific, data and educational transmissions, therefore *no uplinking below 435.153 and above 435.227 MHz!* Incidentally, sidebands will be "inverted" as in the case of AO7s' Mode B and AO8's Mode J. Thus, uplinking will be on USB, and the downlink will become LSB.

RUSSIAN SATELLITES

Information has been supplied by Bob WA6ERB and Miki JR1SWB, Informing us that about a month ago JAMSAT's JR1WYB, who is very good at Russian, visited RS3A (formally UK3ACM) in Moscow. He learned that both RS3 and RS4 would be launched by the end of the year, and these two satellites would piggyback with certain Cosmos Satellites. So their orbit will likely be the same as RS1 and RS2. They will have Mode A transponders and downlink would be 29,400 to 29,450 for RS3 and 29,450 to 29,500 for RS4, uplink frequency is not certain. They will have sophisticated AGC system and commandable pad (attenuator) to avoid overload as was noted in RS1 and 2.

The most unique aspect of these birds is they will contain "Robot" system, which responds to the signal of ground station. Example: When I transmit on a particular frequency, *RS3 de VK3ACR K,* the Robot will respond as *VK3ACR de RS3 ur 579 K.* No further information is known on the system, but to say the least, it's very impressive.

AOA AWARD

(Oscar Satellite Communications Achievement Recognition.)

I have just received from Colin VK5HI (AMSAT Awards Manager) a list of the VKs who have qualified and received their certificates. These awards can be obtained by those amateurs who can confirm by QSL cards two-way communication with six different VK call areas and two countries. These cards must be sent to Mr. Colin Hurst VK5HI, 8 Arndell Road, Salisbury, SA, accompanied by postage for return of cards and certificates. ZLs are also eligible. To date only 14 of these awards have been issued in VK, these being:

C. J. Hurst VK5HI, R. Galle VK5QR, G. Wiseman VK5ZAD, R. Arnold VK3ZBB, A. Downie VK4ZRF, M. Willems VK4ZIL, J. Roberts VK4TL, A. Hennessy VK2RX, A. Squires VK5ZWO, F. W. Boundy VK2ZFX, J. Beckitt P29ZFB, G. Ratcliff VK5ZGC, C. H. Thorpe L40018, C. J. Robinson VK3ACR. ■

ORBIT PREDICTIONS — NOVEMBER 1978

	OSCAR 7			OSCAR 8		
Date	Orb. No.	Eqx Z	Eqx °W	Orb. No.	Eqx Z	Eqx °W
1	22692	0030	74	8444	0046	58
2	22705	0125	88	8458	0051	60
3	22717	0024	73	8472	0057	61
4	22730	0118	88	8486	0102	62
5	22742	0018	71	8500	0107	63
6	22755	0112	85	8514	0112	64
7	22767	0011	69	8528	0117	66
8	22780	0105	83	8542	0122	67
9	22792	0005	68	8556	0128	68
10	22805	0059	82	8570	0133	70
11	22818	0153	95	8584	0138	71
12	22830	0053	80	8597	0000	47
13	22843	0147	94	8611	0005	48
14	22855	0046	78	8625	0010	49
15	22868	0141	92	8639	0015	50
16	22880	0040	77	8653	0020	52
17	22893	0134	90	8667	0025	53
18	22905	0034	75	8681	0031	54
19	22918	0128	89	8695	0036	55
20	22930	0027	73	8709	0041	57
21	22943	0122	87	8723	0046	58
22	22955	0021	72	8737	0051	59
23	22968	0115	86	8751	0056	61
24	22980	0015	71	8765	0101	62
25	22993	0109	84	8779	0107	63
26	23005	0008	69	8793	0112	65
27	23018	0102	83	8807	0117	66
28	23030	0002	67	8821	0122	67
29	23043	0056	81	8835	0127	68
30	23056	0150	95	8849	0132	70

■

SUMMERLAND AMATEUR RADIO CLUB CELEBRATES LISMORE CENTENARY

1979 is a big year for Lismore, the queen city of northern New South Wales, and the home of the Summerland Amateur Radio Club.

This year is the centenary of local government in Lismore, and while celebrations have been planned to take place throughout the year, the major effort was concentrated during the week commencing 28th May, 1979. Many local organisations have participated in the celebrations, and the Summerland Amateur Radio Club decided to do its bit and at the same time achieve some good PR for Amateur Radio.

After some preliminary talks with the Lismore City Council, the Club was allotted a lecture room in the City Hall which would provide adequate security and give us sufficient room to set up a display on Amateur Radio. The project involved a great deal of preliminary planning, so we set up a sub-committee and got to work. With much help from many willing Club members, we assembled a large range of amateur gear dating from 1926 to 1979. As a result, we were able to set up a display representing a history of amateur radio from very early days to the present time. The ancient gear was complemented by a fine display of modern gear provided by our good friend Ken Ayers, the proprietor of Amateurs' Paradise, Southport.

The actual assembly of the display took place on Saturday, 26th May, 1979, when the gear was set up in historical sequence to form a continuous display around the hall. In one section we assembled an operating station under the Summerland Amateur Radio Club call sign VK2AGH. This section included fully operational HF, VHF, RTTY and ATV, with the odd microprocessor thrown in for good measure — home brew of course. The Lismore City Hall took on a new look, with numerous antenna arrays sprouting from various vantage points, and the experience gained by our WICEN group from many previous exercises really paid off in setting up this part of the display.

The official opening of the Club display took place at 0900Z on 28th May, 1979, and it was a great public success from the outset. The display was crowded on each of the week nights, and on the big day, Saturday, 2nd June, when thousands of people came to Lismore for the official celebrations throughout the day, it was necessary for Club members on the supervision roster to regulate the people admitted to the display room in order to keep the numbers in the room to manageable proportions.

PHOTOGRAPHS:

TOP: The Summerland display.

CENTRE: Amateurs Paradise's display.

RIGHT: Fred Herron VK2BHE, the club co-ordinator, with old and new equipment.

The result of the exercise was a tremendous boost to Amateur Radio on the North Coast of New South Wales. The Club achieved priceless publicity and great PR in the local media, as well as numerous enquiries and new applicants for our Novice classes. At the same time, the Summerland Amateur Radio Club played its part in the community effort to celebrate 100 years of local government in Lismore, one of the oldest provincial cities of the State.

Fred Herron VK2BHE, Summerland Amateur Radio Club. ■

VHF-UHF

An expanding world

Erio Jamieson, VK5LP
Forreston, S.A. 5233

AMATEUR BAND BEACONS

Freq.	Call Sign	Location
50.001	WA6MHZ	San Diego
50.004	PY1RO	Brazil
50.010	HL9TG	Seoul *
50.023	HH2PR	Haiti
50 025	6Y5RC	Jamaica
50.030	HC1JX	Ecuador *
50.030	KL7COG	Alaska
50.030	ZS6PW	South Africa *
50.035	ZB2VHF	Gibraltar
50 050	ZS6LN	South Africa *
50.050	WA1ENX	Maine *
50.075	HK3/4	Columbia (repeater)
50.080	TI2NA	Costa Rica
50.088	VE1SIX	New Brunswick
50.091	WA6JRA	Los Angeles *
50.092	W7KMA	Oregon*
50.093	WA8FTA	Michigan *
50.098	K7IHZ	Arizona *
50.100	ZS6HVB	South Africa *
50.101	FO8DR	Tahiti *
50.104	KH6EQI	Pearl Harbour
50.110	KG6JIH	Guam *
50.110	JD1YAA	Marcus Island *
50.110	KH6	Marshall Islands *
50.110	KG6RO	Saipan *
50 110	AL7C	Alaska *
50.500	5B4CY	Cyprus
51.999	YJ8PV	New Hebrides
52.100	VK0BC	Casey Base
52.200	VK8VF	Darwin
52.300	VK6RTV	Perth
52 350	VK6RTU	Kalgoorlie
52.400	VK7RNT	Launceston
52.450	VK2WI	Sydney
52 500	JA2IGY	Nagoya
52.500	ZL2VHM	Palmerston North
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
52.900	VK6RTT	Carnarvon
53.000	VK5VF	Mt. Lofty
144.010	VK2WI	Sydney
144 400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144 600	VK6RTT	Carnarvon
144 700	VK3RTG	Vermont
144 800	VK5VF	Mt. Lofty
144 900	VK7RTX	Utverstona
145.000	VK6RTV	Perth
145.100	ZL1VHF	Auckland
145 150	ZL1VHW	Waikato
145.200	ZL2VHF	Wellington
145 250	ZL2VHP	Manawatu
145.300	ZL3VHF	Christchurch
145.400	ZL4VHF	Dunedin
432.400	VK4RBB	Brisbane
432.475	VK7RTW	Ulvarstone
433.000	ZL2UHF	Wellington †
433.100	ZL1VHF	Auckland †
433.150	ZL1VHF	Waikato †
433.200	ZL3UHF	Christchurch †
433.250	ZL2VHP	Manawatu †
10370	ZL2UHF	Wellington †

* Denotes attended operation.
† Denotes new listing.

In response to a request from Lyle VK2ALU, the New Zealand 433 MHz and 10 GHz beacons have been included again. Lyle heard ZL2VHP on 433.250 MHz earlier this year, and points out it should be possible to hear some of these beacons when conditions are suitable, particularly from VK2, 3 and 4. No real objections are raised to their inclusion — they were dropped some time ago because most appeared to be solely for local reception rather than anything across the Tasman, most running low power with directional antennae. However, as anything seems possible at times these days they are included for your continuing interest.

The ZL1VHW beacon on 433.150 uses an omni-directional antenna with 10 watts, and is reasonably well situated. Tom ZL1THG advises there have been some improvements to 433 MHz gear in New Zealand since the big trans-Tasman opening this year, and in his own case runs 50 to 100 watts and he and ZL1BJB are keen to work VK. Other stations with a reasonable set-up include ZL1TAB, ZL1TFZ, ZL1TKU, ZL2TVT, ZL2TFJ (100W), ZL2TAL, ZL2BW, ZL2BCG, ZL3AAD, ZL3AR and ZL3AQ.

So there you have it — there are stations in ZL prepared to do something about contacting VK. It is to be hoped there are similar stations in VK, and that everything will not be left to chance!

10 GHz ACTIVITY

Lyle VK2ALU in his letter reports his main activity is now taking place on 10 GHz, whilst further activity is undertaken to get the 432 MHz EME installation in Dapto shifted.

A test on 10 GHz was made on 25-8 between VK2ALU and VK2AHC over a distance of 112 km from Mr. Gibraltar near Bowral and Terrey Hills, north of Sydney. Very solid signals were received at both ends using FM voice communication. A 2 metre liaison link was used, but signals on 3 cm were as loud if not louder than on 2 metres.

A fixed attenuator had to be placed in the IF channel at VK2ALU's end to bring the S meter pointer "off the stop".

A pleasing feature was the accuracy of pointing at 2ALU's end, with the compass directed positioning being "spot on". VK2AHC was able to reduce to his 15 inch diameter dish without much degradation of signal strength. This was the first over any distance for 2ALU's new portable transceiver. More difficult paths are now under consideration . . . The Propagator.

6 METRES AS SEEN FROM SA

It would seem that local DX to the lower placed States has not really raced ahead after the big start on 26-8. Only decent JA opening since to 4-9 from 0600 to 0645Z to JA1 and JA2. Some assorted 50 MHz activity also but only JA. Perth stations started with some good early evening TE on 6-9 with VK6WD, etc. They have had several JA openings since. Northern areas of VK6, VK2, VK4 and VK8 have had consistent openings for about 6 weeks, but the poor Es conditions have kept out the possibility of extensions. Afternoon TE is still poor across Australia, some change should come early October.

Generally the solar flux has peaked over 215 in recent days, so long distance F layer could be the next area. On 23-9 MUF to Central America was determined to be at or above 46.1 MHz from 2350 to 0055Z. At said frequency, a repeater output was heard peaking to in excess of 5 uV. Most of the time it simply cycled. Also CW identified as "VPS" appeared on 44.250 MHz. Several other signals were received within the range and identified from earlier openings in April. Times and stations all corresponded to those heard between April 2 and 17 of this year. No reported hearings on 50 MHz from VK3 and VK5. For some time now 39 to 40 MHz police transmissions from the USA have been appearing around 2100Z and disappearing around 0030Z. Highest MUF to there, so far, is about 42 MHz to VK5. VK video has been received in W6 many times but nothing to 50 MHz. One further point about 23-9, JA5CMO worked several LU stations on 50 MHz about 0100Z.

OVERSEAS

Generally with the increase in countries available things have not been dull overseas. If you live in JA then just recently you could have worked the following: VK4, VK6, VK8, P29, KC6, KG6, KH6, H44, YJ8, FO8, KX6, HS1, JD1, 5W1, A35 and 3D2, a total of 14 countries and only from the Pacific area.

N6DX has had a successful DXpedition so far to 5W1 and A35. As 5W1CF he worked at least JA, KG6 and YJ8 up to 17-9. As A35DX he has worked JA at least but quite a few missed out from other areas. A month later would have seen propagation to W, etc. To the Caroline Islands KC6IN (JA1NVG) heard 5W1CF on an IC502 and whip. Also from Ponape he worked many JAs. Also KC6SP and KC6CW active but only seem to work JAs. News also comes that K9PNT/DU2 can now operate on 52 MHz with an FT620 and home brew quad antenna. HS1WR has been working very consistently to JA, KG6 around 1500 and 1600Z. Some late afternoon openings also, most times 50.135 MHz is used. FO8DR was heard recently (29-8) in Japan. KX6SC appears to be WA5CXE/KX6. Any confirmations?

A rumour is about that VU2RM doesn't really have a 6 metre allocation and has ceased operation. Anyone to confirm? From Liberia there seems to be some 6 metre activity. EL3FY is beaming towards Asia around 0600 to 0700 on 50 MHz. YJ8PD recently scored KC6ZZ (IC502 and whip) and 5W1CF on 14-9. Also KX6BU heard up north calling CQ on 14-9 on 52.050 CW. And news from VS6HK in Hong Kong — he will be taking delivery of the new Microwave Modules 6 metre transverter soon. General allocation in VS6 is 50.050 to 51.150 MHz plus spot allocations on 52.025 CW and 52.100 SSB. It will be interesting to see how the new transverter goes when it arrives in Australia. And the ZLs will soon know, either way, whether they will have a temporary 50 MHz allocation. The announcement will have been made long before you read this. And finally Lord Howe Island will be active over 27-10 and through to 31-10, when a DXpedition led by Steve VK3OT with VK2BYX/ATZ following. Bit late to press but at least the CQ WW DX phone contest will get a blast. Should be prime time for USA DX though. QSLs to VK3OT.

NEW BEACON FOR VK5

I have been advised a new VK5 beacon is ready for use and will hopefully be on in October. Already it has been running under temporary conditions and looks to be quite promising. Call sign has not been allocated but may be VK5RTS. Following are the details: Transmit frequency 52.150 MHz, with 800 Hz FSK (upshift on keying). Power of exciter is 12 watts RMS. At present it will run with 6 elements at about 12 metres with initial beam heading of 65°T for the present equinox. A separate PA stage is under development and this is aimed at giving power in the region of 50 watts. Combined with the beam and assured take-off the system will have an ERP on 500 to 600 watts. Plans indicate that at a later date either switchable omni/beam programmes or programmable beam headings will be installed to complete the beacon. Any details of other "ERP" beacons would be appreciated. It would seem with low angle F layer, if you don't have a Ch. 0 nearby, then relying on beacons with low ERP isn't good enough. Studying band conditions via backscatter off layers is also possible with reasonable ERP. The location of the new VK5 beacon has not been disclosed at this writing, but it has been heard loud and clear at the VK5LP establishment!

I thank David VK5KK for helping to fill in the blanks of the VK5 news, especially during the daytime hours when I am not home. . . . 5LP.

432 MHz AGAIN

As reported last month, the 432 MHz record has been taken out of the hands of VK6XY and VK3ZQV by the contact made between mainland USA and Hawaii. Also I reported Graham VK8GB was starting to try to cover the distance between Darwin and Japan on 432 MHz. The next exciting hope we can see would be for Aub VK6XY or someone in VK6 to work into New Zealand, which is probably not impossible but would require a chain of correct conditions and circumstances which do not occur very often — note the severe attenuation of signals outside of a relatively narrow beam width for the contacts earlier this year between VK2 and ZL. The present record when confirmed will stand around 4000 km.

NEW HEBRIDES

The special amplifier-driver built by David VK5KK was sent to Peter YJ8PD on 17-9 to allow him to drive his 3-500Z amplifier to 500 watts or so. So far no reports at time of writing as to how it may be operating, but I am sure Peter will soon

be making good use of the amplifier. In talking to Peter on 20 metres (?) he informs me KH6EQI beacon is often audible around 0800Z at S9 and for up to 3 or 4 hours at a time! He also advises working many JAs on FM, and that both 3D2AZ and 3D2CM are operating on 6 metres. The YJ8PV beacon on 51.999 uses a vertical J beam, and as reported earlier is to be shifted nearer to Peter's QTH and will be switched off when Peter is operating on 6 metres in an effort to reduce the amount of "krud" on the band. Other contacts from New Hebrides on a regular basis on 6 metres are to JA and KH6, although coconuts raining on to the roof of Peter's shack at times raise the level of background noise, as I was able to hear when talking to him recently!

IT'S TEN YEARS NOW . . .

That's right, with this issue I have completed ten years of reporting VHF/UHF activities in "Amateur Radio". Whilst there is nothing particularly marvellous about that, a lot of things have happened in that period, and with the Editor's kind permission I hope soon to be able to bring you a special article on the highlights seen over that period of reporting, and believe me, there have been quite a few.

Most of all I want to thank my many friends who over the years have consistently supported my efforts, both with information and words of encouragement, but more on that later. I also thank the various Editors of AR in that period — I feel they have been very good to me, giving me a virtual free hand in the publication of material, and for this I am indeed grateful.

So that's a decade gone by for a truly dedicated VHF/UHF operator, and that's what I really am, and I enjoy being such, and have tried and will continue to try to do everything possible to extend the interests of activities on those various bands in the future, whether I am writing these notes or not.

THIRTEEN ELEMENT BEAMS

From time to time I am being asked about the pair of 13 element beams I have built for two metres. That I ever needed to build them was brought about by the crash of my pair of 16 element beams some time ago due to the breaking of a guy wire on the crank-up tower. Whilst wondering what would be the best approach to the problem of reconstruction, Bob Stone VK5PB came back from USA with glowing reports of a newly developed KLM type yagi of 13 elements, the performance of which was equal to or slightly better than the former 16 elements. Having nothing to lose, I built a pair of them.

There is no doubt about it, they really do work and work well. At first when number one was built and pointed up in the air from a ladder as a platform for checking SWR it gave a rather poor result. It was thought that changes to the element lengths would be necessary, with the forward element of the driven pair having the most effect on the SWR. It was found they needed to be lengthened!

The following week the antenna was mounted on the stepladder again, this time with the ladder slightly more upright, and it was found the SWR was really good. Wondering what I had done differently, I came to the conclusion that the week before the SWR bridge had been within the plane of the elements owing to the slightly larger than usual slope of the antenna. Now with the bridge out of that area the SWR was excellent, being better than 1.05 to 1 from 144 to 147 MHz and a rise to 1.1 to 1 up to 148 MHz. And that's a wider bandwidth than the original design seemed to indicate. The second antenna was now placed in the testing position with exactly identical results. The next paragraph gives you a brief outline of the various parameters.

Boom length 21 ft. 10 in., diameter 1-5/8 in., elements 3/8 in., two driven elements, phasing straps ½ in. wide, stacking distance 13 to 14 feet vertically, feedpoint 200 ohms balanced, and required 4 to 1 balun to match 50 ohm coax. Two stacked vertically as indicated should give 17.5 to 18 dB gain. Bandwidth 144 to 148 MHz with SWR 1 to 1.1 or better, although the original design said optimum performance was from 144 to 145 MHz. There are a few critical factors in their construction as with most of the KLM type designs which are only reproduceable in performance with extreme care; if you are a sloppy builder then don't start building one!

As you need the full information to make one or two as required I am prepared to make the information available to anyone interested who sends a stamped addressed envelope, preferably of the 9 in. x 4 in. standard envelope to save excessive folding of the paper, plus a 20c stamp to cover the cost of copying.

CLOSURE

As other writers of similar columns are finding, news is still scarce due to band conditions, but hopefully matters will improve for next month's copy, as this will cover the equinoxial period. So until then good DXing to everybody, and please take off a little lime to write and tell me what you have worked.

Closing with the thought for the month: "To be agreeable in society, you must consent to be taught many things that you already know."

73. The Voice in the Hills. ■

LATE NEWS

TI2 STATIONS FOR 6m

Carlos TI2CF, in Costa Rica, expects to be operational on 6m in time for Christmas 1979. Equipment on order is an FT901 with 3 band transverter and a 100W output linear into a 7 element KLM beam. He has been briefed on VK TV frequencies, VK 6m frequencies and the 28.885 MHz net. TI2TE also expects to be operational with the same gear (without the linear) around Christmas. ■

SMIRK

SMIRK membership is open to all keen 6 metre operators who may join by listing details of three DX 6 metre contacts. With 6 metres opening to Japan, this is very simple. The list, together with $4 US should be sent to the Secretary of SMIRK, Ray Clark K5ZMS, at 7158 Stonefence Drive, San Antonio, Texas, USA, 78227. You will then receive by return airmail your SMIRK membership certificate.

SMIRK print a quarterly newsletter which is full of information about 6 metre activity. To receive this newsletter send with your membership some envelopes which are big enough for three or four sheets of foolscap and enclose for each envelope $1 US for postage. This is pretty good value for members of SMIRK.

From the latest newsletter come the following extracts of the results of the SMIRK Party Contest and the updated membership list.

5th Annual SMIRK Party Contest. Overall winner Gary Frey W6XJ.

The winning score was 22,720 points. Well done, Gary.

New Hebrides, YJ8OT, 588 points.

Australia — Victoria, VK3AUI, 5 points; VK3NM, 3 points. South Australia, VK5KK, 13 points; VK5LP, 7 points.

It certainly helps to have some good openings.

Top scorers in each call area have received a certificate.

SMIRK LIST — UPDATE

JAPAN

JH1RDU	3395	JG3ESS*	3336
JJ1KID	3392	JG3FUW	3259
JK1PDY	3253	JG3JUC	3283
JK1PVI	3349	JG3KZQ	3284
JL1MIX	3387	JH3WXB	3278
JL1RLL	3339	JA5CMO	3297
JR1JSV	3264	JA5FDR	3235
JA2VFH	3233	JR6SMD	3231
JE2XLQ	3386	JA7LDA	3389
JF2DEJ	3390	JH7SYN	3348
JA3TYB	3159	JH7WER	3362
JE3BPV	3384	JA8BXB	3342
JF3BUI	3394	JA8FPA	3346
JF3XAA	3293	JA8GVQ	3343
JF3XRZ	3279	JA8IJY	3391
JG3ALJ	3280	JA8RKC	3345
JG3BBC	3281	JA8VOM	3340
JG3CGR	3338	JH8IDV	3344
JG3CQH	3337	JH8NKN	3341
JG3CYV	3282	JA9RYL	3274
JG3ESS*	3172		

NEW ZEALAND

ZL4LV	3377

AUSTRALIA

VK2ZDI	3151	VK4PU	3154
VK2ZDY	3166	VK4ZIM	3200
VK2ZRU	3351	VK5EV	3289
VK3BMV	3302	VK5ZMF	3214
VK3YFU	3286	VK7ZAJ	3161
VK3YLD	3301		

OTHER

HS1WR	3311	KX6BU	3276
KH6JHM	3400		

Plus many others in the USA, Central and South America and Europe.

The list is an update of new SMIRK members from 5th May, 1979 to 25th August, 1979.

* As listed by SMIRK.

List courtesy of Lionel VK3NM, SMIRK 3067. ■

INTRUDER WATCH

Alf Chandler, VK3LC

A LAST MINUTE APPEAL

DO you want to see your Intruder Watch collapse?

As far back as June this year I intimated that, because of growing commitments at home, I will have to relinquish my position as Federal Intruder Watch Co-ordinator.

The months since have worsened, and it is vitally necessary for me to do so as at 31st December.

So far nobody has come forth to take my place. There are over seven and a half thousand members in the WIA so surely one out of that number could find the time and the dedication to take on the job. It is a reflection of the apathy of members, don't you think? I have intimated that I would help and instruct my replacement in the initial stages, and also carry on the dubbing of the WIA identification tapes. I shall also keep operating the IARU Region 3 co-ordination.

PLEASE, WILL SOMEBODY RELIEVE ME?

Alf Chandler VK3LC. ■

INTERNATIONAL NEWS

WARC 79

Commenced 24th September. Scheduled to finish 30th November. 147 countries are expected to send delegations and 38 international organisations will be sending observers. The total number of people will be well over 1,700. Some 14,000 proposals were received from ITU member countries to revise or modify the Radio Regulations.

KZ5

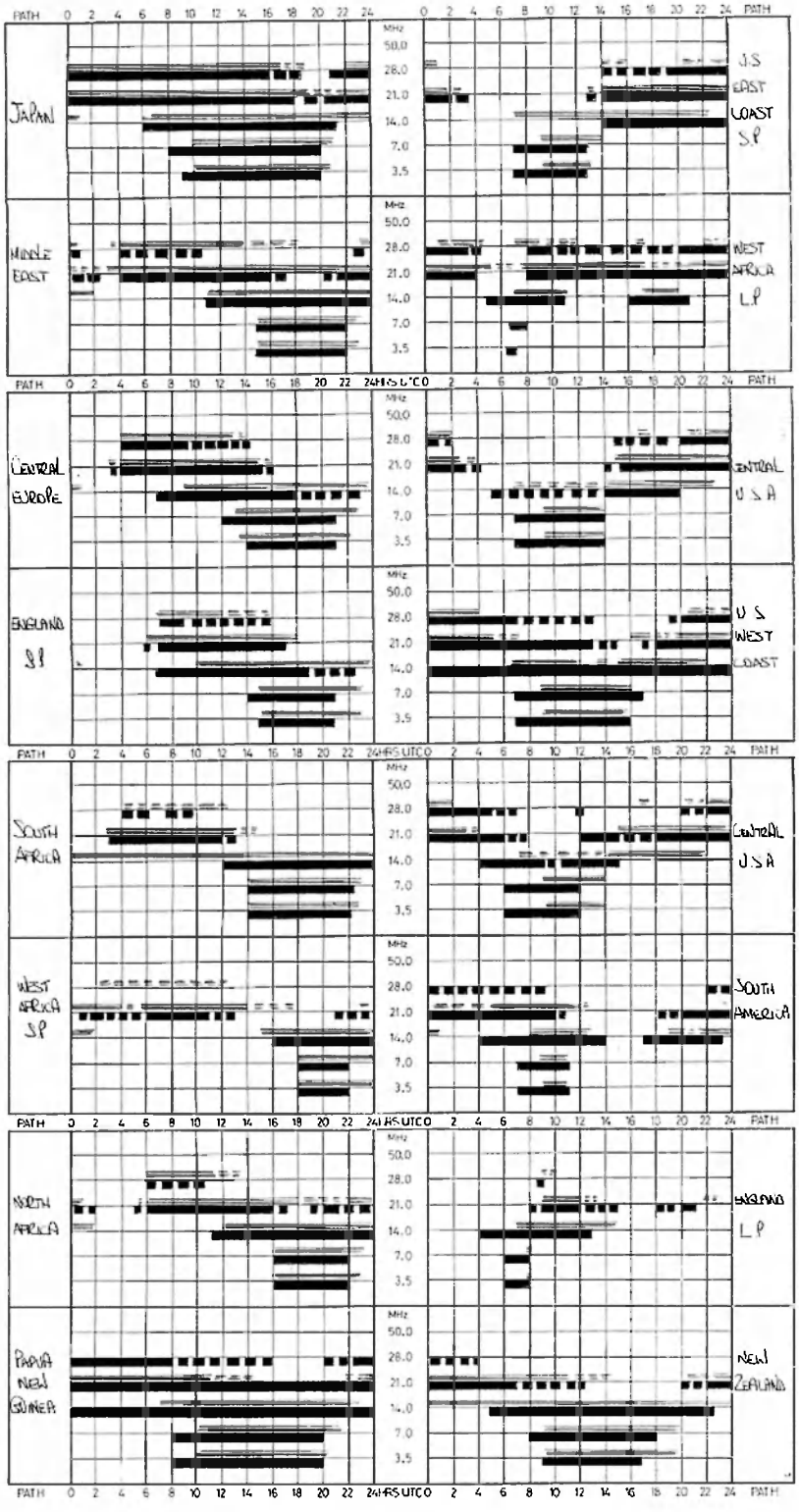
A report in August 1979 World Radio says that after the end of September the Canal Zone ceases to be a separate country. All K25 operators will have to qualify for an HP1 licence to stay on the air.

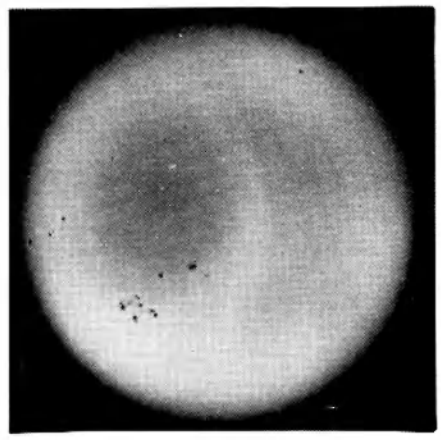
ILLEGAL OPERATIONS

A feature article by N4XX in CQ for September 1979, reports that the illegal use of high-powered equipment on frequencies in, and around, the citizens band has grown significantly in recent years (in the USA). Attention was drawn to so-called "HF" operations between 27.41 and 28 MHz. In both cases the illegal operations were attributed to the easy availability of amateur-type equipment to the public. The article states that operations of this nature are expected to increase with an ever growing number shifting to the 10m amateur band ■

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC





Sunspots visible 0436 UTC, 30th September, 1979. Photo by G. Sprott.

STOP PRESS

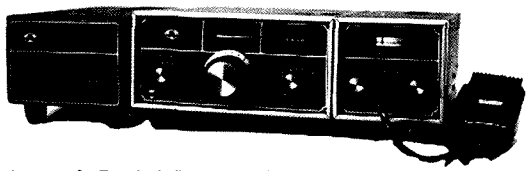
IPS Daily Report
Phone (02) 269 8614
Details in December AR.

PROJECT ASERT — PROGRESS REPORT

In preparation for the forthcoming VHF propagation activity the Project ASERT Committee has taken steps to introduce four additional monitoring stations in New South Wales, Queensland and New Zealand. It is hoped that these stations will be operating during November, thus providing data throughout the summer period of high VHF activity. The three existing monitoring stations located in Tasmania, South Australia and Victoria have been producing information throughout the winter period and this is currently being analysed by the Committee. A detailed report on the results during the winter period will be published in "Amateur Radio" in the near future.

The Committee again expresses its appreciation to members of the Institute who are supporting the Project through construction of equipment and surveillance of the monitoring stations. ■

Les Janes VK3BKF installs a 2m antenna at Port Melbourne for Project ASERT.



GFS electronic imports

ATLAS RADIO INC.

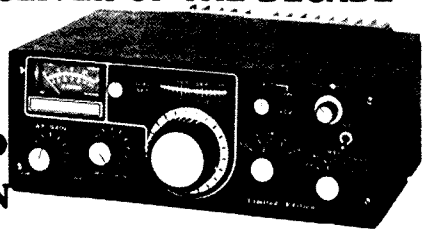
ATLAS 110 LINE

First came the receiver, The Atlas Rx-110 ... A performance plus Amateur Band Receiver incorporating high sensitivity, selectivity and dynamic range. Couple that to a "bolt-on" Transmitter Module, the Atlas TX-110H ... which has low spurious and harmonic radiation, high carrier and unwanted sideband rejection and 250 Watts in-put. You now have the unbelievable Atlas RX/TX-110H top performance transceiver which costs ... NOT $950 ... NOT $750 ... NOT even $650 but just **$555**

For color brochure with complete specifications write to us, phone us or just drop in and have a look at the RX/TX-110.

TRANSCEIVER OF THE DECADE

NEW 215XLE LIMITED EDITION



- *80-100 METRE.*
- *250 WATTS.*
- *SEMIBREAK-IN CW.*
- *BUILT-IN SIDETONE.*

Includes all the outstanding features of 215X plus now 250 Watts Input, new R.I.T. control and update frontpanel design.

■ 215XLE Transceiver $795.00 ■ 220CS Consol/P.S. $170.00 ■ 210X Transceiver $795.00 ■ 200PS Power Supply 139.00 ■ DD6-C Digital Readout/ Counter $245.00 ■ VX-5M Vox $78.00 ■ MT-1 Matching Transformer $44.00 ■ DMK Plug Mobile Mount $62.00 ■ 10xB Crystal control Adapter $78.00 ■ DCC Power Cable Kit $14.00 ■ MBK Mobile Bracket Kit $14.00 ■ DL-300 300W Dummy Load $32.00

GFS FOR RECEIVERS

STANDARD C-6500.....$359.

HF Wadley Loop Communications Receiver.

Manufactured by *Marantz Japan* the *C-6500* is a state-of-the-art HF receiver covering 0.5-30 MHz in 30 x 1 MHz band segments. Its sensitivity is extremely high at 0.5uV and selectivity is 4 KHz on SSB and 7 KHz on AM.

J.I.L. SX-100 16 CHANNELS VHF/UHF SCANNING RECEIVER.....Price $407.

Still the best value in Programmable Scanners, the SX-100 covers the 6,2 and 70 cms Amateur Bands plus over 32,000 other Frequencies including Channel O and Channel 5A TV Sound.

Amateurs can use the SX-100 to monitor band conditions using beacons etc., Firemen can keep informed by listening to firebrigade frequences, CB'ers can monitor UHF CB Channels, Fishermen can monitor VHF marine and Emergency frequencies. Servicemen can use the SX-100 to check virtually any commercial two-way frequency with its 32,000 channel coverage.

- Covers 80-54, 140-180, 410-514 MHz.
- 5KHz Channel Spacing.
- Built-in Digital Clock & Date.
- 240V AC and 12V DC operated.
- Frequencies are programmed using built-in keyboard.

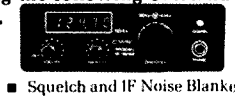
SKY ACE R-517... $104.

The monitoring of aircraft communications has long been a requirement for emergency service organizations, flying schools and clubs, aircraft operators, aviators themselves as well a band of communications enthusiasts. GFS has a range of airband receivers that should suit all these requirements.

Designed for the enthusiast, the R-517 is a *Palm Sized* Receiver which features Full 118-144 MHz Tuning plus the 3 Crystal Locked Channels.

- Active inbuilt AGC System.
- Excellent Selectivity.
- High Sensitivity.
- Built-in Telescopic Antenna.
- VFO main tuning with FINE control and 3 crystal channels.

NEW!! COMNI R-1010 AIRBAND RECEIVER. The R-1010 is a Professional Receiver that uses frequency synthesis thus giving the following outstanding performance.....$529.



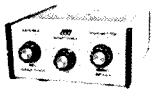
- Frequency range 108-136.975 MHz.
- Channel Spacing 25 KHz.
- Digital Frequency Readout.
- 12 VDC or 240 VAC operated.
- Co-Axial Channel Selector.
- Squelch and IF Noise Blanker.

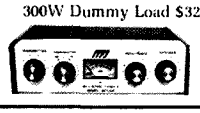
Weight 3 Kg. Size 16 cms x 5.6 cms x 25 cms.

SCANNER BASE ANTENNAS

Scan-X 65-520 MHz, 3dB Gain $35.00
GDX-1 85-480 MHz, Heavy duty $69.00

Write for a comprehensive price list and Catalogue of the complete GFS Product Range. Trade Enquiries Welcome.





NEW PRODUCTS FROM MFJ

Now a very wide range of Antenna Tuners

MF-984 3KW Ant. coupler/Dual Meter type SWR/Power Meter/ Co-Ax switch for Bal and Un Bal Line (Inc. Balun). **$419.00**
MFJ-982 3KW Ant. coupler/SWR/Power Meter for Bal and Un Bal Line (Inc. Balun). **$279.00**
MFJ-962 1.5KW Ant. coupler/SWR/Power Meter 6 Pos. Co-Ax SW for Bal and Un Bal Line (Inc. Balun). **$233.00**
MFJ-961 1.5KW Ant. coupler/6 Pos Co-Ax SW for Bal and Un Bal Line (Inc. Balun) **$199.00**
MFJ-949 300W Ant. coupler/SWR/Power Meter/200W Dummy Load/Co-Ax SW for Bal and Un Bal Line (Inc. Balun) **$186.00**
MFJ-941B 300W Ant. coupler/SWR/Power Meter Co-Ax SW for Bal and Un Bal Line (Inc. Balun) **$145.00**
MFJ-943 300W Ant. coupler for Bal and Un Bal Line (Inc. Balun). **$115.00**
MFJ-901 200W Ant. coupler for Bal and Un Bal Line (Inc. Balun). **$97.00**
MFJ-900 200W Ant. coupler for Unbal Line (No Balun) **883.00**

Tunable Active SSB/CW Filters

MFJ-752 Dual TUNABLE ACTIVE SSB/SW FILTER inc. Peak/ Notch, Noise Limiters, and two Variable Frequency Filters. **$145.00**
MFJ-751 *Tunable Active SSB/CW Filter* **$115.00**

Electronic Keys

MFJ-481 THE GRANDMASTER MEMORY KEYER, stores 2 x 50 character messages 8-50 WPM. **$145.00**
MFJ-402 Econo Keyer, built-in Paddle, Weight and Speed control, 8-50 WPM, solid state keying **$83.00**

Other Accessories

LSP-520BX II Super Logarithmic speech processor 30dB dynamic range and 3 Active Filters. **$97.00**
MFJ-202 Antenna Noise Bridge, wide range 0-250 Ohms, 150 pF Xcc, 1-100MHz **$83.00**
MFJ-1030 BX 10-30MHz Preamp, 25dB gain. **$83.00**

—ANNOUNCEMENT—

TEN METRE OPERATORS. NOW ENJOY FM OPERATION WITH THE COMTRONIX FM-80

Enjoy the thrill of FM operation that has been so popular amongst 2 Metre operators for years, but with the advantage of being able to work OVERSEAS DX (10 metre FM is very popular in the US with over 70 repeaters already operating). With the FM-80 you have the choice of 80, 10KHz spaced channels, 28.91-29.7 (range can easily be changed to 28.01-28.80 MHz), power output is 10-15 Watts, deviation is ±3KHz, receiver sensitivity is 0.5uV for 20dB quieting.

Don't miss out on experiencing this exciting new form of communication. Call or write to us for your FM-80 now.

SPECIAL INTRODUCTORY PRICE $289.

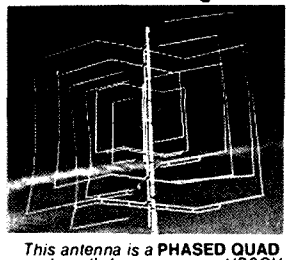
SPECIAL ON CALLBOOKS WHILE STOCKS REMAIN.
$13.95 + $2.00 P&P ..... US Callbook.
$12.95 + $2.00 P&P ..... Foreign Callbook.

NOW COMBINE AMATEUR RADIO & COMPUTERS.

SWTP

GFS are now Victorian Distributors for SOUTH WEST TECHNICAL PRODUCTS (SWTP). Manufacturers of Personal & Small Business Computer Systems. Contact us for more information on their new 6809 low priced high powered computing system.

TET SWISS QUADS



This antenna is a **PHASED QUAD** *and well known as a HB9CV QUAD. Its concept is to drive the Radiator and Reflector at the same time with* **phase differences** *to obtain more gain and better front-to-back ratio than the conventional quads.*

SQ-22 2m x 2 Stacked **16dB** Gain **$99**
SQ-24 2m x 4 x Stacked **16dB** Gain **$219**
SQ-61 6m x Standard **12dB** Gain **$119**
SQ-10 10m x Standard **12dB** Gain **$159**
SQ-15 15m x Standard **12dB** Gain **$169**
SQ-20M 20m x Loaded **10dB** Gain **POA**

ATN ANTENNAS

Write to us for a catalogue and price list on ATN's large range of VHF/UHF & HF antennas.

DSI COUNTERS

GFS are Melbourne agents for the comprehensive range of DSI FREQUENCY COUNTERS. Drop us a line or just give us a call for your DSI counter.

Install your own tower and save **$$$**'s with the G20/1 20 ft. Triangular Lattice Tower, fully self supporting $79.00.

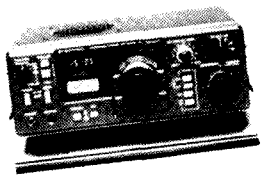
G.F.S. ELECTRONIC IMPORTS

15 McKEON ROAD, MITCHAM, 3132. (03) 873 3939

MORE GOOD NEWS ABOUT NEW GEAR — FROM VICOM

KENWOOD R-1000 COMMUNICATIONS RECEIVER

200 KHz-30 MHz



$485

OVER 2,100 SOLD!

Yes, more than 2,000 22S have been sold in Australia! Surely a mark of success tor this superb rig.

IC22S 2MFM STILL $299

ICOM IC211

2m transceiver

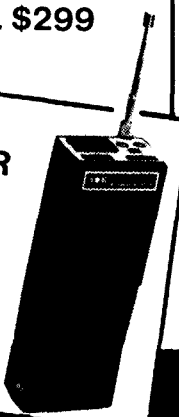
- 144 to 148 MHz coverage • Modes SSB, CW, FM • LSI synthesizer PLL • 4-digit LED readout • Pulse-type noise blanker • VOX w/adjustable gain • SWR bridge • CW monitor • Automatic power control • AC/DC power supplies • Antenna impedance: 50 ohms unbalanced • TX output: 10W PEP

$847

800CH TRANSCEIVER

— handheld —

* 1.5w output
* 144-148 MHz
* 800 chs, 5 KHz steps
* 600 KHz Repeater offset
* Supplied with SEC approved charger
* 90 day VICOM warranty



PRICE: NOW $355

Daiwa Low Pass Filters

FD30LS	32 MHz, Fc, 200 w, 3 stages — $20.00

Baluns

AS-BL	Asahi 50 ohm for beams — $34.00
BL50A	50 ohm 4 KW, 1:1 for dipoles — $32.00
BL70A	70 ohm, 4 KW, 1:1 for dipoles — $32.00

Leader Test Equipment

LAC 895	Antenna Coupler 3.5 — 28 MHz — $182
LPM 885	SWR/PWR Meter — $97
LPM 880	RF Power Meter — $139
LDM 815	TR Dip Meter — $89.00
LBO 310	3" Ham Oscilloscope — $330
LA 31	Ham monitorscope adapter — $26.00

Radio Teletype Terminal

0-7000	Tono RTTY CW/Baudot/ASCII — $839

Tubes

6KD6	Finals for Yaesu linears — $9.00
6JS6C	Finals for Yaesu transceiver — $9.00
12BY7A	Driver — $3.75
6146B	Finals — $12.00

CW Filters

FT101E	Yaesu — $39.00
TS520S	YG3395 Kenwood — $57.00
TS820S	YG88C Kenwood — $59.00

Morse Keys

HK702	Deluxe Key with marble base — $41.00
HK708	Economy Key — $23.00
HK706	Operator's Key — $25.00
MK701	Manipulator (side-swiper) — $45.00
PALOMAR	1C Keyer — $149.00

Jaybeam Antennas

5Y/2m	5el 2m, 7.8 dBd gain, length 1.6 m — $43.00
8Y/2m	8el 2m, 9.5 dBd gain, length 2.8 m — $51.00
10Y/2m	10el 2 m, 11.4 dBd gain, length 4.4 m — $84.00
10XY/2m	10el 2m, cross yagi, 11.3 dBd — $114.00
D8/70cm	Twin 8el, 70 cm, 12.3 dBd, 1.1 m — $64.00
PBM 18/70	18 el, 70 cm, 14.9 dBd, 2.8 m — $96.00
MBM 48/70	48el, 70 cm, 15.7 dBd, 1.83 m — $83.00
MBM 88/70	88el, 70cm, 18.5 dBd, 3.98 m — $105.00
PMH/2C	Phasing harness — $20.00
8XY/2m	2m cross yagi, 8el, 9.5 dBd, 2.8 m — $99.00
12XY/70 cm	70 cm cross yagi, 12el, 13.0 dBd, 2.6 m — $139.00

Parabolic Dishes

PBA 1200	70 cm and 1.2 GHz complete — $349.00

Rak Antennas

AL24DXN	20-40 m trap dipole — $70.00
A4VPN	40 m dipole kit — $27.00
LISTENER 3	Short wave Rx antenna — $49.00
LISTENER 1	Short wave Rx antenna — $22.00

Nagara

SS56	6 m 5el beam 1 KW — $159.00
V5JR	80-10 m trap vertical, 6.7 m high — $129.00
V4JR	40-10m trap vertical, 5.2 m high — $99.00

Hy-Gain Antennas

HYQUAD	10/15/20 m, 2 element quad — $279.00
204BA	4 el monobander for 20 m — $259.00
TH6DXX	6 el tribander — $310.00
TH3MK3	10/15/20 m 3 el beam — $249.00
TH3JR	10/15/20 m 3 el beam — $229.00
203BA	3 el beam 20 m — $199.00
LONG JOHN	5 el wide spaced 27/28 MHz — $180.00

Scalar

M22T	1/4 wave 2 m mobile whip, top only Qty 1-4 — $7.00
M25T	5/8 wave 2 m mobile whip, top only Qty 1-4 — $14.00
BASE	B/L for above — $4.00

ICOM Gear

IC701	transceiver NOW — $1199.00
IC22S	2m transceiver — $299.00
IC551	6m transceiver — $799.00
IC280	2m fm remotable — $450.00
IC502	6m ssb portable — $239.00
IC202S	2m ssb portable — $318.00
IC211	2m all mode — $847.00
ICRM3	Remote control unit — $159.00

Microphones

VM-1	Noise cancelling, hand ptt, low z — $10.00

Coaxial Cable

RG58AU	mil spec. 30m reels — $13.00
RG213/U	mil spec. per metre — $1.40

Kenwood Transceivers

TS520S	HF transceiver — $635
TS120S	Solid state 100w — $735.00
TS120V	Solid state 10W — $600.00
TS180S	Solid state 10w — $1240.00

Call us today for a good deal.

Monitor Receivers

747	Vicom Aircraft Scanner — $199.00
210	Bearcat 210, scanner — $469.00
HF12	VHF pocket 12 channels — $149.00

VICOM

Duncan Baxter VK3LZ
Customer Service Manager

Perth 321 3047
Newcastle 69 1222

Sydney 635 6399
Adelaide 43 7981
Rockhampton 28 2843

Gold Coast 32 2644
Geelong 78 9660
Melbourne 836 8635

Brisbane 48 6601
Townsville 72 2633

Vicom
68 Eastern Road,
South Melbourne,
Victoria, 3205.
(03) 699 6700

Launceston 44 3882
Brisbane 38 4480
Adelaide 272 8417
Kalgoorlie 21 1906
Wellington(NZ)287 946
Wagga 21 2125

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CNR. CHURCH & DARCY STREETS,
PARRAMATTA, N.S.W. 2150.

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A/H: 607 9168

"NEW" 10-80 MTR. VERTICAL ANTENNA. ONLY $75
2 MTR. 7/8 WAVE MOBILE WHIP. Including
2 MTR. STACKED YAGI $138 BASE LEAD $32 5/8 WHIP included $28

ICOM Gear

IC701	HF solid-state 160 m 10 m transceiver — $1380.00
IC701PS	Matching power supply/speaker for above — $253.00
IC22S	2 m FM synthesized — $299.00
IC280	2 m FM remotable cpu controlled — $450.00
IC215	2 m FM portable inc. 1 channel — $229.00
IC402	70 cm ssb portable 3 watts — $439.00
IC502	6 m ssb portable, 3 watts — $239.00
IC202S	2m ssb portable, 3 watts — $349.00
IC211	2 m all-mode ac/dc transceiver — $799.00
ICRM3	Remote control unit — $159.00
ICSM2	Condenser-electret desk mic. — $45.00

Speech Compressors & Processors (Daiwa)

RF660	Phasing type, dc, 6db gain — $109.00
RF440	Phasing type, ac/dc, 6db gain — $126.00
RF550	Filter type, ac/dc, 6db gain — $169.00
MC330	Speech compressor — $99.00

Microphones

VM-1	Noise cancelling hand ptt, dynamic, low Z — $10.00

Antenna Couplers

CL67A	Daiwa 1.9 — 28 Mhz 500 W pep— $135.00
CNW217	Daiwa incl. SWR/PWR meter, 200 W — $165.00
CNW417	Daiwa incl. SWR/PWR meter, 500 W — $199.00
MFJ901	MFJ. Matches everything 1.8 — 30 MHz — $119.00
MFJ16010	MFJ. Random wire tuner 160-10 M — $71.00
MFJ941	160-10M, 300 W incl. SWR/PWR — $157.00
LAC-895	Leader 3.5 thru 28 MHz — $169.00

Antenna Rotators (Daiwa)

DR7600S	Heavy Duty with controller & mast clamps — $259.00
DR7500S	Medium Duty with controller & mast clamps — $169.00
6 Core	Cable for above (200 m rolls) — $1.00/m

QRP Transmitter (MFJ)

MFJ40T	5w. 40 meter CW (Xtals not included) — $59.00
MFJ40V	UFO unit for above — $59.00

Hand Held Transceiver

AR240	2 meter 800 ch. synthesized, 1.5 w. — $365.00

Daiwa Low Pass Filters

FD30LS	32 MHz, Fc, 200 w., 3 stages — $20.00

Baluns

AS-BL	Asahi 50 ohm for beams — $34.00
BL50A	50 ohm, 4 KW, 1:1 for dipoles — $30.00
BL70A	70 ohm, 4 KW 1:1 for dipoles — $30.00

Leader Test Equipment

LAC-895	Antenna Coupler 3.5 — 28 MHz — $169.00
LPM-885	SWR/PWR Meter — $89.00
LPM-880	RF Power Meter — $135.00
LDM-815	TR Dip Meter — $89.00
LBO-310	3" Ham Oscilloscope — $310.00
LA-31	Ham monitorscope adaptor — $25.00

Just arrived!
The IC22s 2m FM transceiver
The most popular FM rig around. It's now available at a special price. Come in and check it out.
Now only $299

Radio Teletype Terminal

0-7000	Tonno RTTY CW/Baudot/ASCII — $839

Tubes

6KD6	Finals for Yaesu linears — $9.00
6JS6C	Finals for Yaesu transceiver — $9.00
12BY7A	Driver — $3.75
6146B	Finals — $12.00

CW Finals

FT101E	Yaesu — $39.00
TS520S	YG3395 Kenwood — $57.00
TS820S	YG88C Kenwood — $59.00

Kenwood Morse Keys

HK702	Deluxe Key with marble base — $41.00
HK708	Economy Key — $23.00
HK706	Operator's Key — $25.00
MK701	Manipulator (side-swiper) — $45.00
PALOMAR	1 C Keyer — $149.00

SWR/PWR Meters & Dummy Loads

VC-2	Twin meters 3-150 MHz with cal. chart — $35.00
SWR200	Oskerblock 3-200 MHz, 2/20/200/2000W— $86.00
SW210A	Daiwa 1.8 thru 150 MHz, 20/120 W. direct — $99.00
SW410A	Daiwa 140-500 MHz, direct reading — $129.00
CN620	Daiwa Cross-needle, 18-150 MHz, direct — $99.00
CN630	Daiwa 140-450 MHz, 20/200 W, direct reading — $135.00
CN650	Daiwa 1.2 — 2.5 GHz, 2/20 W, direct reading — $169.00
LPM-885	Leader SWR/PWR meter — $89.00
LPM-880	RF Power Meter — $135.00
RW-155D	Kuranishi RF Power Meter — $185.00
RW-151D	Kuranishi RF Power Meter — $165.00
RW-1002L	Kuranishi RF watt meter — $139.00

Kenwood Transceivers

TS-520S	P.O.A.
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TS-120S	P.O.A.

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CS401	4 position, high pwr, to 500 MHz — $59.00

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CX-2H	1.8 thru 450 MHz, 200 W pep max — $69.00

Jaybeam Antennas

5Y/2m	5el 2 m, 7.8 dBd gain, length 1.6 m — $43.00
8Y/2m	8el 2 m, 9.5 dBd gain, length 2.8 m — $51.00
10Y2m	10el 2 m, 11.4 dBd gain, length 4.4 m — $84.00
10XY/2m	10el 2 m, cross yagi, 11.3 dBd — $114.00
D8/70cm	Twin 8el, 70 cm, 12.3 dBd, 1.1m — $64.00
PBM 18/70	18el, 70 cm, 14.9 dBd, 2.8 m — $96.00
MBM 48/70	48el, 70 cm, 15.7 dBd, 1.83 m — $83.00
MBM 88/70	88el, 70 cm, 18.5 dBd, 3.98 m — $105.00
PMH/2C	Phasing Harness — $20.00
8XY/2M	2 m cross yagi, 8el, 9.5 dBd, 2.8 m — $99.00
12XY/70 cm	70 cm cross yagi, 12el, 13.0 dBd, 2.6 m — $139.00

Parabolic Dishes

PBA-1200	70 cm and 1.2 Ghz complete — $349.00

Rak Antennas

AL24DXN	20-40 m trap dipole — $70.00
A4VPN	40 m dipole kit — $27.00
LISTENER 3	Short wave Rx antenna — $49.00
LISTENER 1	Short wave Rx antenna — $22.00

Nagara

SS56	6 m 5 el beam 1 KW — $159.00
V5JR	80-10 m trap vertical, 6.7 m high — $129.00
V4JR	40-10 m trap vertical, 5.2 m high — $99.00

Hy-Gain Antennas

HYQUAD	10/15/20 m, 2 element quad — $279.00
204BA	4 el monobander for 20 m — $259.00
TH6DXX	6 el tribander — $310.00
TH3MK3	10/15/20 m 3 el beam — $249.00
TH3JR	10/15/20 m 3 el beam — $229.00
203BA	3 el beam 20 m — $199.00
LONG JOHN	5 el wide-spaced 27/28 MHz — $180.00

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100 MX 100 W SOLID STATE MOBILE	$630.00
16 POLE X-TAL FILTER FOR MOD. 500, 700,	$65.00

SHURE DESK **$54**
SHURE H.H. **$36**
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HARVEY SCEGG TASMANIA
STOCKMAN & HIGGINS INVERELL

CONTESTS

Wally Watkins VK2DEW
Box 1065, Orange 2600

November:
17/18 ARRL PHONE SWEEPSTAKES
24/25 CQ WW DX CW CONTEST

December:
1/3 CONNECTICUT QSO PARTY
8/9 AUSTRALIAN NOVICE CONTEST
15/ ROSS HULL VHF/UHF MEMORIAL
15/13 Jan. ROSS HULL VHF/UHF MEMORIAL CONTEST

Note that the Australian Novice Contest replaces the previous contests organised by the Westlakes Radio Club.

One recommendation in my last annual report to the Federal Conference was that the Ross Hull Contest be disbanded in its present form due to the lack of interest in submitting logs. To me it is a waste of my time and a waste of valuable space in the magazine organising a contest which results in less than ten logs being sent in. A recent Rumanian contest had a good idea. If the other chap didn't send in a log you could not claim a contact with him for scoring purposes. If entries are not well up this year I will seriously consider a similar rule next year. This year's Ross Hull contest is the final one for the Contest Champion Trophy for 1979.

ROSS HULL VHF/UHF MEMORIAL CONTEST 1979-1980

Firstly some details about the man whose name and achievements we honour with this annual contest.

Ross Hull, born in Melbourne in 1902, studied to be an architect. By 1922 he had become one of Australia's outstanding amateurs and in 1926 with the call OA3JU, was secretary of the WIA.

In the same year he went to America and asked for a job in the editorial department of the ARRL, and soon rose to the position of assistant technical editor of "QST". In 1929 he became the logical choice for director of the ARRL programme for special technical development to devise new apparatus. It was from this appointment that the real ability and genius of Ross Hull was to emerge and give brilliant success to the programme. Some of his new innovations included "Bandspreading" of amateur receivers, the first serious use of the Superheterodyne for the reception of amateur phone transmissions, the first presentation in amateur radio of 100 per cent modulation, the use of Linear Amplifiers and the introduction of the Signal Monitor.

Ross Hull had a flair for unorthodox construction techniques. He put his valves upside down to shorten leads and rejected the "Breadboard" in favour of a bent metal chassis. He always set the pace in apparatus design only to be excelled by his own rigid and beautiful construction.

In 1929 he returned to Australia to become editor of "Wireless Weekly" for 18 months until he was attracted back to ARRL as Associate Editor. He became the mainspring of the "QST" editorial staff.

He popularised 56 MHz for local contacts and conducted long term research into UHF propagation and for the first time established the reason for the bending of these waves in the lower atmosphere.

With his activities, his amateur radio, his piano, his camera, his workshop and his cottage on a Connecticut hilltop he was leading the world in amateur radio. However, it was in 1938 that a power supply for his television receiver caused his untimely death. A power supply giving 6,000 volts for a large kinescope. His advice was "Switch to Safety", and a great man met instantaneous death doing something which he had taught the world not to do.

So with the annual Ross Hull Memorial Contest we honour this amateur who did so much to steer the following generations of amateurs along the sound technical road we know today. A perpetual trophy is awarded annually for competition between members of the WIA. The winner's name is inscribed on the trophy and he receives a suitable certificate.

OBJECTS

Amateurs in Australia and its territories will endeavour to contact as many other amateurs as possible under the following conditions.

CONTEST PERIOD

001Z on 15 December 1979, to 2400Z on 13 January 1980.

BANDS

All amateur bands above 30 MHz may be used. No crossband operation is allowed. Operation via active repeaters and translators is not allowed.

EXCHANGE

RS(T) plus a three figure serial number. The first number may be any number between 001 and 999 and will be increased by one for each contact, when 999 is reached a start is made from 001.

RESTRICTIONS

Multi-operator stations are not allowed: Only one transmission at a time for all stations: Two contacts per day per band with each station irrespective of mode, providing two hours have elapsed since the previous contact. Entrants must operate within the terms of their licence.

DURATION

Any seven GMT days within the contest pericd, not necessarily consecutive.

SUMMARY OF LOG SHEET

A front sheet must be attached showing the following information in this order:

Name, Address, Section, Call Sign, 7 Day Score, Operating Days, Best 48 Hour Score, Operating Period.

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest. ....Signature.

LOG SHEET

It is desirable that complete logs for the whole contest be submitted for cross checking purposes, photo copies are preferable.

The log must show the following information:

Time GMT, Band, Emission, Stn Worked, Tx exchange, Rx exchange, Points, Bonus. Each page should be individually totalled for points at the bottom.

SCORING

Scoring will be based on the following table:

	52	144	432	576	1296/up
Less than 200 km	2	2	5	10	20
More than 200 km, Same Call Area	5	5	15	25	50
More than 200 km, Other Call Areas	10	10	25	50	100

BONUS POINTS

Each new call area contacted, 20 points, once ony per band per GMT day, including own call area.

ENTRY CLASSIFICATIONS

(a) Transmitting Phone (AM, FM, SSB, ATV, SSTV).
(b) Transmitting CW (CW, RTTY).
(c) Receiving (any modes).

AWARDS

The entrant with the highest score in either section (a) or (b) will be the winner and his division will hold the trophy for one year.

Certificates will be awarded to the highest score in each section and in the case of (a) and (b) to the highest score in both the seven day and the 48 hour divisions. A winner of a seven day certificate cannot be awarded a 48 hour certificate as well. Certificates will not be awarded on a call area basis unless there are more than 10 logs received for that section.

SUBMISSION OF LOGS

Entries are to be sent to the FCM, Box 1065, Orange 2800, postmarked no later than 4th February, 1980, and endorsed "Ross Hull Memorial Contest".

SPECIAL RULES FOR RECEIVING SECTION (c)

SWLs only may enter this section.

Logs must show the same information as a transmitting log except for the second number exchange. If both stations are heard both can be claimed but on separate lines of the log.

Scoring will be as for transmitting stations.

Any scoring contacts can be logged, there is no limit to the number of times that one station can be logged.

There is only one division in this section, that is for a duration of any seven GMT days, not necessarily consecutive.

The decision of the FCM is final and no correspondence will be entered into.

AUSTRALIAN NOVICE CONTEST RULES

The contest will take place from 0800 GMT 8th to 0759 9th December, 1979, for all novice and full call amateurs.

OBJECTS OF THE CONTEST

To encourage contest working between amateur stations in Australia, New Zealand and Papua-New Guinea during a 24 hour period, with special emphasis on contacts with novice and radio club stations.

STATIONS ELIGIBLE

Only stations in VK, ZL and P2 call areas may enter. No stations outside these areas are permitted to be worked or enter a log. Except for radio clubs, no multi-operator working is allowed. Stations in your own call area as well as other call areas may be worked.

CONTEST BANDS

Only the novice allocations on 80, 15 and 10 metres may be used. This applies to full call stations as well. No crossband operation is allowed. Contacts should be Phone or CW.

SCORING — TRANSMITTING

For contacts with a novice station, 5 points.
For contacts with a radio club station, 10 points.
For contacts with a full call station, 2 points.

SCORING — LISTENING

Novice/Novice contact, 5 points.
Full Call/Novice, 2 points.
Novice/Full Call, 2 points.
Full Call/Full Call, 2 points.
Any contact with a radio club, 10 points.

CALLING PROCEDURE

Phone call "CQ Novice Contest" and on CW call "CQN". Stations may be worked only once per mode per band.

EXCHANGES

Phone, RS report plus three figures. These three figures may start anywhere between 001 and 999, but when 999 is reached you must start again at 001. CW, RST report plus three figures on the previous basis. Radio club stations will add the letter "C" after the number above.

CONTEST SECTIONS

(a) Novice/Full Call Phone.
(b) Novice/Full Call CW.
(c) Listeners.

LOGS

Logs must show GMT time, station worked, band, mode, NR sent, NR received, score claimed and score tally for each page.

A front sheet must be attached showing the following: Name of Operator, Call Sign, Address, Section Entered and Points Claimed.

Logs are to be sent to the Federal Contest Manager, Box 1065, Orange 2800, and must be postmarked no later than 23rd December, 1979.

CERTIFICATES

Certificates will be awarded to the highest score from Novice Phone, Novice CW, Radio Club Phone, Radio Club CW, Full Call Phone, Full Call CW, Listener Phone and Listener CW.

A trophy to be known as "The Keith Howard VK2AKX Tropyh" will be awarded to the entrant with the highest aggregate score in the (a) and (b) sections and will be held by the winner for a period of twelve months.

The decision of the Federal Contest Manager is final and no correspondence will be entered into regarding such decision. ■

YOU and DX

Mike Bazley VK6HD
8 James Road, Kalamunda W.A. 6076

DX NEWS FROM THE CQDX CLUB

Paul VK3VDP worked JT0LAJ on 18-8-79 at around 0810 GMT on 21.185 MHz. The JT was in QSO with a UA0 and the JT went QRX to answer the phone. Paul called and told the Russian how much he would like to work the JT. The Soviet operator said "Don't we all", but put him on to the JT anyway. The JT's QTH was Ulan Bator.

Good DXing . . . it proves once again that it pays to listen.

Peter VK3NNY has now worked over 150 countries and has the greatest number in the club. Five of us have now worked over 100 countries and it appears that Peter may be the first Novice to get the DXCC on CW alone. Any comments.—From Trevor VK3NNR.

LONELY OUTPOST

The site of the Okino-Torishima DXpedition in mid-June. Due to dangerous conditions the operation was limited to only four days. See report in September AR, page 37.

BOTSWANA CALL SIGNS

Barnes, R. G. A., Box 250, Gaborone, A22AI.
Broome, E. F., C/o Box 173, Francistown, A22AI.
Broome, N. M., C/o Box 173, Francistown, A22AN.
Bushe, D. W., Box 604, Gaborone, A22AB.
Deltgen, M. P., Box 1054, Gaborone, A22MD.
Ewels, C. E., Box 601, Gaborone, A22AH.
Falor, A. P., Box 601, Gaborone, A22RA.
Gant, J. A., Box 90, Gaborone, A22GJ.
Hornstead, J. C., C/o Box 604, Gaborone, A22AR.
Harris, D. W., Private Bag 0060, Gaborone, A22BX.
Hosang, H. D., P/Bag 60, Gaborone, A22ZV.
Isaacs, J. H., Box 516, Gaborone, A22JH.
Kanika, B., P/Bag 2, Molepolole, A22BT.
Kierstead, H. R., Box 10, Kasane, A22RK.
Lange, A., C/o Box 315, Gaborone, A22PO.
Laletsang, P. T., Box 91, Francistown, A22TL.
Makaya, Dr. G., UBS, P/Bag 22, Gaborone, A22AS.
Morris, S. A., Box 516, Gaborone, A22SM.
Patterson, D. K., C/o Moeding College, P/Bag 11, Lobatse, A22DK.
Ramanchandran, S., Box 947, Gaborone, A22SR.
Ramanchandran, D., Box 947, Gaborone, A22DN.
Schmidke, L., Box 501, Francistown, A22BW.
Sjolund, E. A., Swedish Embassy, Box1 7, Gaborone, A22GD.
Strauss, R. J. W., Box 35461, Northcliff, 2115, RSA, A22PS.
Thompson, E. P. G., Box 1390, Gaborone, A22ED.
Walker, C. D., Box 84, Selebi-Phikwe, A22DW.
Sulu, G. V., Box 516, Gaborone, A22GV.
Sulu, A. V. (Mrs.), Box 516, Gaborone, A22GW.

NOTE

Prefix now A22 instead of A2C since 2nd September, 1979. ■

Join the IW net at 2300Z on Thursdays on 14165 kHz when you have intruder information.

BOOK REVIEW

500 QUESTIONS FOR AOCP CANDIDATES
By NSW WIA YRS Education Service.

Another excellent book for the aspiring amateur from the dedicated group in New South Wales. A definite must for any candidate for the AOCP.

With the shift to multi-choice examinations the aspiring candidate no longer can gain practice by answering old exam papers. In order to fill this gap this book has been prepared.

It is still too early to know whether the standard of the exam is exactly the same as this book and the syllabus, however the book is extremely close both to the syllabus and to the standard of those sample questions which have been released.

A most useful book for the aspiring candidate. Once P. and T. have a similar and larger book of questions, "instant" exams over the counter with "instant" call sign issue would be quite practical. If the FCC can do it in the USA why not P. and T. in Australia?

Available from NSW WIA YRS.
VK3AUI. ■

MOST OFTEN ASKED QUESTIONS AND ANSWERS ABOUT AMATEUR RADIO
By Leo G. Sands and Joseph L. Lynch. Published by Hayden Book Co.

This is an introductory book for someone just getting into amateur radio and progressing toward a licence.

Much of the information is of necessity only directly applicable in the USA, however there is general information and theory which is the same everywhere.

The treatment is of necessity fairly shallow as it is not possible to cram an encyclopaedia into 112 pages.

Available through Butterworths, 586 Pacific Highway, Chatswood, NSW, or your favourite book shop.

VK3AUI. ■

MODERN CB RADIO SERVICING
By Marvin Hobbs. Published by Hayden Book Co.

A wide ranging treatment of the service of CB radio equipment covering both the units and the installation of them. Also included are details of various items of test equipment and the treatment of mobile morse.

Whilst some specific equipment is shown, it is used to demonstrate typical arrangements, frequency generation plans and layouts. This is necessary due to the multiplicity of equipment types available.

General service philosophy is handled, together with various fault finding plans designed to quickly localise faults. This is no doubt a reflection both of the cost of labour and the cheapness of many CB sets.

With the availability of CB radio and their popularity for conversions to 10 metres and 6 metres the general explanation of techniques used and the frequency generation plans in use would be most valuable.

Available for $8.50 through Butterworths, 586 Pacific Highway, Chatswood, NSW, or your favourite book shop.

VK3AUI. ■

A GUIDE TO AMATEUR RADIO — 17th EDITION
By Pat Hawker G3VA. Published by Newnes-Butterworths.

This book is aimed at the budding amateur or recently qualified amateur. It presents a mixture of amateur radio information, theory, and constructional information in the manner familiar to anyone who has read the RSGB publications.

Some of the licensing information is applicable only in the United Kingdom. However, this is similar to the local requirements and does provide you with some insight into the licensing structure in England.

The list of CW abbreviations would be welcome to many budding amateurs who may otherwise doubt their ability to copy code when the first string of abbreviations returns. These are a fairly essential part of CW operating and can easily throw the newcomer.

Another interesting feature is a listing of many rigs. Whilst some are of UK origin, by far the majority are also types which have been sold locally. Quite useful when trying to work out what the gear in the Hamad is.

An interesting and informative book bound in a durable hard cover, which accounts for the price of $14.50.

Available from Butterworths, 586 Pacific Highway, Chatswood, NSW, or your favourite book shop.

VK3AUI. ■

AWARDS COLUMN

Bill Verrall VK5WV
7 Lilac Ave., Flinders Park, S.A. 5025

TEN-TEN CHAPTER AWARDS
Several of these awards are available from VK and overseas countries and are only issued to hams who have 10X membership for contacts on the 10 metre band.

The 10X organisation was formed for the specific purpose of promoting more and continued activity on the 10 metre band. To qualify for 10X awards, log details only are required and a point scoring system usually applies.

For further information I suggest you ask any of the 10X members and I thank Bill VK5NVW for explaining the system to me and showing me a selection of 10X awards that are available.

Here are the details of a 10X award available from the Festival City Chapter of the 10X International net which was formed in Adelaide, SA, in May 1979.

VK5 FESTIVAL CITY AWARD
This award is available for working 10X Chapter members in the city of Adelaide, SA.

NET TIME AND FREQUENCY
Sunday (Aust.) on 28540 kHz at 0030Z.

AWARDS
Basic Award — 10 points, fee $2 Aust. airmail.
Senior Seal — must work 1 Ch. — 50 points, fee SAE plus 2 IRCs or $0.50 in Aust. mint stamps.
Century Seal — must work 2 Ch. — 100 points, fee SAE plus 2 IRCs or $0.50 in mint Aust. stamps.
VIP Award — to be announced at a later date.

Senior Seal is 2 points, Century Seal is 3 points and VIP is worth 4 points. Overseas stations may apply for Senior and Century Seals together, for $1 Australian, and VIP Award applicants must hold Senior and Century Seals.

VALUES
Charter member — Ch., 5 points.
Charter member — CH, 5 points.
First State — FS, 3 points.
Other members — A, 1 point.
Chapter member — C.

Chapter membership is available for $2 Aust., is permanent, and is worth an additional point.

First Festival City Chapter award issued to each VE, W, VK or JA prefecture or similar call areas in other countries.

Applications must show the date, time, call sign, QTH, name, Ten-X No. and FC No.

AWARD NUMBERING SYSTEM
1 to 100 — Charter Members.
101 and upward — First State.
101C and upwards — Chapter Members.
251 and upwards — Member.

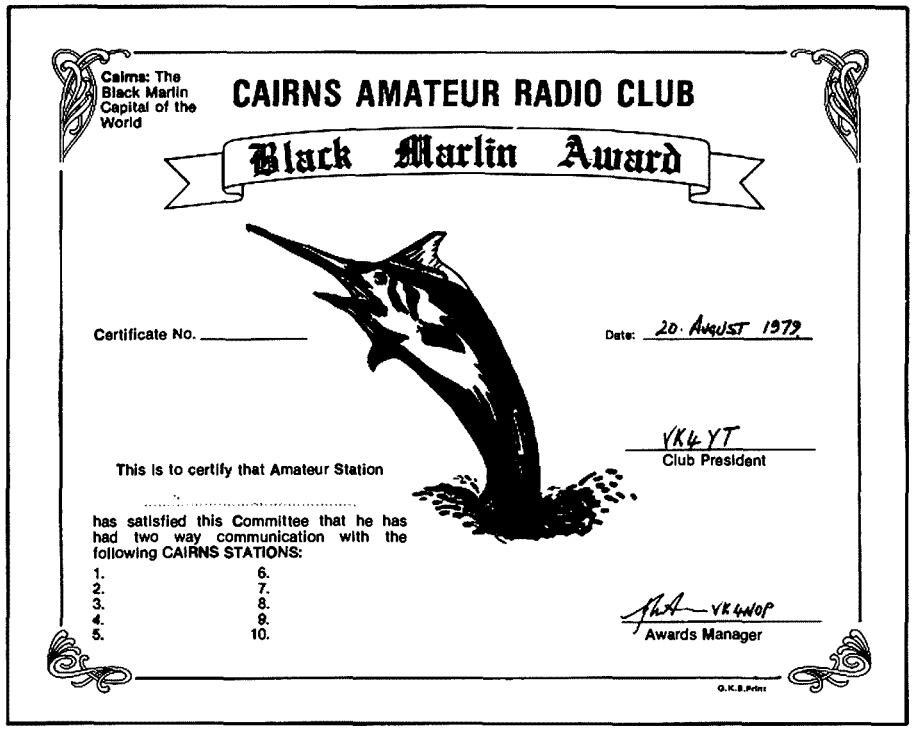
DESCRIPTION
The certificate measures 265 mm x 205 mm, printed in red on high quality white card.

Applications should be submitted to the Awards Manager, Bill Vogel VK5NVW, 16 Wandilla Street, Largs North, SA 5016, Australia.

BLACK MARLIN AWARD
This award is available to Australian and overseas hams for working members of the Cairns Amateur Radio Club. The award is also available to SWLs.

The award is called the "Black Marlin Award" because of the marlin sports fishing done in the waters around the Cairns area.

REQUIREMENTS
1. Work seven members of the Cairns Amateur Radio Club, or five members plus the Club station VK4HM.
2. Club members must be within 100 kilometres of Cairns; therefore contacts made with club members who are not within 100 km are not valid.
3. QSL cards are not necessary, just send log details.



The Black Marlin Award Certificate.

The Festival City Award Certificate.

4. Cost is three IRCs or equivalent for Australian stations ($1) or five IRCs or equivalent for overseas stations.
5. Endorsements may be claimed for "All CW", "All SSB", etc.

Applications should be submitted to the Awards Manager, Cairns Amateur Radio Club, PO Box 1426, Cairns, Qld. 4870, Australia.

DESCRIPTION
The award measures 255 mm x 200 mm, printed in three colours on high quality paper. The club name is in red, border in dark blue and logo in black.

DXCC NOTES
DESECHEO IS. KP4AM/D
Credit for this location is now approved. All

operations before 1st March, 1979, will not be accepted, only operations on or after that date.

CANAL ZONE KZ5

Under a treaty executed between Panama and the USA in 1977, this piece of real estate reverted back to the administration of Panama (HPI) on 1st October, 1979. Therefore KZ5 became a deleted country on that date. The KZ5 QSL Bureau will remain in business for a further two years to clear all outstanding QSLs. All DXCC tallies are being progressively amended. Therefore the current total of "active" DXCC countries remains at 319.

VENDA-LAND

This area obtained self-government from the Republic of South Africa on 13th September, 1979, and several DXpeditions operated from Venda during the "independence" celebrations using the prefix T4. Contacts were made with T4A by several Australian stations and I also worked T4VEN. However, this country comes into the same category as H5 and S8 and is not recognised for DXCC.

CORRECTIONS

The following corrections should be made to the listings of new DXCC members shown in September 1979 AR. Under "phone", Certificate No. 174 was issued to VK6VM. Under "CW", delete VK3NDY. Certificate No. 103 was issued to VK6PY.

ISN'T ANYTHING SACRED?

I consider it a duty to report to all DXCC aspirants a recent unique experience for your Awards Manager. During September I had the privilege of issuing DXCC Nos. 190 and 191 to a husband and wife team — Christine and Mick Bentley VK4ABM and VK4AMB. I offer my congratulations on a particularly commendable effort by two comparatively recent licensees.

This achievement must surely be of special significance because I am not aware of any other OMs or XYLs who share, to such an extreme, a common interest in ham radio.

I am somewhat disturbed that this may herald a trend in ham radio that may worry some of my fellow MSPs.

I must admit that there are some advantages in cultivating such an interest in the VK5WV ham shack, but I am not altogether convinced that the advantages would outweigh the disadvantages.

Good hunting. ■

QSP

LETTERS TO THE EDITOR

The following is an extract from a letter written by a J.P. to the President of the WIA, Queensland Division, and forwarded by him to the Postal and Telecommunications Department, strongly supporting objections to traffic of this nature on air via amateur radio. The objections have also received strong support in a letter to the Department from the WIA Executive requesting an end to the alleged contraventions.

"But for weeks, in fact months now, I have been monitoring a session — emanating basically from VS but VK stations do participate. It is called "Rendezvous Group", in actual fact run by Jehovah's Witness Organisation on 28.57 ±, starts about 8.30 a.m. local time. I mentioned it to one of the RIs in Rocky (Mike Buffini) and he requested a tape of it — which I duly forwarded. Unfortunately Mike was transferred recently, so I don't know the outcome. VK8 is the main station, but VK6, VK2, VK4, VK3 all participate. I am pretty tolerant I think with "stretching the regulations", but this flagrant abuse gets me hopping mad. I guess some would think I was out for a purge, BUT I know of no other religious organisation who uses amateur radio to further their cause. But in my "book" Regulations 79, 80, etc. (of Chapter 6 of 1967 issue of the Regulations), is being abused. I would object to anyone else who used this medium to further their aims, believe you me." ■

(Sgd.).....J.P. VK4.

ERRATA

In the October issue the name and call sign of the first Letter to the Editor was accidentally omitted. He was John Locke VK3ZWL.

DIVISIONAL NOTES

VK3

ALARA

The Australian Ladies' Amateur Radio Association (ALARA) will be holding its Annual General Meeting on 24th November, 1979, at the home of Heather Mitchell VK3AZU at 2.30 p.m. For further information please write to ALARA, Box 110, Blackburn 3130, or contact the WIA offices. ■

VK3BWI BROADCASTERS

PETER MITCHELL VK3ANX

Peter is the current broadcast committee chairman. He obtained his full call in October 1976 and joined the group in June 1978. Peter joined in response to a call for volunteers to help run the station. He now actively repairs and adjusts the station equipment and keeps the team of announcers on deck with the announcers' roster. (A real battle on Sunday mornings!)

Peter repairs and adjusts the equipment on Saturday afternoon. This is the only suitable time for him to gain access to the station. Consequently he is pressed for time and as such does an excellent job. As a result of his efforts the station runs very well.

Peter says that the main function of the broadcasts is to reach all amateur operators. However, propagation of the radio waves is not always favourable. The function of the broadcast committee is to present the news, not collect it. The broadcasts are a medium for presenting news from all quarters for amateurs. It is up to the interested parties to get their news in to the broadcast group. Peter is making a worthwhile contribution to the WIA by helping to run the museum station.

Peter's other interests are: DX on HF, sewerage maintenance engineer with the Melbourne Board of Works.

NEIL MUSCATT VK3BCU

Neil joined the team of announcers in January 1977. He received his licence about 10 years ago. He finds the broadcasts both interesting and as an opportunity to keep contact with amateur radio; although not heavily involved. He finds it an enjoyable way to socialise and it fills in time on a Sunday morning. He likes a newsy programme.

Neil's other interests are: Technician with Telecom, squash, ballroom dancing, photography, ATV. ■

VK2

ST. GEORGE'S AMATEUR RADIO SOCIETY

The Society will hold its November meeting and all future meetings at the Scout Hall in James Street, Blakehurst.

The first Wednesday of each month and a starting time of 1930 hrs EST still remains unchanged.

The Channel 1 repeater VK2RDX, which was recently vandalised, is well on the way to being re-installed at Mt. Bindo, and many thanks for this go to the people who kindly offered donations to our rebuilding fund, and also to the many amateurs in the Oberon, Bathurst, area who have taken a large share of the physical rebuilding of the tower and the safe keeping of the repealer unit. ■

VK4 — RTTY

The Townsville Amateur Radio Clubs presented the fourth biennial North Queensland Convention at the Townsville College of Advanced Education on 14th to 16th September.

About 100 delegates, mainly from North Queensland and as far as VK3 attended.

Friday evening was quite informal with many of the visitors having a conducted tour of our civic theatre.

Saturday was a non-stop programme, with fox hunts, hidden transmitters, films, home brew competitions, ttechnical seminars, visit to the James Cook University Physics Department, fashion parade and craft demonstrations.

Our official station, VK4WIT, was on air for the whole period, both on phone and RTTY (RTTY equipment which belongs to VK4AM, who used VK4WIT call sign. As well we featured SSTV.

We were honoured to have the State President of WIA (John Aarsse VK4QA) with us, to talk to us on WIA matters.

Our social evening on Saturday was a great success and a collection was made for WARC 79.

Sunday saw the WIA news broadcast and callbacks from VK4 Division and VK2TTY, fun events and forum discussion items, auction, lecture, and inspection of technical sites (which included the RAAF log periodical situated at the Bohlie transmitting station). Amateur Radio was given a great boost by the Convention, with favourable publicity on radio, TV and press. ■

VK4

The Ipswich and District Radio Club will be host to the 1979 Wireless Institute of Australia Queensland Division Convention to be held on the 17th and 18th of November, 1979.

The venue for the Convention is the Ipswich Showgrounds, where a diversity of activities will be available. In addition to the usual Convention attractions, the weekly trotting meeting is held on the Saturday and, on Sunday, flea markets and auctions present a popular diversion for the families.

There will be competitions, technical seminars, "Swap Shop", equipment auctions and films, and demonstrations, for both the OM and the XYL. The ladies will be entertained by the Mayoress and her committee, and a bus tour on the Saturday afternoon will be a journey back into history.

The semi-informal dinner dance on the Saturday evening will be held in a very pleasant informal atmosphere and will only cost a very reasonable $10 a head, which includes registration for both days. The Convention will attract a registration fee of $1.50 for either Saturday or Sunday or $2.50 for both days. ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

PO Box 84, Selebi-Phikwe, Botswana.
16 September, 1979.

The Editor,
Dear Sir,

This is a very long overdue note. When I first moved here in 1975 Peter Dodd wrote me and asked for an article for AR. This is to go some way to make amends.

Enclosed are the first three issues of the BARS newsheet and should be self-explanatory.

The latest information is that A2C is no longer and we now have the A22 prefix, with provision for using A24 for a Novice licensing scheme. The change took place at 0730 GMT on Sunday, 2 September — two weeks ago today.

As of today there are 11 licensed members and six associate members of BARS, with the list growing.

The main mover behind this has been Dave A22BX in Gaborone.

The most active amateurs in Botswana are Dave A22BX, in Gaborone, QSL via Radio Botswana; Larry (Lothar) A22BW, in Francistown, QSL via DK3KD; Don A22DK, in Ootse, QSL via VK3ATQ (I think); Chris A22DW, in Selebi-Phikwe, QSL via VK7CH.

Dave is ex G land and works as technical director in Radio Botswana, Larry is a Sermon Volunteer but in process of setting up his own business, Don is a teacher at a school and is ex VK3 in A22 land since 1978, and myself am an electrical engineer (power) for the copper-nickel mine here and been in S/P since March 1975.

Don has a regular sked with his brother (VK3) and I have a weekly sked with Chas (or Snow) VK7CH.

There is no bureau in Botswana and unlikely to be for quite a while, hence the reason for the QSL information.

Most activity in A22 land is on HF bands — local or 40 metre (very little on 80), but we share 40 with the tropical African BC stations so we suffer a lot of QRM — at night we have in Selebi-Phikwe anyway only about seven clear kHz spread over the bottom 100 or so kHz of 40!

The BARS have received the "Project Goodwill" receivers and some DARC 20m receivers, and these are being used with avid interest in both Gaborone and Ootse.

I'm the only amateur in Selebi-Phikwe, so we are a little cut off from the activity.

Recently Dave A22BX, with Pete A22PS and Graeme ZS6BMO, worked Oscar Mode J and become the first A2 to work Oscar.

Myself am gearing up for 6 metres and looking for the openings — have an FT620B and in process of building a 5/5 yagi set for 6. Am corresponding with VK3AQR, VK3ASQ and talking 6 on 10 metres with whom I can.

Work takes up 5½ days a week so only clear time I get is Sundays (then not always), and am usually on 10 metres before 0730 and after 0900Z.

Hope this short note and attached newsheets will be of interest to you, Bruce, or any of your contributing editors.

I will try and write an article or two for you before I leave A22 land next July.

Vy 73s Chris A22DW.
Chris Walker A22DW (VK7UX).

P.S.: AR still keeps me in touch with VK and is a very high class journal compared to Radio ZS! I believe there is an article in the latest "QST" re A22 land! ■

The Editor,
Dear Sir,

Didius Julianus of Rome once aaid, "To be pedantic to one's own subjects is to exercise authority, but unto others it is the egocentricily of a buffoon".

This quote from a great man is more than suffice to describe the narrowness of Mr. Hunt's cerebral thoughts whilst scribing his "International Correspondence" letter to the September issue of Amateur Radio. I wonder if your Japanese is as good as their English. The spelling of the "Tokyo" letters appears to be in order, however some difficulty is apparent at their ability to achieve proper construction.

I suggest you hop off your soap-box and take a trip to anywhere but Victor Harbour and just maybe you will realise what an extremely difficult subject English is to a foreigner. I'm Irish; and we all know what linguistic experts we are!!!

Yours humbly,
Robert J. McKibbin ■

The Editor,
Dear Sir,

THOSE QSLs

The perpetual problem of what to do with all those piles of QSL cards you have collected over the years.

After that elated feeling of receiving your first DX QSL, the next thing is how to cope with that continuous stream of incoming cards. The usual procedure is to pin all those exotic call signs on the wall behind the rig. When that area is taken up, the obvious move is to include the ceiling and the other three walls. From here on it is only a short step to the well tried "shoe box" treatment. Eventually, of course, those boxes can take up the entire floor space, when it then becomes necessary to consider the possible purchase of a "fork lift" to solve the stacking problem as the never ending stream continues unabated. However, one system I experienced proved to be quite satisfactory and occurred when I held a pre-war New Guinea call sign. Due to the 1939 fracas, all those precious cards disappeared instantly along with the rig, the genemotor and the battery charger. It could be called the "instant disposal" method, although I could not recommend a repeat performance.

Of course we all like to preserve those cards, reminding us of some special QSO, like the time a chap in Alaska area said he had a 200 yards long rotary rhombic. Quite incredible, I thought. It turned out he was some research scientist recording the movements of a drifting ice-flow.

In those nostalgic pre-war days of the 6L6, 807 and those lovely blue-glowing 866s and when there were licensed hams in China with the prefix of XU2. Try it sometime on CW, it's really got a rock and roll swing to it.

With the present day craze of miniaturisation going on, it should soon be possible to have a 100 watts final in a matchbox. The day must surely be drawing near when all the QSL information is recorded on microfilm. The storage of vast numbers of QSLs will then be a thing of the past. By following today's business trends of cutting down on all avenues of overhead, it should be possible to produce a continous roll of QSL cards similar to a perforated toilet roll. On completion of the day's QSOs, merely tear off the required number of QSLs for dispatch.

Seriously, there must be some bright spark in our midst who can come up with the ultimate answer to this problem of recording, storage and filing of that never ending stream.

R. B. Monfries VK5RB. ■

569 Inkerman Rd., Caulfield 3161
September 3rd, 1979

The Editor,
Dear Sir,

Having completed 10 weeks' stay in Australia I should like to express my gratitude and affection to the local boys whom I met on the air and in eyeball QSOs, through the pages of Amateur Radio. Thanks to active assistance of Bob VK3SK, Dick VK3ADR and David VK3ADM, I was able to establish my own station here. Your authorities should be commended for the prompt issue of my licence and call.

I am returning now to my home country, Israel, with many good memories of warm and generous welcome in Australia. Should any VK need information and assistance in way of a reciprocal ham in Israel I'll be glad to help.

Dr. Oded E. Schremer 4X4SO/VK3BSV. ■

32 Dorset Street,
Busselton 6280, WA
18th September, 1979

The Editor,
Dear Sir,

I wonder how many operators fell into the same trap that I did, and entered the recent Remembrance Day Contest without having first carefully studied the rules. Over many years, apart from some changes to the scoring system, the rules have remained unchanged and, without having heard or read anything to the contrary, one tends to assume that this will continue to be the case.

The first indication I had that anything had changed was when I found that some stations were giving only three-figure cyphers, without the RST report. There was obvious confusion, however, as perhaps half the stations gave three-figure cyphers and half included the RS numbers. I think that, without exception, the CW operators gave six-figure reports.

However, my big blunder was in entering the now non-existent Open Section, as I have done for many years, and including phone and CW contacts in the same log. It was not until I was compiling my points score that I noticed the change in rules, and the omission of the open section.

As I pointed out in a covering letter with my log, I feel that if no points are awarded this year for entries in an open section there will be some bitterly disappointed amateurs. I also pointed out that if the rules are strictly adhered to, any amateur who gave an RS or RST report in his cypher should be disqualified on the grounds that his cypher did not contain three numbers only.

I contacted 570 stations this year, for a claimed score of 2275, and I wish to protest most strongly at the omission of the Open Section. I am not interested in competing in PHONE ONLY or in CW ONLY, as I enjoy both modes of communication, and if one enters both phone AND CW sections, he cannot hope to make a comparable score in either section with an operator working a single section only.

What possible motive there can have been for omitting the open section or even changing the cypher section, I am at a loss to understand, and I sincerely trust that the Contest Committee will see fit to return to the old rules next year.

Yours sincerely,
E. F. Davies VK6ED. ■

The Editor,
Dear Sir,

I read with regret of the unfortunate accident and resulting disability of Don Pugh VK6DN (Amateur Radio September 1979, page 23). It was of great interest to me to read of the help which amateur radio provided during his time in hospital.

As previously mentioned in your journal, the Austin Hospital has had an amateur radio station, VK3ALI, since 1970. It is again active after being off the air for two years. We have also been given a CB rig, and patients are encouraged to set up their own, although they rarely do so. I have for many years been promoting amateur radio as a hobby for severely disabled people and agree with Don that it would be of great benefit if more hospitals could be induced to having amateur radio stations. I would urge any of your readers who are in any way connected with the care or treatment of disabled persons, to promote amateur radio as an ideal hobby for them.

Dr. Gerald H. Ungar VK3AOU,
Deputy Medical Director, Spinal Injuries Unit,
Austin Hospital. ■

AROUND THE TRADE

VALVES ON THE WAY OUT?

No more amateur transceivers with valves are likely to be produced, according to a director of an equipment distributor.

"Spare valves lor old transceivers are becoming increasingly harder to obtain from overseas sources and many have been discontinued by the tube manufacturers. A good proportion of tubes are manufactured in Japan, mainly by Matsushita Electronics, and will be discontinued this calendar year with this company building up large inventories to supply orders for the next 3-4 years. During the peak production period, 5 million tubes rolled oll the production lines every month, but this has now decreased to around 350,000 per month.

"At the moment there was no great problem In obtaining common tubes such as 6146B or 6JS6C, but shortages a:e expected late 1980; prices may increase to cover the overhead of large inventories," he sa:d.

While we are unable to verify the accuracy of this statement, there does seem little requirement for valves in new transceivers running up to 400W Input.

Fortunately the luture availability of premium quality replacement valves of types such as the 6143B looks quite good. Valves are immune to the effects of nuclear radiation unlike transistors. Several East European countries are producing many US and European valves types for military equipment. These valves may be purchased from Ammon, 69 Peter Street, Box Hill North, Victoria. Systems Reliability In South Melbourne, and CEMA also sell "hard to get" valves. ■

NEW LINEAR AMPLIFIER

Kenwood have announced the release of the TL-120 linear amplifier. Designed to lift the output of the TS-120V, it runs 160W in (typical) on 3.5 to 28 MHz.

Cooling is provided by a large heatsink and a thermistor controlled cooling fan. Automatic protection against high VSWR is provided. The ALC circuit is designed to reduce drive and prevent the distortion that occurs when the supply voltage falls; it also holds the power output constant if the supply rises above 14V.

Another uselul feature is the positioning of the VSWR detector before the low-pass output filter. In the event of the band switch being set for the wrong frequency the PA transistors will not be damaged.

Harmonic output signals are typically 60 dB or more below the fundamental. ■

DX BEAM HEADING LIST

Ever wanted to know the exact beam heading from your location to any country in the world? Bint Services have available a computerised listing which also shows long and short path headings, and the distance in miles and kilometres on the short path.

There is also a separate listing lor the American States, together with all of the above Information.

All that is required to prepare a personalised listing is for you to provide your name, call sign, OTH, and longitude and latitude if known.

Cost of this comprehensive listing is $A7.50 plus $0.50 post and packing. Further enquiries to Bint Services, PO Box 323, Cheltenham, Victoria 3192. ■

SWISS QUAD

GFS Electronic Imports of Mitcham, Victoria, have announced the release of some additions to the already well known range of "Swiss Quad" high performance phased quad antennas manufactured by THT, Japan, and imported/distributed in Australia by GFS.

The Swiss Quads are a "phased" type quad and offer considerable gain over antennas of similar size. Originally designed by a Swiss Ham, HB9CV, their concept is to drive the reflector and radiator at the same time using phase differences to oblain more gain and better front-to-back ratio than conventional quads.

The Models SQ-10 and SQ-15, which have been available for some time, are for 10/11 and 15 metres respectively and have a forward gain of 12 dBd and a front-to-back ratio of 20 dB.

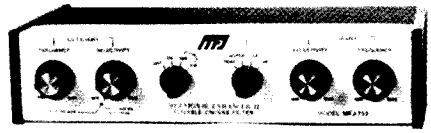
New to this range are the SQ-61, SQ-22 and SQ-24. The SQ-61 is a single unit for six metres with a forward gain of 12 dBd while the SQ-22 consists of two separate phased Swiss Quad units making an array with 15 dBd gain. The new SQ-24 is an array that uses 4 Swiss Quad units and has an extremely high gain of 18 dBd.

GFS expect the SQ-15 will sell for $169, SQ-10 $159, SQ-61 $119, SQ-22 $99, and SQ-24 $219.

For complete specifications on the new Swiss Quad series contact GFS Electronic Imports, 15 McKeon Road, Mitcham, Victoria 3132, phone (03) 873 3939. ■

NEW MFJ DUAL TUNABLE ACTIVE SSB/CW FILTER

GFS Electronic Imports of Mitcham, Victoria, have just announced the release in Australia of a new "Signal Enhancer", the MFJ-752 Dual Tunable Filter.



The MFJ-752 consists of two separate active filters that have both their BANDWITH and CENTRE FREQUENCY fully adjustable and either filter may be set up Individually as PEAK, NOTCH, LOW PASS or HIGH PASS networks.

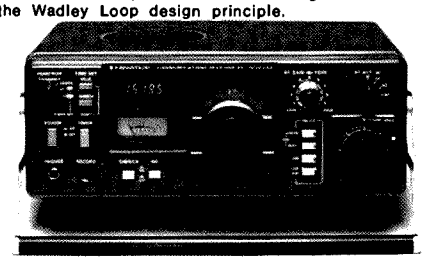
The bandwidths may be varied from 3000 Hz down to 40 Hz and using, the Notch Mode, a signal may be notched to 70 dB.

A built-in switchable Noise Limiter and Trough CLIPPER are designed to remove unwanted background noise. Also a simulated stereo feature for CW lets your ears and brain reject QRM.

The MFJ-752 is easily Installed, It connects to the output of a receiver or transceiver and drives a speaker with up to 2 watts from its built-in audio stage. It may be power from a 9-18 volt DC power source.

Price of the new MFJ-752 Is $139. For more information contact GFS Electronic Imports, 15 McKeon Road, Mitcham, Victoria 3132, phone (03) 873 3939. ■

Trio-Kenwood (Australia) Pty. Ltd. have announced the release of their new general coverage Communications Receiver, the R-1000, capable of receiving transmissions in the range of 200 kHz to 30 MHz in thirty 1 MHz tunable ranges based on the Wadley Loop design principle.



Designed for the serious short wave listener, amateur operator or beginner, the receiver offers many features, Including digital display for accurate tuning, digital clock with timer, tone control, stepped attenuator for reducing strong local signals, a recording outlet and carrying handle.

Availability will be late November and cost around $498 (sales lax Included).

For further information contact S. Brucesmlth, Trio-Kenwood (Australia) Pty. Ltd., 30 Whiting Street, Artarmon, NSW 2064, phone (02) 438 1277. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy In typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address Is correct as set out in the WIA 1979 Call Book.

FOR SALE

Ken KP202 2m FM, hand-held, with all extras and extra channels, $170; Ken KP12A RF speech processor, as reviewed in Feb. 1976 AR, $110; Asahi 5/8 2m ant. with coax and connector, $10. VK3OM, QTHR. Ph. (03) 560 9215.

IC211 All Mode Tcvr, IC22S FM Tcvr, vertical hustler, 4 BTV ant., 10m Swiss quad. Ph. (03) 240 1231, A.H. 509 8637.

Audio Tapes, 1800 ft. on 7 in. reels, brand new (no boxes), sell in lots of 20, $45; photographic spotlights, 500 watt, retail around $9, sell for $2.50 each sell in lots ol 6 or more. Leon VK3ZN. Ph. (03) 557 6031.

ICOM 215, with Ch. 50, R2, R6, R7, had little use, in orig. carton, $160. VK2BVM, OTHR.

Sale or Exchange — Kenwood TS520S, had little use, in orlg. carton, part swap with cash balance for 10 MHz CRO or sell outright, any offers? VK2BVM, QTHR.

FTDX400/401, owner's add talk power, commercial quality AF speech processor, as used successfully by VK3JF, VK2CX, complete unit ready to use, no wiring, internal battery or external supply, off switch transfers mic to Tx input, $52.50 p.p.; FTDX400, complete with mlc, matching spkr, ext. VFO FV400S, speech processor, performance for DXing, $550, plus freight. John VK3JF, QTHR. Ph. (03) 93 5417.

Collins KWM-2, round emblem with noise blanker, heavy duly PSU, control/speaker/watt meter, console type 312B-4, set of spare tubes, beautiful cond., $1,790; Collins 75S-3 Rx with noise blanker, 312B-3 speaker, SSB/CW/AM filters, spare tubes, $825; set of solid state tubesters lor 75S-3, $95; microwave modules 144 MHz transverter SSB/FM/AM/CW, 50 mW, 28 MHz, in 10W out, brand new, never used, $150. VK2SV, QTHR. Ph. (065) 83 4414.

Uniden 2020, as new, modified Novice use, $650, ONO. VK3NQS. Ph. (03) 791 2947 A.H.

Katsumi Mk. 1024 Prog. Electronic Keyer, as new, $150; Asahi mobile anl. system 80m-10m, incl. h/d spring and bumper mount, $80; EA 2650 mini computer system, keyboard VBU, cassette Interface, cabinet, 3k RAM, games pack cassette, 2650 software record, manual, complete and running, $300, ONO. VK5NGD, QTHR. Ph. (085) 34 4057.

Kenwood Comm. Rx QR-666, 170 to 410 kHz, 525 kHz to 30 MHz, SSB, AM, only 10 hours use, still with original box, shipped free to anywhere in Australia, $160. William Scott VK4XP, QTHR. Ph. (079) 76 1253.

Trio Comm. Rx 9R-59DS, is as new cond., little used, operator's manual Included, $150, ONO. G. F. Hughes VK2ZNY, QTHR. Ph. (02) 80 3589.

Complete Station — Yaesu FR100B Rx, 80-10m, modes 600 Hz CW, USB/LSB, 2 kHz AM, 4 kHz AM filters, FM xtal calibrator, WWV, plus auxiliary ranges 9.6-10.5 MHz, 12.5-13.6 MHz, 14.5-15.6 MHz, 26.5-27.6 MHz, plus FR100B matching spkr cabinet, plus Yaesu FL200B Tx, 260W PEP, CW, USB/LSB, AM, will transceive with FR100B Rx, plus Shure cer. desk stand mic, plus matching linear, 1200W EIMAC 8875 final 80-10m, all patching leads, hand books and spare valves included, all have latest serial numbers issued for FR100/FL200, professionally operated and maintained to lactory specifications since new, full price $875, ONO. VK3ADM, QTHR. Ph. (03) 267 4688 Bus., (03)592 2168 A.H.

400W PEP Galaxy V Mk III, good order, clean cond., can be heard on the air any time, with P/S, 240V ext. VFO, CW filter, DC P/S, 12V, Aztec, and some spare valves, the lot $425, ONO; Geloso TR222 Tx, all bands, including 160m (11m band modified to 160), good, clean, and in order, 65W AM, built-in P/S, 240V, good museum piece, $75. VK4LN, QTHR. Ph. (071) 82 2675.

Multi-7 2m FM Txcvr, mic and mobile bracket, 10W and 1W, repts 2, 3, 4, 5, 6, 7, 8, anti-repts 2, 4, 6, 8, simplex 40, 50, 51, 65; this rig still as new in performance, some slight marks but generally clean; a bargain at $155 (less than the cost of the xtals!). B. Bathols VK3UV, QTHR. Ph. (03) 90 6424 A.H.

Three el. 10/11m Vagi beam, H/D, sliding elements, factory made, good cond., $50, ONO. Kevin Cocks VK3NPC, QTHR. Ph. (051) 57 1492 A.H.

Trio SG-402 and Trio AG-202A Sig. Gen., with manuals, in exc. cond., cost $290, sell for $190, ONO. VK3YPW. Ph. (02) 626 4233 after 5 p.m. and ask for K. Bialecki.

Kenwood TS-820S, CW filter, DC supply, etc., little use, as new, $750; Icom IC-245, SSB and FM, synth. mobile/home station, $475; Icom IC-215, 3W portable with nicads, charger, flex antenna, $225; also FRG-7 and Icom IC-701; all must go. A. Nutley VK2BNA. Ph. (02) 230 5122/5878 Bus.

Yaesu FT75B with AC/DC supply, extra xtals fitted and slider to 20 kHz, immac. cond., $450, ONO. W. H. Ross VK3UT, QTHR. Ph. (055) 69 2320.

Kenwood TS7400A, $369; Datong agile audio filter, mod. FL1, $120; RF speech processor, Datong mod. RFC/M, $75; above equipment as new. VK2MA, QTHR. Ph. (02) 48 5463.

KW "Viceroy Series II", 300W, SSB Tx, 80/10m, 240V PS and control box (all valves 6146 finals), built in Rx mute and ant. change-over relay, VOX, MOX, CW and netting facilities, complete with xtal mic., connecting cables, circuits, block diagram, and installation, tuning and operating instructions, good cond., $230. VK3VIR, QTHR. Ph. (03) 489 2245 A.H.

TH3JR with balun, new, never been used, still in box, $120. VK3DA, QTHR.

Drake SSR1 Comm. Rx, 0.5 to 30 MHz, AC/DC, AM/SSB, very good cond., little use, best offer over $175. VK1NBM, QTHR. Ph. (062) 81 6908.

Drake R4A Rx with full short wave HF band xtals, Drake noise blanker, CW filters installed, Drake MS-4, spkr., owner's manuals, exc. cond., $475; Drake TR4C SSB HF Tcvr, 300W PEP input, Drake RV-4C remote VFO, Drake AC-4 power supply, Drake MN-4 ant. matching network, with owner's manuals, and new Cushcraft ATV-4, 10-40m vertical antenna, $950. James VK2JO. Ph. (02) 36 7756 A.H., (02) 389 7786 Bus. GPO Box 5076, Sydney 2001.

Kenwood ATU200, as new, in carton, with hand book, $125. VK2ZKS/VBI, QTHR. Ph. (043) 96 4714.

Yaesu FT901 DM with SP901 speaker and YD148 desk mike, in mint cond., $1,480; Yaesu FL2000B linear amplifier, 1.2 kW, excellent cond., $460; Kenwood TS820, as new, excellent cond., $1,000, ONO. VK3BIB, QTHR. Ph. (055) 65 8593 Bus.

100 ft. Free Standing Tower, urgent sale, $575, ONO; ex taxi use, will fit in a tandem trailer, already dismantled; Eddystone 750 Rx, 500 kHz-32 MHz. double conversion, unmodified, i.e. stock standard cond., $150. G. Scott VK3ZR, QTHR. Ph. (03) 89 4645.

Hewlett Packard 970A Digital Multimeter with accessories and charger, $220; QST 1956 to 1968 inclusive, $6 per year. VK5MO, QTHR. Ph. (08) 339 2084.

886 Rectifiers, new in cartoon, $8 each, plus postage. VK4SS, QTHR.

Kenwood TS820S, complete with digital readout, hand mic., SP520 speaker, modified for Novice power by distributor, $795. VK3NDI, QTHR. Ph. (03) 786 1260.

Katsumi KM22/EK-127 Electronic Keyer, $90; Hydaka VS22 15/10 trapped yagi, $145; "TenTec" 544 transceiver, $1,150; items offered are as new, bought by my son who unfortunately never made the licence exam; some other items of amateur equipment, to complete my own station, would be considered in a part exchange agreement. Ralph VK5NRD, QTHR. Ph. (05) 46 6260.

WANTED

Command or similar WW2 Rxs or components, particularly tuning gangs or coil boxes for student projects. Offers, prices, etc., to VK5RG, QTHR.

Smoothing capacitors for power supply, 2.5/3 kV rating, 4 uF or greater. VK8SU/1, QTHR.

FT221R 2m Tcvr in good cond.. Advise price and cond. to J. Forster VK4CDX, PO Box 125, Mary Kathleen 4827, or Ph. (077) 47 2222 Bus., 47 2180 A.H.

External VFO Type 8010 to suit Uniden 2020 transceiver. Price and particulars to VK5WV, QTHR. Ph. (08) 352 2051.

RF Sig. Gen., Marconi TF955 or similar, must have AM/FM modulation capability and calibrated output level down to 1 uV. W. Pickering VK4WP, 10 Marina Pde., Ingham 4850, Q. Ph. (077) 76 2008 A.H., (077) 76 2110 Bus.

Swan 410C or 420 External VFO. VK2AVT, QTHR. Ph. (02) 57 4325.

Yaesu FTV650 6m Transverter or similar. Price and details to Gary Hambling VK5AS, QTHR. Ph. (066) 82 2899 or Cowell 144 A.H.

Power Transformer, to give 1000V each side of centre-tap with at least 400 mA and not to have a greater height than 15 cm. VK3ACD, QTHR. Ph. (058) 21 2484.

Manual/Circuit Diagram or similar information on Teletype Model 15, will purchase outright or copy and return promptly. T. Robinson L31105, QTHR.

PRC10/10A Circuit Diagram and any other information to buy or photocopy; Teleprinter in working cond., for $50 to $90. Phillip Rice VK3BHR, QTHR. Ph. (054) 33 2204 A.H., (054) 43 1877 Bus.

TRADE HAMADS

QSL Cards, Log Books, Contest Sheets — send 20c stamp for samples and prices to Linda Luther VK4VV, PO Box 498, Nambour, Qld. 4560.

OBITUARY

DON SORAOHAN VK2PU

It is with regret that we record the passing of Don VK2PU on August 10th, 1979; just the day before his 77th birthday.

Don was born in 1902 in Ireland and joined the Marconi Institute of Radio in Dublin. After graduating he joined the Marine section of Marconi Co. until joining AWA in 1921.

Travelling the seven seas, Don visited every port during the following 19 years of service in the Merchant Marine and was the Operator on board the first vessel equipped with radio south of the equator.

In 1938 Don joined the Department of Civil Aviation and was with them until his retirement in 1962, attaining the post of Senior Communications Officer in Charge at the flying boat base in Rose Bay and later at Mascot Airport.

Although ill-health forced him to lead a limited life physically, he obtained the VK2 2m DX record in January of this year by working ZL2BFC, an event that Don had hoped many years for.

Apart from being the first person to send a Telex from Sydney to the USA, he was one of very few VK2s to work Hawaii and Tokyo via Oscar 7 Mode B. Another of his favourite subjects was the true Amateur spirit of experimenting (3 Ringos in phase?).

Don was a very active Amateur and his passing leaves a large gap, not only by his cheerful "Guardian of the repeater on the gateway to the Gold Coast", but also in the ranks of Nature's gentlemen, and especially from within the Gold Coast Radio Club, of which Don was an Honorary Life Member.

Martin Willsms VK4ZIL. ■

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. L. A. McPHERSON	VK2AMK
Mr. I. BAILUE	VK2TN
Mr. A. K. MAYNARD	VK6AO
ROBIN CLARK	VK4CL (ex VK3BCL)

OBITUARY

PETER NORMAN VK5NPN

It was with deep regret that members of the South-East Radio Group learned of the tragic death of Peter (aged 22) and his XYL (of only eight weeks), Gail (aged 19), on June 15th, 1979. Result of car accident.

Peter had been an enthusiactic SWL before being licensed in 1976 and was one of the early novice stations to be heard on air. He was very active on 80, 15 and 10 metres and was frequently heard mobile and portable. Peter had applied to sit for the August 1979 AOCP. He was an example to Amateur Radio, enthusiatic about construction and experimenting.

Peter had a bright and cheerful approach to everyone and everything and will be sadly missed by all his amateur friends. To the families of Peter and Gail, amateurs extend their deepest sympathy.

T. R. Hutchesson VK5TH. ■

TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hamads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be $10 for 4 lines plus $2 per line (or part thereof), minimum charge $10, pre-payable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes. ■

ADVERTISERS' INDEX

NOW THE FM321

70cm amateur rig

40 channels fully synthesised Australian designed & made

for only

$299*

Check these features:

- 40 synthesized channels with electronic channel change and LED readout.
- Channel selection up or down from front panel or hand microphone.
- A LED each for power on, transmit and receive.
- 5 Watts RF and 1 Watt audio power.
- Combined signal strength and RF power meter.
- Single or two frequency simplex operation on any of the 40 channels.
- Instant selection of these modes plus any one nominated repeater channel.
- 5MHz Tx/Rx separation on repeater mode.
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- 6 pole crystal filter combination for improved selectivity.
- High sensitivity

SPECIFICATION: TYPICAL DATA AT 22°C 13·8V

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Frequency Stability:	Better than 6ppm 0°C to +60°C
Supply Voltage:	11 to 16.2 Volts -Ve earth.
TRANSMITTER	
Power Output:	5 watts
Spurious Outputs:	-63dB (out of band)
Audio Response:	6dB/octave pre-emphasis 300Hz to 2KHz.
RECEIVER	
Audio Output:	>1.0 Watt at 10% THD into 8Ω
Selectivity:	>50dB at ±25KHz
Sensitivity:	0.3μVpd (12dB SINAD)

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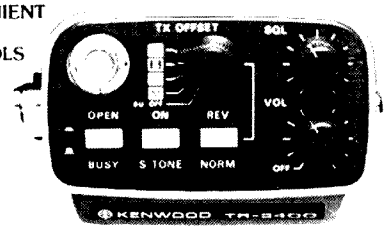
CONVENIENT TOP CONTROLS



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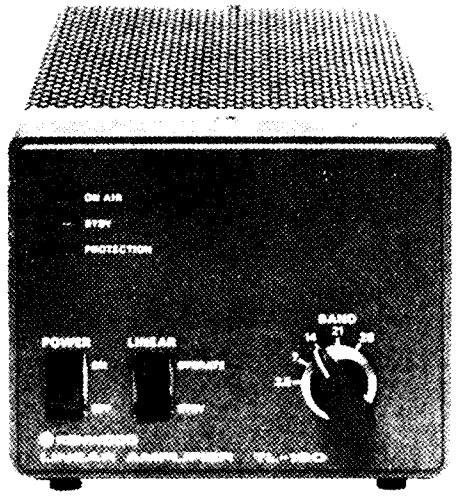

TL-120 HF LINEAR AMPLIFIER

80-10 METER/200 PEP INPUT

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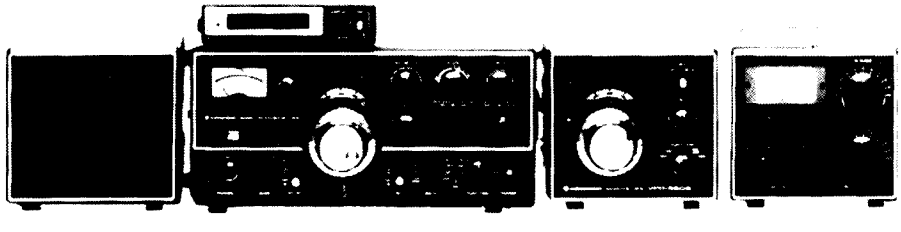

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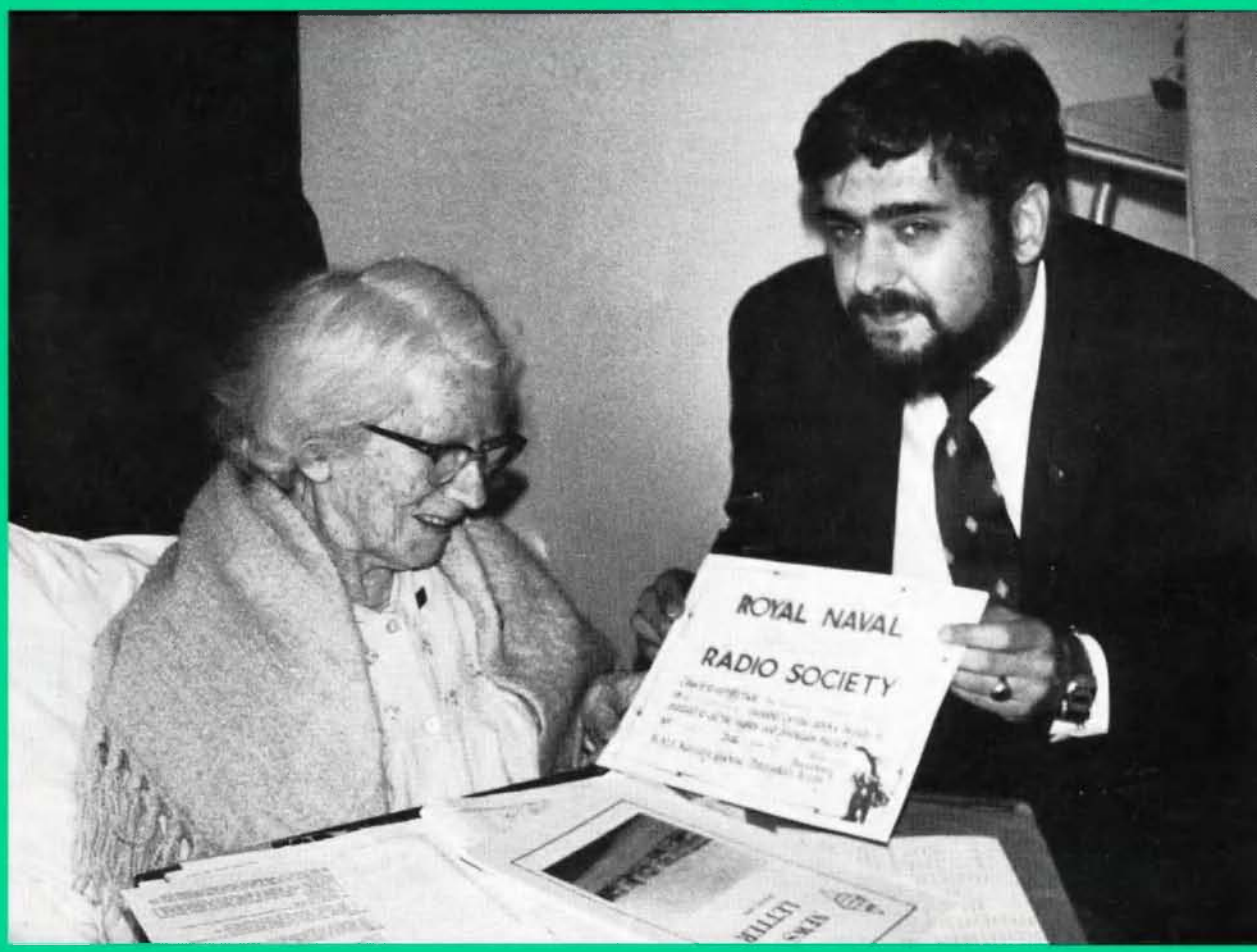

VOL. 47, No. 12 DECEMBER 1979

FEATURED IN THIS ISSUE:

- ★ CONSIDERATIONS FOR A WADLEY LOOP VHF RECEIVER FRONT END
- ★ FOUR 5/8 WAVE PHASED VERTICAL ARRAY FOR 2 METRES
- ★ BEAMS NOW MADE IN AUSTRALIA
- ★ REVIEWS — IC551D AND YAESU FT-7B
- ★ A LIVING LEGEND

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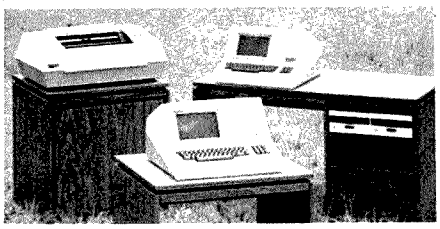
We have a system to suit you, from hobby level all the way up to a business level system with 2.4 Mega-Byte of on-line disk memory. Also available is a comprehensive range of software packages including many that are orientated to amateur radio. Write or call us for full details of SWTPC's products.



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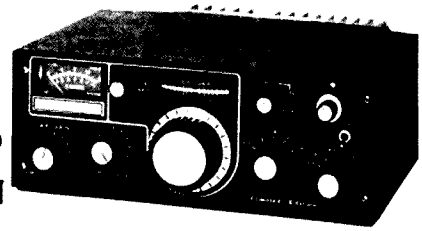
ATLAS RADIO INC.

TRANSCEIVER OF THE DECADE

NEW 215XLE LIMITED EDITION



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Includes all the outstanding features of 215X plus now 250 Watts Input, *new* R.I.T. *control and update frontpanel design.*

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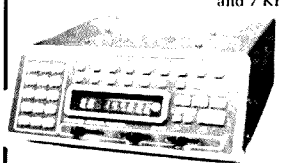

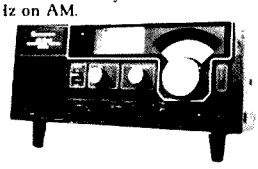

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Amateurs can use the SX-100 to monitor band conditions using beacons etc., Firemen can keep informed by listening to firebrigade frequences, CB'ers can monitor UHF CB Channels, Fishermen can monitor VHF marine and Emergency frequencies. Servicemen can use the SX-100 to check virtually any commercial two-way frequency with its 32,000 channel coverage.

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- 240V AC and 12V DC operated.
- Frequencies are programmed using built-in keyboard.

SEE REVIEW ETI NOV. '79

SKY ACE R-517... $104.

The monitoring of aircraft communications has long been a requirement for emergency service organizations, flying schools and clubs, aircraft operators, aviators themselves as well a band of communications enthusiasts. GFS has a range of airband receivers that should suit all these requirements.

Designed for the enthusiast, the R-517 is a *Palm Sized* Receiver which features Full 118-144 MHz Tuning plus the 3 Crystal Locked Channels.

- Active inbuilt AGC System.
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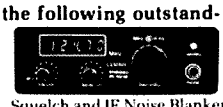
NEW!! COMNI R-1010 AIRBAND RECEIVER.

The R-1010 is a Professional Receiver that uses frequency synthesis thus giving the following outstanding performance.....$529.



- Frequency range 108-136.975 MHz.
- Channel Spacing 25 KHz.
- Digital Frequency Readout.
- 12 VDC or 240 VAC operated.
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Weight 3 Kg. Size 16 cms x 5.6 cms x 25 cms.

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Scan-X 65-520 MHz. 3dB Gain $35.00
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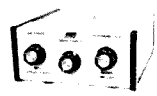
Write for a comprehensive price list and Catalogue of the complete GFS Product Range. Trade Enquiries Welcome.



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Enjoy the thrill of FM operation that has been so popular amongst 2 Metre operators for years, but with the advantage of being able to work OVERSEAS DX (10 metre FM is very popular in the US with over 70 repeaters already operating). With the FM-80 you have the choice of 80, 10KHz spaced channels, 28.91-29.7 (range can easily be changed to 28.01-28.80 MHz), power output is 10-15 Watts, deviation is ±3KHz, receiver sensitivity is 0.5uV for 20dB quieting.

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GREAT CIRCLE MAP

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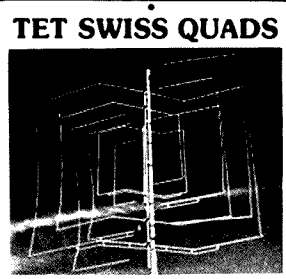
PRICE $1.00 + 75¢ P&P

TET SWISS QUADS



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amateur radio

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Enquiries and material to:
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GENERAL

DEPARTMENTS

Cover Photo

"A LIVING LEGEND"

Mrs. F. V. McKenzie, O.B.E., being presented with her Membership Certificate to the Royal Naval Amateur Radio Society by T. R. Clark VK2ALG, the Australian Branch Manager of R.N.A.R.S.

August 29, 1979 — See story "A Living Legend", page 34.

WIRELESS INSTITUTE OF AUSTRALIA

Federal President: Dr. D. A. Wardlaw VK3ADW
Federal Council:
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Staff: Mr. P. B. Dodd VK3CIF, Secretary.
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Secretary — Mr. F. Robertson-Mudie VK1NAV
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President — Mr. F. S. Parker VK2NFF
Secretary — Mr. T. I. Mills VK2ZTM
Broadcasts— 1825, 3595, 7146 kHz, 28.32, 52.1, 52.525, 144.1, 145.6, 146.4, Rptr. Ch. 3 — Gosford, Ch. 4 — Lismore, Ch. 5 Wollongong, Ch. 8 — Dural 11.00h local (Evening 0930Z). Relays on 160, 80 and 10m, VHF and Reptr. Ch. 3, Ch. 5, Ch. 8, and Hunter Branch, Mondays 0930Z on 3595 kHz, 10m, and Ch. 3 and 6. RTTY Sunday 0030Z 7045, 14090 kHz, Ch. 52, 0930Z 3545 kHz, Ch. 52.

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President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. G. F. Atkinson VK3YFA
Broadcasts— 1840, 3600, 7135 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (5) repeater: 10.30 local time.
Gen. Mtg. — 2nd Wed., 20.00.

QLD.:
President — Mr. A. J. Aarsse VK4QA
Secretary — Mr. W. L. Glells VK4ABG
Broadcasts— 1825, 3580, 7146, 14342, 21175, 28400, kHz; 2m (Ch. 42, 48): 09.00 EST.
Gen. Mtg. — 3rd Friday.

SA:
President — Mr. I. J. Hunt VK5QX
Secretary — Mr. W. M. Wardrop VK5NWM
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.
Gen. Mtg. — 4th Tuesday, 19.30.

WA:
President — Mr. Ross Greenaway VK6DA.
Secretary — Mr. Peter Savage VK6NCP.
Broadcasts— 3560, 7075, 14100, 14175 kHz. 28.485, 52.290 MHz. 2 metres Ch. 2 Perth, Ch. 6 Wagin. Time 0130Z.
Gen. Mtg. — 3rd Tuesday.

TAS.:
President — Mr. I. Nicholls VK7ZZ
Secre'ary — Mr. P. T. Blake, VK7ZPB
Broadcasts— 7130 (AM) kHz with relays on 2m Ch. 2 (S), Ch. 8 (N), Ch. 3 (NW), 09.30 EST.

NT:
President — Mr. T. A. Hine VK8NTA
Vice-Pres. — Barry Burns VK8DI
Secretary — Robert Milliken VK8NRM
Broadcasts— Relay of VK5WI on 3.555 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

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VK3 — 412 Brunswick St., Fitzroy, 3085 (Ph. (03) 41 3535 Weekdays 10.00-15.00h).
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VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton.
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (Incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

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VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 46, Canberra, A.C.T. 2600.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse, 83 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001.
VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP —

HELPING OTHERS

Many Radio Amateurs have secured their licences within the past five years, indeed the past two years, and yet, we still have Radio Amateurs who have been licensed for 50 years.

It is right to say that our hobby is a highly individualistic pleasure. in saying this, I must acknowledge that what we do as individuals is to build on the efforts of those who have gone before us. To put it bluntly, very few of us have that innovative streak to produce and develop something entirely new in concept and execution. To phrase it more kindly, we each need to clarify our own viewpoint by discussing matters with others of like mind, or greater ability or insight.

It therefore seems that our hobby must be a blend of the individualistic and the corporate. For myself, I have always found another willing Radio Amateur who is better informed, more capable, and more knowledgeable in some branch of my hobby. What is more, this help has always been forthcoming.

Having said this, I must emphasise that all of us have varying talents, and I would suggest to you, you personally, that your talent may be just what the Amateur fraternity needs. Consider this, ponder over it, and see what part you can play which will benefit so many others towards a fuller enjoyment of their hobby. I can assure you that your personal benefit will be manifold.

The variety of interests within our hobby are wide-reaching. I suggest just a few: operating, constructing, a mixture of both, experimentation with antennas, interest in a particular band, work on VHF, UHF, ATV, CW communication, and many more fields. There is room for all these interests. The WIA, by its Constitution, is formed to develop all these interests. It is up to our Institute to see to it that you have the blessing of the regulatory authority to pursue and develop any interest not contained within the terms of your licence.

As a final thought, I must state that I am a Radio Amateur first with a feeling that I may have a talent for administration by virtue of educational background. You as an individual may have a talent in a different direction, which will contribute much to the advancement of many others.

Best 73, and a happy Christmas to you all.

IAN NICHOLS VK7ZZ,
Tasmanian Divisional President. ■

WIA NEWS

Information about WARC 79 is included in the "International News" columns in AR.

One meeting of Executive in October — on the 11th — presided over by the Acting Federal President, Peter Wolfenden VK3ZPA.

INTRUDER WATCH

It was noted that no volunteer had come forward to take over from VK3LC.

Market research was required to assess the possible sale of WIA ties. If any reader believes a tie should be available on sale to members please write to WIA, Toorak. The price of a reasonable quality tie would be about $9 or $10 each.

As the result of Institute efforts, a donation of equipment suitable for UHF repeaters has been received and gratefully accepted. Almost all Divisions will benefit.

A videocassette in colour of the JARL Okino Torishima DX-pedition last year is now available for Divisions from the Federal Videotape Co-ordinator, John Ingham VK5KG. This was finally recorded from the JARL 16 mm film which they kindly loaned to the WIA for the purpose. A very interesting programme according to all accounts.

The Executive office expects to be under notice shortly, as the building now occupied is scheduled for re-structuring. Suitable office space at a reasonable price in or not too far distant from Toorak appears to be almost non-existent. Even a suitable house

would suffice. Efforts to find alternative accommodation are proceeding.

The Executive wishes to acknowledge with grateful thanks the receipt of the following donations from members towards the expenses of WARC 79 —

LIST No. 8

L50426	*$10.00*	*Geelong Amateur Radio-TV Club*	*$27.00*
VK2JR	*$5.00*	*VK2AHP*	*$10.00*
Oxley Region ARC	*$50.00*	*WIA WA Division*	*$100.00*
Per WIA Victorian Division from VK3AJT	*$500.00*	*VK6SJ*	*$2.00*

The total of donations received from members and non-members so far during 1979 is $9,029.54 towards WARC 79 expenses. Even by world standards this is an excellent response and everybody concerned should rightly congratulate themselves. Incidentally, the appeal for funds for this purpose has not closed.

This is the time of the year to wish you all a very Merry Christmas and a Prosperous New Year. Are we fortunate or unfortunate that we cannot foresee what the 1980s has in store for us? Long live the optimists. ■

QSP

PREFIXES

According to October 1979 Radio Communications the ITU has allocated prefixes H8A-H9Z to the Republic of Panama and T3A-T3Z to the Republic of Kiribati (formely VR1 to VR3). To mark the 50th anniversary of the issue of the first amateur licence in the Netherlands the amateurs in this country will be permitetd to add "50" to the figure in their call signs from 10th October to 10th November, 1979. Thus PAo becomes PA50, PA3 becomes PA53, etc. ■

"ORANGE JELLY"

In "TT" by Pat Hawker G3VA, Radio Communications September 1979, there is a short comment on the sunspot cycle. "The idea of a 22-year rather than an 11-year cycle is supported by the fact (discovered by Harold Babcock some two decades ago) that the solar magnetic field reverses polarity in successive 11-year periods (like that of an AC waveform) . . . Professor Dicke (of Princeton University) puts forward a speculative hypothesis as to the nature of the burled "clock". He writes: "It seems very likely that it is a magneto-fluid oscillator. A crude analogue is an oscillating bowl of jelly. The magnetic field lines in the conducting solar gas act like stretchable threads of rubber lacing the 'jelly' together." When it comes down to basics our RH DX depends on that flaming great bowl of jelly in the sky." ■

RTTY

From "Arewise" of October 1979 comes news that ANARTS (Aust. National Am. Teleprinter Soc.) had 552 members at the end of September and in members' news is an item about VK5ZNN's RTTY activities for which he uses a pencil between his teeth in preference to his mechanical arms, having been invalided some years ago in an explosion which blew off his arms below the elbows. This issue of Arewise also contains part 2 of the RTTY operating standards article. ANARTS runs a half hour broadcast each Sunday at 0030Z on 14.090, 7.045 and 146.6 MHz and at 0930Z on 3.545 kHz and 146.6 MHz from VK2. ■

WIA (FEDERAL) DIRECTORY

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Mr. P. A. Wolfenden VK3ZPA, Exec. Vice-Chairman.
Mr. K. C. Seddon VK3ACS, Member.
Mr. H. L. Hepburn VK3AFQ, Member.
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Mr. N. R. Penfold VK6NE.

FEDERAL VIDEOTAPE CO-ORDINATOR
Mr. J. F. Ingham VK5KG.

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Please see main Directory.

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VK2 — Mr. P. B. Card VK2ZBX.
VK3 — Mr. A. R. Noble VK3BBM.
VK4 — Mr. D. T. Laurie VK4DT.
VK5 — Mr. C. J. Hurst VK5HI.
VK6 — Mr. P. J. Savage VK6NCP.
VK7 — Mr. P. D. Frith VK7PF.

99 — 73 — 88 — 33

T. W. M. Duerdin ZL4IJ
166 Layard St., Invercargill, New Zealand

They passed as she went down the hill,
And he came from below;
Their eyes met in a fleeting glance,
He turned and breathed, "hello";
But, wary, she continued down
— How could she know his line? —
And when he caught up by her side,
She threw him, "ninety-nine".
He kept his distance — not too far —
Appraising from behind;
He wasn't put off by her code
Of charlie-whisky nined.
Her signal peaks were gently curved,
And every one chirp-free;
He softly whistled low and sweet,
An eager, "seventy-three".
It jumped her circuit-breaker switch,
And fused her over-load;
Her flip-flop stand-by circuits peaked
As IC current flowed.
She turned her beam full on to him
To sense his solid-state;
Her dipole folded as she clicked
A tender, "eighty-eight".
Within the month they vowed their troth
In solemn marriage rites;
They've made their home in Cargill Town
And live in Rosedale Heights —
Away above the q r n
Where sigs are static-free,
And in each other's fond embrace
They whisper, "thirty-three".

99 means Keep off my frequency.
73 means Best Wishes, Kindest Regards.
88 means Love and Kisses (women operators).
33 means Love.

(From "Break-In" June 1979) ■

AT VICOM WE'VE GOT THE BALANCE OF POWER!

* MORE OUTLETS

We've over 250 outlets scattered throughout Australia.

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The Vicom product line-up and our dealers are carefully selected to provide the best possible service.

* TECHNICAL BACK-UP

At Vicom all transceivers sold are pre-delivery checked and backed by our 90-day warranty.

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VICTORIA

Melbourne	836 8635
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Horsham	72 2156
Ouyen	3490
Yarram	86 1254
Wangaratta	25 7207
Ballarat	32 7234
Benalla	62 1376
Geelong	78 9660
Bendigo	43 1977
Ballarat	39 2808
Swan Hill	32 2253
Kyabrum	52 2253

SOUTH AUSTRALIA/ N.T.

Adelaide	43 7981
Adelaide	272 8417
Darwin	81 3491

W. AUSTRALIA

Perth	321 3407
Perth	446 3232

QUEENSLAND

Brisbane	48 6601
Brisbane	38 4480
Gold Coast	32 2644
Bundaberg	72 3288
Mackay	57 5918
Rockhampton	28 2843
Cairns	54 1035
Ipswich	288 8535
Townsville	72 2633

TASMANIA

Hobart	43 6337
Launceston	44 3882
Launceston	31 3945

NEW GUINEA

Lae	42 4999

NEW ZEALAND

Wellington	287 946

SYDNEY AMATEURS PLEASE NOTE:

At long last Vicom will soon be opening a store in Sydney to assist with the service to our many friends and customers there. Stay tuned for further announcements!

Daiwa Low Pass Filters

FD30LS	32 MHz Fc, 200 w, 3 stages — $20.00

Baluns

AS-BL	Asahi 50 ohm for beams — $34.00
BL50A	50 ohm, 4 KW, 1:1 for dipoles — $32.00
BL70A	70 ohm, 4 KW, 1:1 for dipoles — $32.00

Leader Test Equipment

LAC 895	Antenna Coupler 3.5 — 28 MHz — $182
LPM 885	SWR/PWR Meter — $97
LPM 880	RF Power Meter — $139
LDM 815	TR Dip Meter — $89.00
LBO 310	3" Ham Oscilloscope — $330
LA 31	Ham monitorscope adapter — $26.00

Tubes

6KD6	Finals for Yaesu linears — $9.00
6JS6C	Finals for Yaesu transceiver — $9.00
12BY7A	Driver — $3.75
6146B	Finals — $12.00

CW Filters

FT101E	Yaesu — $39.00
TS520S	YG3395 Kenwood — $57.00
TS820S	YG88C Kenwood — $59.00

Morse Keys

HK702	Deluxe Key with marble base — $41.00
HK708	Economy Key — $23.00
HK706	Operator's Key — $25.00
MK701	Manipulator (side-swiper) — $45.00
PALOMAR	1C Keyer — $149.00

Jaybeam Antennas

5Y/2m	5el 2m, 7.8 dBd gain, length 1.6 m — $43.00
8Y/2m	8el 2m, 9.5 dBd gain, length 2.8 m — $51.00
10Y/2m	10el 2 m, 11.4 dBd gain, length 4.4 m — $84.00
10XY/2m	10el 2m, cross yagi, 11.3 dBd — $114.00
D8/70cm	Twin 8el, 70 cm, 12.3 dBd, 1.1 m — $64.00
PBM 18/70	18 el, 70 cm, 14.9 dBd, 2.8 m — $96.00
MBM 48/70	48el, 70 cm, 15.7 dBd 1.83 m — $83.00
MBM 88/70	88el, 70cm, 18.5 dBd, 3.98 m — $105.00
PMH/2C	Phasing harness — $20.00
8XY/2m	2m cross yagi, 8el, 9.5 dBd 2.8 m — $99.00
12XY/70 cm	70 cm cross yagi, 12el, 13.0 dBd, 2.6 m — $139.00

Parabolic Dishes

PBA 1200	70 cm and 1.2 GHz complete — $349.00

Rak Antennas

AL24DXN	20-40 m trap dipole — $70.00
A4VPN	40 m dipole kit — $27.00
LISTENER 3	Short wave Rx antenna — $49.00
LISTENER 1	Short wave Rx antenna — $22.00

Nagara

SS56	6 m 5el beam 1 KW — $159.00
V5JR	80-10 m trap vertical, 6.7 m high — $129.00
V4JR	40-10m trap vertical, 5.2 m high — $99.00

Hy-Gain Antennas

HYQUAD	10/15/20 m, 2 element quad — $279.00
204BA	4 el monobander for 20 m — $259.00
TH6DXX	6 el tribander — $310.00
TH3MK3	10/15/20 m 3 el beam — $249.00
TH3JR	10/15/20 m 3 el beam — $229.00
203BA	3 el beam 20 m — $199.00

Scalar

M22T	1/4 wave 2 m mobile whip, top only Qty 1-4 — $7.00
M25T	5/8 wave 2 m mobile whip, top only Qty 1-4 — $14.00
BASE	B/L for above — $4.00

Microphones

VM-1	Noise cancelling, hand ptt, low z — $10.00

Coaxial Cable

RG58AU	mil spec. 30m reels — $13.00
RG213/U	mil spec. per metre — $1.40

Kenwood Transceivers

TS520S	HF transceiver — $635
TS120S	Solid state 100w — $735.00
TS120V	Solid state 10W — $600.00
TS180S	Solid state 10w — $1240.00
R-1000	Communications Receiver — $498.00

Monitor Receivers

747	Vicom Aircraft Scanner — $199.00
210	Bearcat 210, scanner — $469.00
HF12	VHF pocket, 12 channels — $149.00

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AUTOMATIC ANTENNA TUNER

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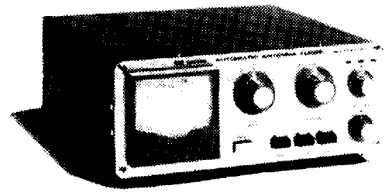
CNA 2002 2.5 KW $569

A new concept in antenna tuning.
Patent pending. Write for details.



SWR & POWER METERS

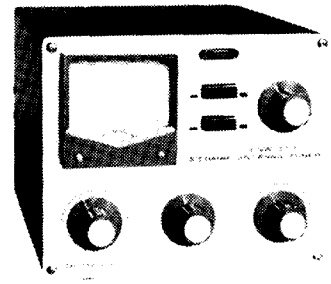
Model	Freq.	PWR	Cross-Needle	Price
CN620	1.8-150 MHz	20/200/1KW	yes	99.00
CN630	140-450 MHz	20/200	yes	135.00
CN650	1.2-2.5 GHz	2/20	yes	169.00
SW210A	1.8-150 MHz	20/120	no	99.00

Cross-needle type offer DIRECT readings.

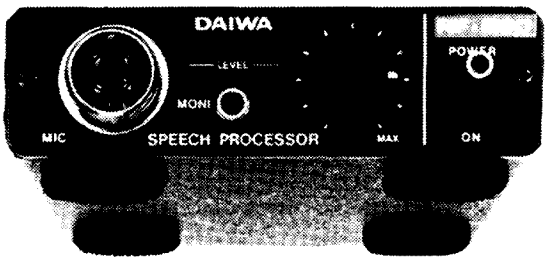
ANTENNA COUPLERS

CL67A	1.9-28 MHz, 500 wpep	135.00
CNW217	Includes SWR/PWR Meter, 200W	165.00
CNW417	Includes SWR/PWR meter, 500W	199.00

High quality couplers, 2 models includes cross-needle SWR/PWR meters.



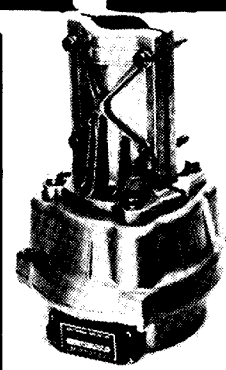
SPEECH PROCESSORS



RF660	Phasing type dc	109.00
RF440	Phasing type ac/dc	126.00
RF550	Fitter type, ac/dc	169.00
MC330	Speech compressor	99.00

Increase talk power with splatter free operation. RF clipping (not in MC330) assures low distortion. Simply install between microphone and transmitter.

Typical specs RF660:
Talk power: Better than 6dB
Freq. Response: 200Hz-3000Hz at 12dB down
Distortion: less than 3% at 1 KHz, 20dB clipping.
Power Req.: 13.8 Vdc at 50mA.



ROTATORS

DR7500S	Medium Model	189.00
DR7600S	Heavy Duty Model	259.00

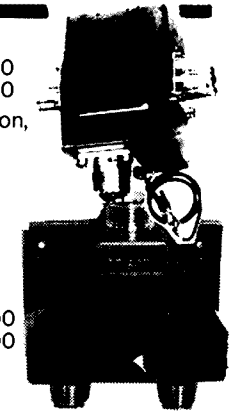
* High dependability: weather sealed
* Quiet operation
* Complete with attractive controller

	DR7500S	DR7600S
Rotation Torque	500 Kg-cm	600 Kg-cm
Braking torque	2000 Kg-cm	4000 Kg-cm

COAXIAL SWITCHES

2	Position model CS201	23.00
4	Position model CS401	59.00

Professionally engineered cavity construction, high isolation.
Power rating: 2.5 KW pep, 1 KW CW
Impedance: 50 ohm
Insertion loss: less than 2dB
Maximum frequency: 500 MHz
Isolation: Better than 60dB at 300MHz.



COAXIAL RELAYS

CX2L	100W pep max model	45.00
CX2H	200W pep max model	69.00

Quality change-over relays use 10-15 vdc.
Frequency Range: CX2L 1.8-170 MHz.
CX2H 1.8-450 MHz.

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* solid state
* 2 VFOs
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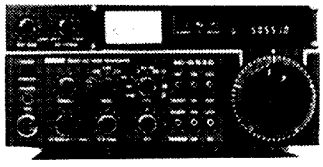
* every conceivable option included
* 160-10m

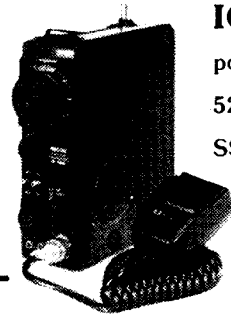
Price $1199
(ac pwr supply extra)

6 METRE TRANSCEIVERS



IC551 10w ac/dc **$799**
IC551D 100w dc **$850**

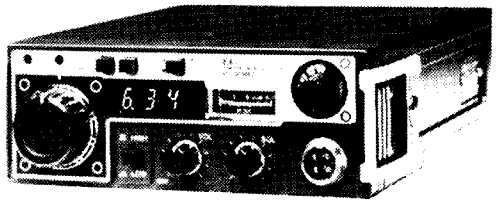
GRAB THAT DX!



IC502A
portable transceiver
52-53 MHz
SSB/CW

Price $289

2 METRES MOBILE



IC280
FM remotable transceiver
144-148 MHz
$450

IC22S
The famous machine!
STILL ONLY $299

70cm PORTABLE

IC402
Handy SSB portable
$439

2m PORTABLE

IC215
Handy
FM portable
$229

ACCESSORIES

ICSM2	Condenser-electret mike	**$45.00**
LC-25	Leather case for portables	**$12.00**
BC-20	Nicad pack for portables	**$69.00**
HC-HP1	Headphones	**$54.00**
HM-3	Military-style hand mike	**$25.00**
IC-CF1	Cooling fan **IC701PS**	**$45.00**
FA-1	Rubber Ducky	**$12.00**

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NEW!

IC255A — 2M FM MOBILE

25 Watts!

$425

ICOM

Features:

* FM TRANSCEIVER INCORPORATING A MICROCOMPUTER

CPU control with ICOM's original programs provides various operating capabilities. Frequency control, band-edge detection, and the display are accomplished by the microcomputer. The 5-channel memory is controlled electrically by the use of a 256-bit RAM area. The circuits for these IC-255A functions are equivalent in capability to conventional circuits having a large number of C-MOS MSI's.

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No extra equipment needed for split-frequency operation. Easy writing and reading of the five memory channels. Smooth and easy tuning with 25KHz and 5KHz steps.

* MULTI-PURPOSE SCANNING

Memory Scan allows you to monitor five different memory channels. Program Scan provides scanning between two programmed frequencies. Adjustable scanning speed. Auto-stop stops scanning when a signal is received, or a frequency is not being used.

* SUPERIOR RECEIVING CHARACTERISTICS

The use of newly developed low-noise and large dynamic range junction FET's (for the RF amplifier and the first mixer) and of helical cavity filters (for the antenna and RF circuits) provides excellent sensitivity and intermodulation distortion characteristics. A pair of high quality monolithic crystal filters and ceramic filters facilitates very stable receiving and excellent durability.

* HIGHLY STABLE TRANSMITTING CHARACTERISTICS

Both the directly amplified VCO output without the use of multipliers or mixers and the use of a power module in the PA unit produce very clean transmitting signals without spurious radiation. RF power is selectable 25W (HIGH) and 1W (LOW). 25W HIGH output power will increase your QSO range.

* COMPLETE

Comes with mobile mounting hardware, dc cable & microphone.

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90 day warranty and technical/spares support.

IC255A Specifications: General. Numbers of semi-conductors: Transistors 49, FET 4, IC 29, Diode 80. Frequency coverage: 143.800 — 148.195MHz. Frequency resolution: 25KHz steps, 5KHz steps with TS switch depressed. Frequency Control: Microcomputer based Digital PLL synthesizer. Independent Transmit-Receive Frequency Capability. Memory channels: 5 channels, any inband frequency programmable. Usable conditions: Temperature: — 10°C — 60°C (14°F — 140°F). Operationable time: continuous. Frequency stability: Within ±1.5KHz. Antenna impedance: 50 ohms unbalanced. Power supply requirement: 13.8V DC ±15% (negative ground) 5.5A Max. Current drain: Transmitting. HIGH (25W) Approx. 5.5A. LOW (1W) Approx. 1.5A. Receiving. at max audio output Approx. 0.7A. Squelched Approx. 0.5A. Dimensions: 185mm (W) x 64mm (H) x 223mm (D). Weight: Approx. 2.5kg. **Transmitter.** Output power: 25W (HIGH), 1W (LOW). Emission mode: $16F_3$. Modulation system: Variable reactance frequency modulation. Max. frequency deviation: ±5KHz. Spurious emission: More than 60dB below carrier. Microphone: 1.3K ohm dynamic microphone with built-in preamplifier and push-to-talk switch. Operating mode: Simplex, Duplex (±600KHz from receive frequency and any inband frequency separation programmable). **Receiver.** Receiving system: Double-conversion superheterodyne. Modulation acceptance: $16F_3$. Intermediate frequency: 1st: 10.75MHz. 2nd: 455KHz. Sensitivity: More than 30dB S+N+D/N+D at 1uV. Less than 0.6uV for 20dB Noise quieting. Squelch sensitivity: Less than 0.4uV. Spurious response rejection ratio: More than 60dB. Selectivity: More than ±7.5KHz at —6dB point. Less than ±15KHz at —60dB point. Audio output power: More than 2.0W. Audio output impedence: 8 ohms.

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CONSIDERATIONS FOR A WADLEY-LOOP VHF RECEIVER FRONT END

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This is not an article for the raw beginner. It will interest all VHF DXers and the advanced constructor. The author proposes some novel and cunning schemes to overcome the many difficulties of building a wide-range stable VHF VFO.

The lower VHF region of the spectrum, between 30 MHz and 100 MHz, promises to be of great interest propagation-wise over the next few years. During my spare time over the recently passed sunspot minimum, I optimistically mused on the possibilities of the peak of sunspot cycle 21 and thought of ways and means I could monitor what, to me, is one of the most interesting portions of the spectrum — to wit, the lower VHF region.

Lots of VHF converters to cover 2 MHz or 4 MHz slices of the spectrum seemed like a good way to do it and, naturally enough, I did a little figuring on how to achieve this using an IF receiver covering either 14 MHz or 28 MHz and a series of modified 6UP VHF converters (remember the 6UP converters?). It was easy enough to do but the prospect of buying 30 or more crystals to cover a range of 60 MHz (i.e., from 40 MHz to 100 MHz say) was a little daunting.

I examined the idea of using a frequency synthesiser which, to cover such a wide range, was either beyond my development resaurces or had unacceptable limitations. However, I haven't given up the idea . . . quite.

Next I looked at the Wadley-Loop, that famous front end band selection system devised by Mister Wadley, popularised by Barlow (as In the Barlow-Wadley XCR-30) and brought to its technological zenith by Yaesu et al. Racal got in there somewhere along the line too.

Commencing with a basic block diagram, I tackled the mathematics of the system, rapidly getting confused. But, with a little juggling, I came up with a system that, while practical on paper (??), suffered from a few possible nasty problems. After several trial runs (on paper) and a few development sessions on filters and harmonic generators, I let the project lapse.

Recently, my interest in a VHF Wadley-Loop front end was restirred when I had occasion to examine an FRG-7000 during a time when I was examining the recent performance of the six metre band and its future possibilities.

Before I explain the system proposal in detail, it will be necessary (and instructive) to examine the basic Wadley-Loop tuning system.

VHF WADLEY-LOOP SYSTEM

The basic block diagram is shown in Figure 1, along with some system equations. I'll examine how it works with reference to the familiar HF Wadley-Loop receivers such as the FRG-7, XCR-30, FRG-7000, etc. Clearly, there are several ways of realising a system, they're not all the same.

The "baseband" oscillator is a crystal-locked oscillator on a frequency equivalent to the basic tuning range. For the familiar Wadley-Loop HF receivers, this is 1 MHz. The whole tuning range is generally 1-30 MHz for these receivers. The IF receiver covers 3 MHz to 2 MHz to tune *up* the band selected, that is, it is a reversing tuning system. We shall see why shortly. The IF receiver Is really a conventional receiver acting as a tunable IF, the Wadley-Loop front end selecting 1 MHz bands in the range 1-30 MHz which you tune across with the IF receiver.

Now, the "band", or "MHz" tuning as it is commonly designated, oscillator is a free-running, tunable VHF oscillator covering (for example) 56.5 MHz to 84.5 MHz. The "transfer" filter is centred on 55 MHz and is 1 MHz wide. The "baseband" oscillator will be on 1 MHz and the harmonic generator will provide harmonics every 1 MHz. The harmonics are generally limited by a filter as only a range of them are used; in this example, only the harmonics from 3 MHz to 32 MHz are required. The second injection frequency is 52.5 MHz, which of course will heterodyne the signals In the transfer filter to the 3-2 MHz IF receiver range.

To get a clearer picture of a typical HF Wadley-Loop system, take a look at Figure 2. If you do a little substitution In the equations in Figure 1 you'll see how the numbers resolve themselves.

Having got this far, let's examine the numbers relating to how you tune in a signal on, say, 28.9 MHz.

The band oscillator would be set to 83.5 MHz (to tune the range 28-29·MHz). This frequency would then be heterodyned with 31 MHz from the harmonic generator to produce an output in the passband of the re-mix at 52.5 MHz — the second Injection frequency.

The signal on 28.9 MHz would be heterodyned to 54.6 MHz, by the first signal mixer, Into the passband of the transfer filter. The 54.6 MHz "transferred" signal would then heterodyne with the 52.5 MHz second injection frequency to appear at 2.1 MHz. Setting the IF receiver to 2.1 MHz would then tune in the signal transferred from 28.9 MHz.

Well, that's great, and it saves a whole lot of crystals and converters and covers a very wide band, but what's the other big advantage of the Wadley-Loop system, you say?

Drift cancellation.

Now, a receiver covering 3-2 MHz can be made quite stable, superb In fact. But a VHF oscillator is another kettle of fish. More like a can of worms really. In order to get sufficient stability to keep an SSB signal resolved, one would have to build a rather extraordinary oscillator for the band or MHz oscillator. It is, In fact, an impractical task. (I didn't say impossible!)

What the Wadley-Loop does is to cancel the effect of any drift in the band oscillator. Any error in setting the band oscillator is also cancelled. Thus, design stringencies on the band oscillator are reduced.

For argument's sake, let's say the band oscillator drifted up in frequency by 20 kHz. Thus, Instead of remaining on 83.5 MHz like it was told, It wandered to 83.52 MHz.

When mixed with 31 MHz in the pre-mixer, this would heterodyne to 52.52 MHz, which becomes the new value for the second injection frequency.

The signal on 28.9 MHz would be transferred to 54.62 MHz by the first signal mixer. When mixed with the new second injection frequency of 52.52 MHz in the second signal mixer, the result Is still 2.1 MHz!

There are practical limitations on the amount of allowable drift and setting error in the band oscillator and the bandwidth of the re-mix filter is chosen accordingly. The figure of ± 80 kHz indicated in Figure 2 would seem difficult to achieve at 52.5 MHz but it can be done by a rather cunning, yet simple, scheme as we shall see later.

A 1 MHz bandwidth with reasonable stop-band roll-off for the transfer filter is not too difficult to attain at 55 MHz.

MATHEMATICALLY

To understand how a signal, f_{RF} is "transferred" to the IF receiver at frequency f_R, the mathematical relations can be expressed as follows:—

The signal, f_{RF}, is first transferred to f_T by the first signal mixer and then converted down to f_R by the second signal mixer. We can relate f_T to f_R and f_{RF} with the following equations —

Now, $f_T = f_R + f_S$ ——(a)

also $f_T = f_B - f_{RF}$ ——(b)

thus, $f_R + f_S = f_B - f_{RF}$

therefore, $f_R = f_B - f_{RF} - f_S$ ——(c)

Referring to the example in Figure 2,

$f_R = 83.5 - 28.9 - 52.5$

$= 2.1$ MHz!

To determine which harmonic is required (determining the "band" selected) to produce the second injection frequency (which we know is fixed by other considerations), f_H is related to f_S as follows:—

$$f_H = f_B - f_S \quad \text{——(d)}$$

from Figure 2 example:

$f_H = 83.5 - 52.5$

$= 31$ MHz!

The IF receiver frequency, f_R, can be related to f_{RF} in another way as follows:— from equation (c),

$$f_R = f_B - f_{RF} - f_S$$

re-arranging equation (d),

$$f_S = f_B - f_H$$

substituting this in equation (c)

$$f_R = f_B - f_{RF} - f_B + f_H$$

thus, $f_R = f_H - f_{RF}$ ——(e)

From equation (e) it can be seen that f_{RF} and f_R are related purely by which harmonic is "selected" (by the band oscillator setting) to produce the second injection frequency, f_S, and f_R will be independent of "errors" in f_B resulting from inaccurate setting or frequency drift, provided these are within the limits of the re-mix filter bandwidth. The latter is determined by separate considerations.

To illustrate mathematically how the error or drift cancellation works to provide an output signal, f_R, which is independent of errors in f_B, let's designate the error component of f_B (drift or setting error) as "df_B".

Now, by re-arranging equation (a), we get

$$f_R = f_T - f_S$$

We know from equation (b) that

$$f_T = f_B - f_{RF}$$

and by re-arranging equation (d), we get

$$f_S = f_B - f_H$$

Re-writing these to include, say, a positive error component $+df_B$ —

Thus, $f_S = (f_B + df_B) - f_H$

and $f_T = (f_B + df_B) - f_{RF}$

Substituting in the re-arranged equation (a),

$$f_R = [(f_B + df_B) - f_{RF}] - [(f_B + df_B) - f_H]$$

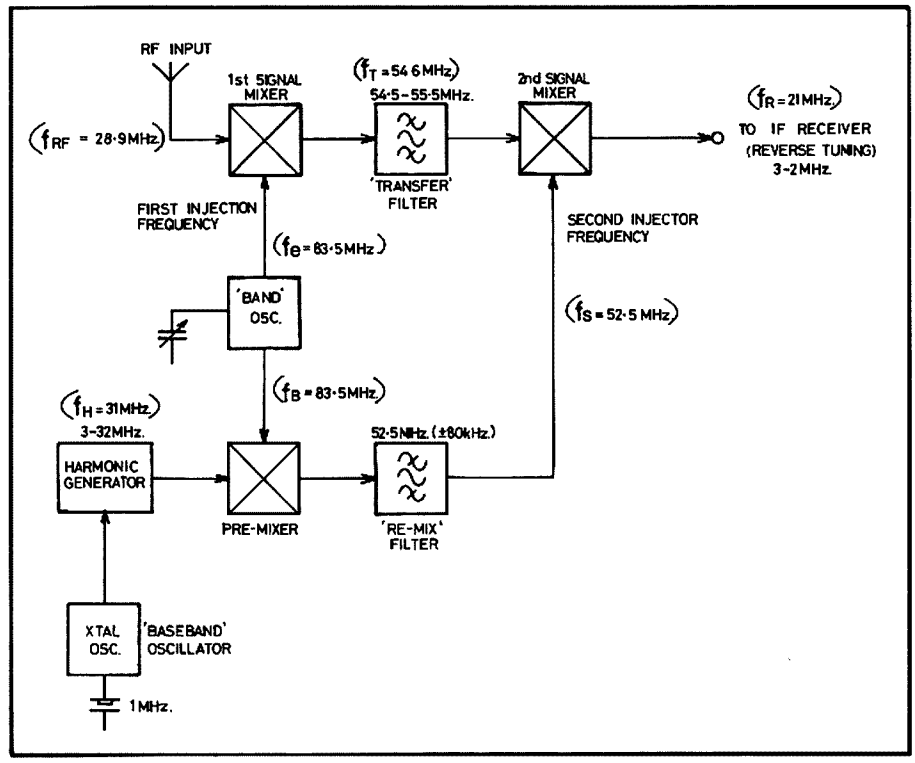

FIGURE 1: Basic Wadley Loop System.

then

$f_R = f_B + df_B - f_{RF} - f_B - df_B - f_H$

the f_B and df_B terms will therefore cancel resulting in:

$$f_R = f_H - f_{RF}$$

which is equation (e) and thus, as explained, f_R is independent of errors in f_B.

VHF WADLEY-LOOP SYSTEM

Having reached an understanding of the basic Wadley-Loop system, I can now lead you on to my proposal for a VHF front end using the system.

First up, a reasonable choice for the base-band needs to be made. I chose 2 MHz. Firstly, because a receiver covering a 2 MHz range around the middle of the HF spectrum is easy to construct and/or a general coverage receiver may be used. Secondly, using the 28-30 MHz range on an amateur HF receiver or transceiver, with all its attendant advantages, was a possibility tucked away in the back of my mind. Base-band ranges of 1 MHz and 4 MHz were rejected for a number of reasons, 1 MHz having technical problems and 4 MHz being too broad a range.

Next, what represents a reasonable coverage across the lower VHF spectrum? As suggested in the preamble, 30 MHz to 100 MHz is the area of interest. Owing to conflicting requirements, explained later, I eventually settled on 35 MHz to 95 MHz. From prior experience of monitoring the lower VHF spectrum for observations of unusual propagation, this range represents quite a reasonable compromise.

As the transfer filter has to be above the upper frequency of the input range, breakthrough from strong broadcast transmissions (i.e., TV) would have to be avoided and thus the selection of the limits of the transfer filter needed to take this into account. Another consideration was the practical achievement of a filter with a 2 MHz bandwidth and acceptable shape fatcor. The FM broadcast band at 88-108 MHz and TV channel 5a at 137-144 MHz therefore had to be avoided. This placed the transfer filter somewhere between 108 MHz and 137 MHz. However, a "guard" band of about 5 per cent would be necessary to place any possible interference well down the skirts of the transfer filter. Thus, it had to be between 113 MHz and 130 MHz.

Now, the re-mix frequency (or second injection frequency), f_S, has to be below the transfer filter. Again, to avoid possible breakthrough problems, f_S should be located away from the broadcast bands. Thus, both f_S and f_T need to be located between 113 and 130 MHz.

Breakthrough problems with the re-mix filter are not likely to be as great as with the transfer filter.

Substituting a few numbers in equation (6) (from Figure 1), the possible upper limit of the IF receiver, f_{R2}, is 17 MHz. However, $f_{R1\text{-}2}$ need only be a minimum of 10% of f_{RF2} (or f_{T2} for that matter) to achieve adequate rejection of the f_R image above the frequency of the transfer filter, even though this image may be located within the TV channel 5A band (the skirts of the transfer filter assist).

Thus, f_R may be around 10 MHz at a minimum.

Several trial runs on paper showed me that a tuning range for the IF receiver of 13 MHz to 11 MHz (remember, reverse tuning) would be an advantage. Firstly, a calibration signal at 12 MHz is available from VNG, aiding construction and calibration of the project — especially if the IF receiver is constructed from the ground up. The other advantage of the 13-11 MHz range for the Wadley-Loop system output was the possibility of easily providing a forward-tuning 28-30 MHz IF output!

I devised a cunning scheme which I shall shortly introduce.

OK, now let's look at a few numbers.

$$f_{bb} = 2 \text{ MHz}$$
$$f_{RF1} = 35 \text{ MHz}, f_{RF2} = 95 \text{ MHz}$$
$$f_{R1} = 11 \text{ MHz}, f_{R2} = 13 \text{ MHz}.$$

I set f_{T2} at 130 MHz, making f_{T1} 128 MHz.

From equation (6),

$$f_S = f_{T2} - f_{R2}$$

and thus,

$$f_S = 117 \text{ MHz}$$

from equation (3),

$$f_{B1} = 165 \text{ MHz}$$

from equation (4),

$$f_{B2} = 233 \text{ MHz}.$$

The harmonic generator will produce spikes every 2 MHz but only harmonics from 48 MHz to 106 MHz inclusive will be required from(equation (5)). Thus,

$f_{H1} = 48$ MHz and $f_{H2} = 106$ MHz.

TRANSFER FILTER

In practical terms this presents few problems. Several double-tuned circuits will provide the necessary characteristics. Some amplification (possibly with AGC applied) will be necessary between the first and second signal mixers. I have actually constructed a practical circuit for this stage using a dual-gate FET and standard Neosid coil components to provide double-tuned, over-coupled tuned circuits with a 2 MHz bandwidth and acceptable shape factor. Other methods allow a better shape factor and may provide improved performance, but for the application, I would think it unnecessary.

RE-MIX FILTER

Here's where we have to be cunning. First, a reasonable figure for setting error and drift in the band oscillator needs to be decided on. Setting the band oscillator to better than 100 kHz of the required frequency is possible but presents physical problems in the tuning system. Setting it to within 200 kHz or 300 kHz makes the job a whole lot easier.

But achieving a bandwidth of this order at 117 MHz is no mean feat. A cunning trick employed in the FRG-7000 is to heterodyne the output of the pre-mixer (f_S) down to a more convenient frequency (10.7 MHz in the FRG-7000), where a more practical filter provides the required characteristics, and is then re-heterodyned back up to the second injection frequency, f_S. See Figure 3.

Harking back to my thoughts on providing a 28-30 MHz IF output, if I converted the reverse tuning 13-11 MHz range to 28-30 MHz I would require a local oscillator on 41 MHz. Tripling 41 MHz to 123 MHz would allow me to have a heterodyne re-mix filter system with the re-mix on 6 MHz (123 minus 117 equals 6 MHz)!

Thus, I could kill two birds with one stone . . . or one rock, really.

Cunning stunt, eh?

HARMONIC GENERATOR

There are as many ways of doing this as there are harmonics between 2 MHz and 106 MHz. The popular HF Wadley-Loop receivers generally use a diode pump followed by a low pass filter having a cut-off just above the frequency of the highest required harmonic.

For the VHF system, harmonics between 48 and 106 MHz only are required. A simple 2 MHz crystal oscillator driving a diode pump followed by a low pass and high pass filter with cut-offs below 48 MHz and above 107 MHz, respectively, should suffice. You don't want more harmonics than necessary, for obvious reasons.

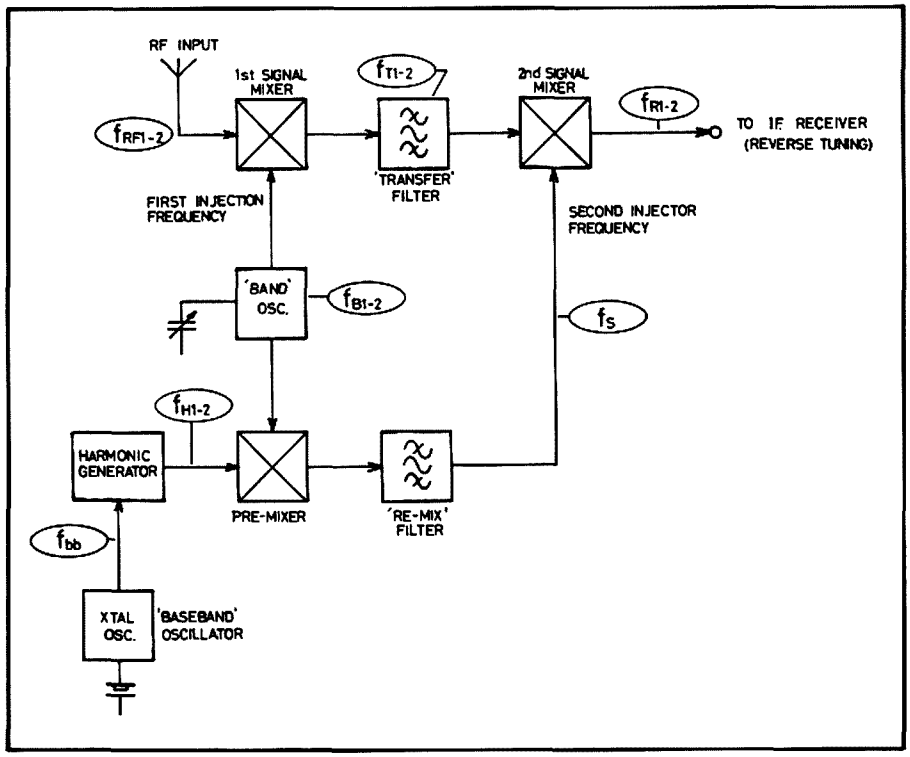

FIGURE 2: Typical HF Wadley Loop front end.

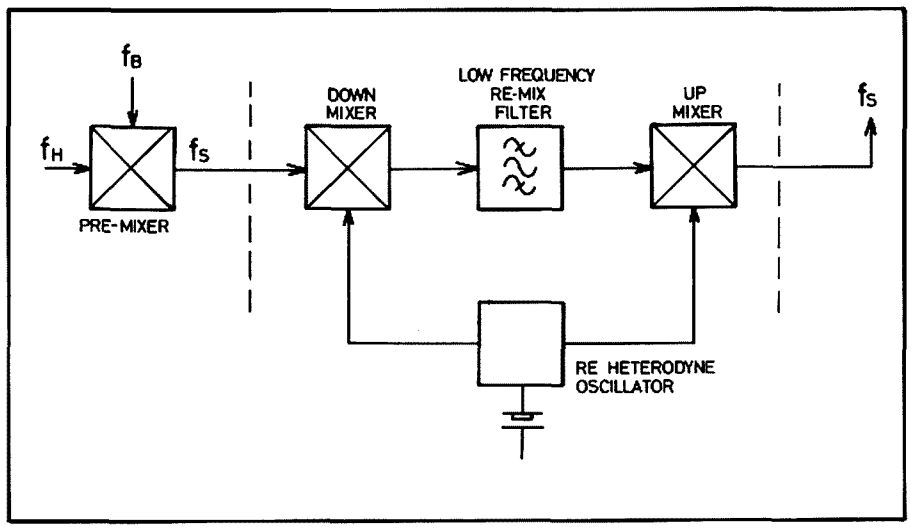

FIGURE 3: The "Heterodyne Re-Mix Filter" System.

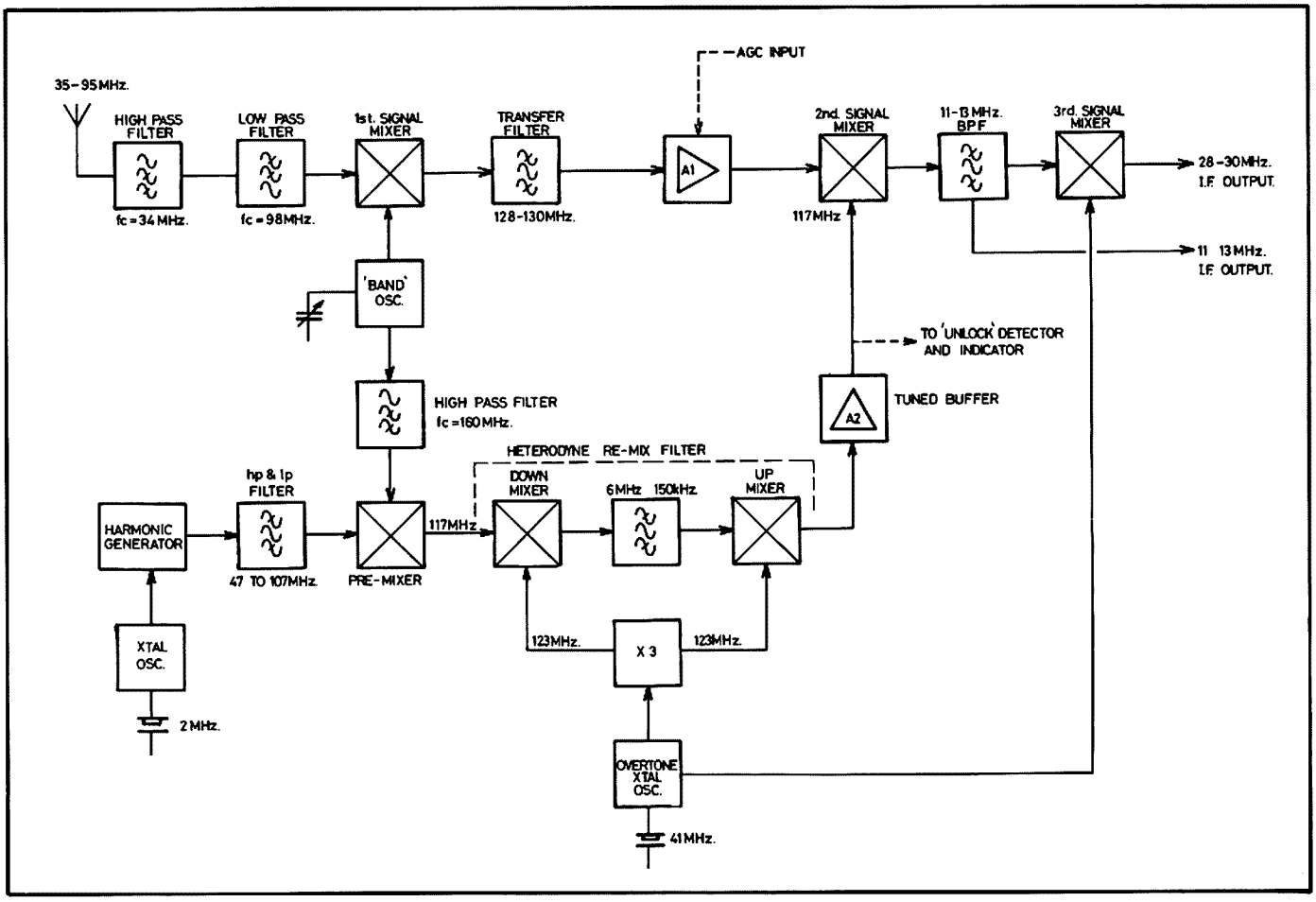

FIGURE 4: Block diagram of the Wadley Loop VHF front end system.

BAND OSCILLATOR

A straightforward Colpitts oscillator will readily cover the required 60 MHz range with adequate stability. Setting accuracy depends on the mechanical reduction of the dial system. Other oscillator configurations are possible, naturally.

Isolation between the first signal mixer and the pre-mixer local oscillator injection ports is necessary and may be provided by a high-pass filter on the input of the pre-mixer. Alternatively, the output of the band oscillator may be fed to the two mixers through a wideband hybrid transformer coupler which would, typically, provide 25-38 dB isolation between output ports, providing effective isolation between the two mixer local oscillator injection ports.

INPUT FILTERING

To avoid breakthrough problems from powerful broadcast signals getting through to the transfer filter, and possible cross-modulation and intermodulation problems on input signals in the 35-95 MHz range from the same source, a low pass filter before the first signal mixer input would be necessary. For similar reasons applying to signals in the HF range below 35 MHz, a high pass filter would assist.

Thus a high pass filter, having a cut-off at, say, 32 or 34 MHz, and a low pass filter with a cut-off at, say, 98 MHz, in series between the antenna and first signal mixer input would be a requirement.

Low noise, high performance mixers are readily available so RF amplification and its attendant problems is not really necessary. An RF amplifier needn't be ruled out though.

A system of switched preamps (a la the tuned preselector in the HF Wadley-Loop receivers) could be considered, each covering a particular portion of the input range.

THE SYSTEM

A final (more or less) block diagram is shown in Figure 4, complete with optional outputs on 13-11 MHz or 28-30 MHz. Note that a tuned buffer follows the up mixer of the heterodyne re-mix filter system. This serves to remove unwanted mixer products and raise the second injection frequency to an adequate level. Secondarily, as is provided on the FRG-7, FRG-7000, etc., an UNLOCK indicator can be added by detecting the presence of f_S at the output of the tuned buffer and using this to extinguish the UNLOCK indicator.

A bandpass filter between the second and third signal mixers is also indicated, its purpose being obvious. It needn't be anything fancy but it should be flat across the 2 MHz range.

CIRCUITS

This is not a construction project . . . I'm not going to give you everything!

Out with the calculator, turn over a clean leaf on the scratch pad and warm up the soldering iron. ■

EQUATIONS

$f_{H1} = f_{R2} + f_{RF1}$ (1)
$f_{H2} = f_{R1} + f_{RF2}$ (2)
$f_{B1} = f_{T2} + f_{RF1}$ (3)
$f_{B2} = f_{T1} + f_{2RF}$ (4)
$f_S = f_{B1} - f_{H1}$ (or $f_{B2} - f_{H2}$) (5)

Conversely:—
$f_{T2} = f_{R2} + f_S$ (or $f_{T1} = f_{R1} + f_S$) (6)
f_{RF1} = lowest signal frequency
f_{RF2} = highest signal frequency
f_{T1} = Transfer filter lower cut-off
f_{T2} = Transfer filter upper cut-off
f_{R1} = lowest freq. of band osc.
f_{B2} = Highest freq. of band osc.
f_S = Re-mix frequency (second injection freq.)
f_{H1} = Lowest required harmonic
f_{H2} = Highest required harmonic
f_{bb} = Base band (i.e., basic tuning range)
In practice, f_R, f_T and f_{bb} are design choices.

FOUR 5/8 WAVE PHASED VERTICAL ARRAY FOR 2 METRES

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If your QTH is located in a situation such as mine, close up to a hill, with all the action on the other side, you may be interested in the following details of a really low angle radiation antenna.

Beams were out of the question and the thought of increased power unacceptable. The germ of an idea concerning a colinear phased array was sparked into bloom by an article written by Ian Pogson (VK2AXN/T) for EA August 1978. His antenna used two stacked ⅝ λ radiators and he claimed beneficial results over the standard ground plane. There was, however, a problem of feeding the antenna. If fed from the lower end there would inevitably be some lack of electrical balance, but the mechanical stability would be reasonably easy. If fed from the centre, the electrical imbalance would be satisfied, but it would present mechanical problems. The solution as presented may suit your circumstances as it did mine.

The antenna is part of a system and had to fit in with the existing layout. While organising the new antenna the existing mast system was upgraded to benefit both present and future requirements.

Four ⅝ λ radiators are mounted vertically in phase and fed symmetrically in the centre. That is the essence of the system. Without providing complicated graphs and diagrams it can be stated with sufficient authority (see ARRL Antenna Handbook), that the ⅝ λ radiator is about optimum for low angle radiation. Stacking of such radiators, in phase, can only accentuate the low angle and increase the power of the doughnut type radiation pattern. (A gain of some 8 dB should be achieved.—Ed.) The result has been, in this case, to keep the radiated signal almost to ground level, over the hill and, hopefully, far away. The frequency band of interest was from 146 to 147 MHz.

Beyond this range some deterioration may result and the SWR rise from the existing 1.4 : 1. This figure was achieved by adjustment of the coax connection to the ¼ λ centre stub. As it was reasonable, no attempt was made to improve matters by fiddling with the small phasing stubs. The feed line was 50 ohm coax with a bazooka matching section and no problems were involved.

CONSTRUCTION

The mast proper consists of two 10 ft. lengths of 3½ in. square timber secured to the fence line for base support, separated by 3 in. to allow fitting the second section, 20 ft. of 2¾ in. square section oregon post. This section had secured to it with bolts a 10 ft. length of 1 in. diameter dowel, close grained and straight. To this dowel is fixed the top elements of the radiator extending some 3 ft. above the dowel. The tip of the top radiator is approximately 30 ft. above ground level and clear of surrounding trees and buildings by at least 15 ft.

Mechanical details of construction are open to suggestion, however, in the writer's case, the radiators are ¼ in. OD HD copper tubing supported to the dowel by insulated screw eyes stood off approximately 1 in. from the timber. Heat shrink PVC tubing is used to further insulate the elements from the screw eyes.

The phasing stubs were made from brass brazing rods and securely soldered to the copper elements. The phasing stubs are bent into approximately 6 in. diameter with the top one secured at the end of a 4 in. x ½ in. dowel stud fixed into the mast dowel.

The ¼ λ stub and feed point was made from ⅛ in. OD brass rod and formed to fit along the length of ½ in. OD hardwood dowel fitted to the mast at the centre point of the radiators. The two sections of ¼ λ stub were held in position with small paxolin insulating blocks. The end blocks acting as a firm anchor point for the 50 ohm coax feed line.

Support for the lower radiator extending below the 1 in. dowel was provided by 300 ohm TV ribbon stand-off screw hooks with neoprene inserts. These have a longer shank than the screw eyes and cope with greater stand-off distance between the radiator and the mast.

The lower phasing stub was found to be secure enough without any support, and is similarly curved to the upper one, around the mast.

The feed line, 50 ohm coax ¼ in. OD type, was fitted with a balun section and attached to the ends of the ¼ λ stubs secured at the anchor point. The coax line was returned to the mast and clamped for strain relief at one point approximately 2 in. below the antenna centre. It was then fed away to the roof of the dwelling which, fortunately, was approximately just below that level and allowed the coax feeder to be removed from the radiator field in the most direct route.

RESULTS

It is very difficult to be specific with actual dBs of gain in installations surrounded with obstructions and buildings, however the following results may be used for comparison.

The antenna was compared with a

ANT	ANT 1 — ¼ λ Ground Plane	ANT 2 — ⅝ λ Ground Plane	ANT 3 — 4 x ⅝ λ colinear
Feed	50 ohm coax	50 ohm coax	50 ohm coax with balun
SWR	—	1.6 : 1	1.4 : 1
CH 1	—	heard S0.5	S1.5
CH 2	—	—	—
CH 3	heard S0.5	S2.5	S5
CH 4	S2-3	S4-5	S6-7
CH 5	heard unworkable	heard S1	heard S1-2
CH 6	heard	S1	S2.5
CH 7	—	—	S1
CH 8	heard unworkable	S1 workable	S3

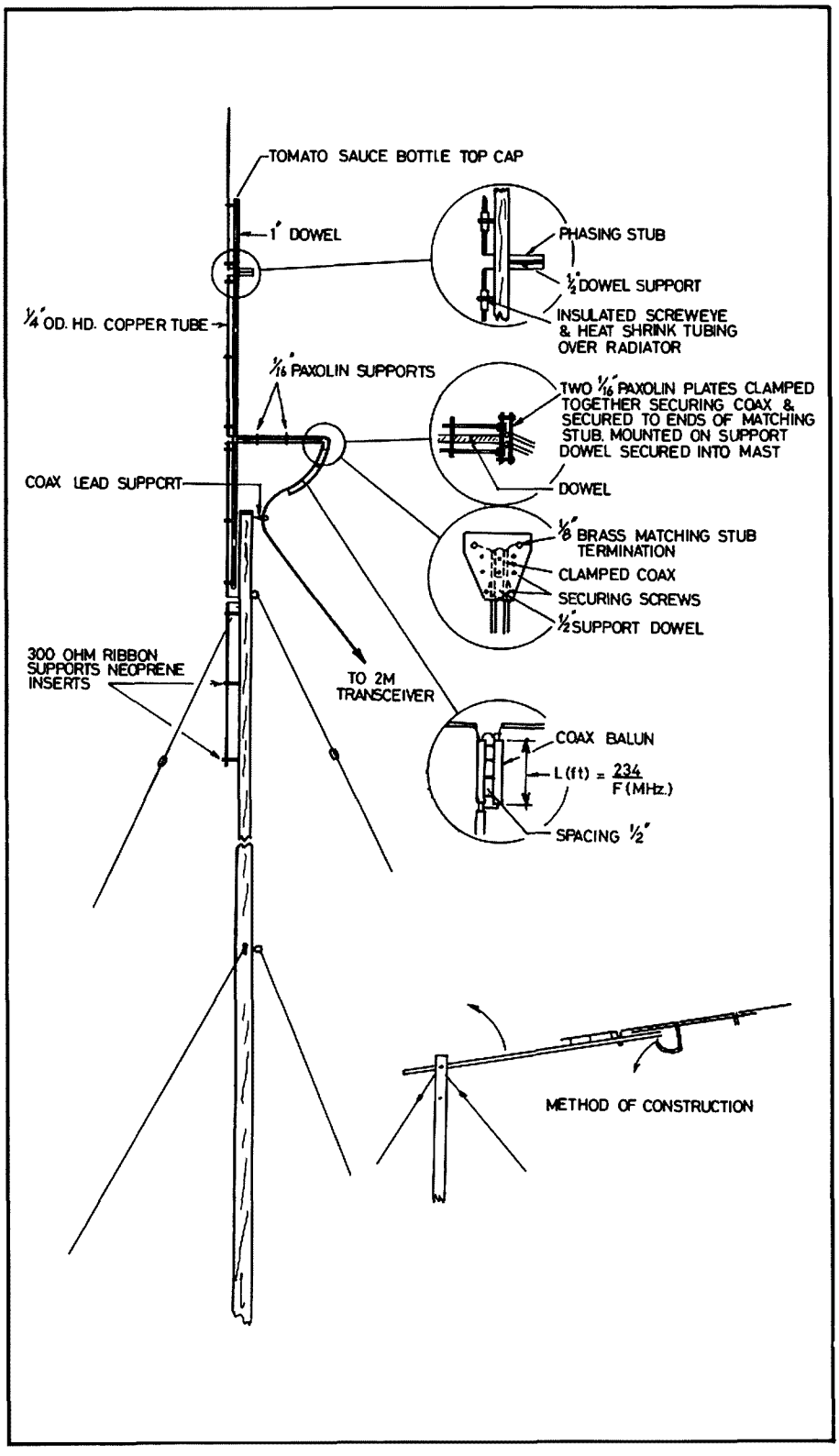

FIGURE 1.

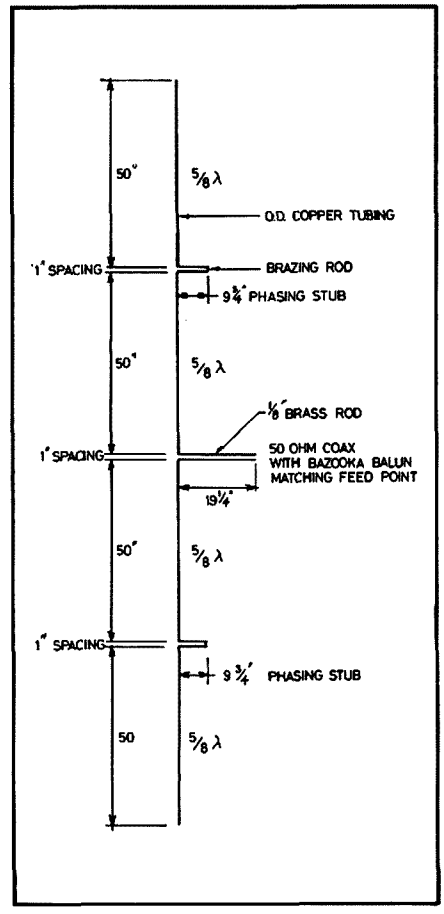

FIGURE 2.

standard 5/8 λ ground plane which is referred to as Ant 2. This was in turn referred to a ¼ λ ground plane (Ant 1). All antennas were well mounted and approximately in the same height and position.

The colinear antenna is referred to as Ant 3.

The above chart is indicative of the gain involved which is a combination of lower radiation angle with increased gain, better matching of coax, obvious In slight improvement of SWR.

Results have been very gratifying, enabling stations to be worked under noise free conditions and with greater reliability. Further improvements may be possible with more precise tuning, however the improvement in SWR would not greatly increase the dB gain and frankly is hardly worth the effort. (Adjusting the spacing of the ¼ λ centre stub would help.—Ed.) Increasing the number of antenna elements is also a doubtful proposition since this antenna is almost 17 ft. long. To obtain another 3 dB gain would require doubling the length.

The accompanying drawings generally explain the mechanical set-up without any further words. Give it a try, you will be surprised.

(The coax cable and balun should be weatherproofed and sealed. To ensure many years of trouble free operation it is strongly recommended that all wooden parts of the structure be sealed, undercoated if desired, and given at least two coats of an external type plastic paint.—Ed.) ■

ANOTHER FT101 MODIFICATION

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Following the modifications to the FT101B described in "Break In" to improve the AVC range I decided that extra gain could be used in the receiver on the 21 and 28 MHz bands.

Plessey recently introduced an RF amplifier IC type SL1611C giving a gain of 26 dB, 50 dB AVC range and maximum input signal of 250 mV RMS and a bandwidth of 140 MHz. This seemed Ideal.

A tuned circuit consisting of 7 turns tapped at 3 turns wound on a ½ Inch type 4327/R2/F25 toroid In parallel with 100 pF variable condenser gave a tuning range of 14 to 30 MHz. The anntena coil was one turn.

The toroid and all other components were mounted on a small hand drawn printed circuit board (Fig. 2). The holes were punched through the paper on to copper laminate, the required copper area filled In with a felt tipped spirit pen and then etched. The whole board is mounted on the wires from the 100 pF capacitor which is mounted in a small aluminium box fastened to the side of the transceiver.

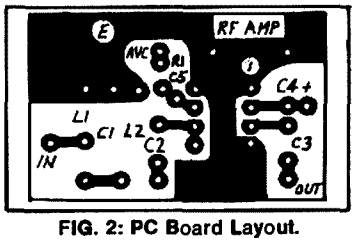


FIG. 2: PC Board Layout.

Modifications required to the FT101 are:

1. Fit a new RCA connector adjacent to J16 (REC).

2. Remove one of the wires off the back of J16 and connect to the new connector.

3. Make a short jumper lead to join J16 and new connector to restore normal operation.

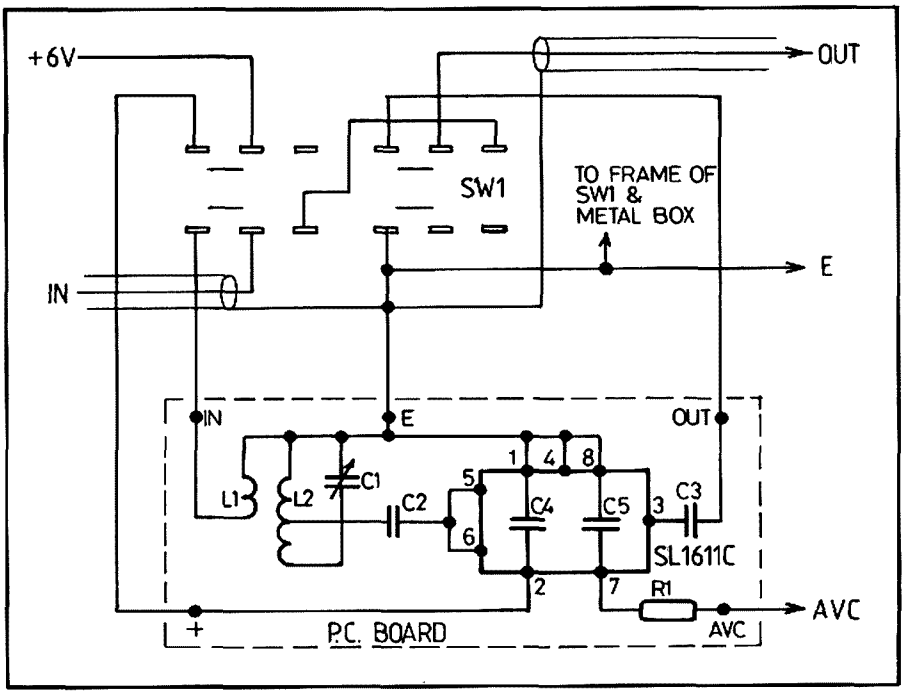


FIG. 1: RF Amplifier Schematic.

R1 100K ¼ W.
R1 100k ¼ W.
C1 100pF variable.
C2 100pF styro.
C3 100pF styro.
C4 0.1 uF disc.
C5 0.1 uF disc.
SW1 4 pole 2 pos. slide.

4. On the ACC socket lift wire off pin 7 and insulate.

5. Run a new wire from this pin to socket terminal 13 of PB-1314 "REG & CALB UNIT" (6V + Reg).

6. Run a wire from pin 11 of ACC socket (Vacant) to socket terminal 13 of PB-11838 "IF UNIT" (AVC).

The amplifier ON/OFF slide switch wiring (SW1) is critical If the amplifier is to be stable. I recommend the layout as shown in the schematic (Fig. 1). All earths are brought to the one terminal on the switch.

The gain of my unit is one "S" point greater than the 20 dB Input attenuator and one weak signal shows a remarkable change in readability.

The SL1611C is obtainable in Melbourne from Telephone Construction C., 108 Bank Street, South Melbourne. ■

Christmas Greetings

The Publications Committee and WIA Executive, on behalf of the Divisions, wish all our readers a Merry Christmas and Prosperous New Year.

☆

A special thanks to all the various contributors who forwarded us articles and snippets to help bring "Amateur Radio" into world-wide acceptance and "number one" in Australia — (VK3UV).

BEAMS NOW MADE IN AUSTRALIA

Roth Jones VK3BG

Australia now has its first full-time amateur radio antenna manufacturing company already making inroads to the once exclusive antenna market from the USA and Japan.

It's here to stay as the word gets around and the signals from these beams are heard all over the country.

Here's the story which makes me feel proud to be Australian.

Amtenna Co. Ltd. was formed in mid-1978. its first antennas, a 10-15 metre dual band beam and a four-band trapped vertical, appeared on the market in late November.

Sceptical at first, believing the heavily-advertised imported antennas were the ultimate, the amateur radio enthusiasts were hesitant to buy.

Once a few were sold and the hefty signals started up on the 10 and 15 metre band it was a popular topic of conversation on all the bands.

The orders which followed were far beyond the wildest dreams of the two young amateur radio enthusiasts who started the company . . . Tony Owen VK3NCC, a former civil and radio engineer with a flair for antenna design and construction, and Fred Swart VK3NBI, of Chirnside Electronics, one of the best radio servicemen and salesmen in the business.

Amtenna Co. Ltd. has kicked its first goal . . . to establish itself and be accepted. The next, already under way, is to expand into the tri-bander, multi-band doublet and VHF antennas.

The company's first duo-bander, the AM4-2, is already on the air and making itself heard from a number of experienced DX operators and young novices.

Reports being received from these duo-banders indicated they are up there with the best antennas from Japan and the USA.

Fred and Tony claim their antennas are far ahead in construction and are built to withstand tougher weather and storms. They are predicting a life of at least ten years, if not more.

The history of this tiny company, the devotion and dedication of these two men is one of the success stories of amateur radio in Australia.

Rightly they kept their planning to themselves and didn't announce their products until they had been proven. This is now history, but let's put the calendar back and recall those hectic six months and the men who made a project a reality.

Fred became interested in amateur radio eight years ago, although, since a boy, he had been intrigued with electronic gadgets, stereo and hi-fi.

Once he had mastered the elementary theory of radio he began studying electronics seriously and soon joined the communications department of Phillips TMC for five years, gaining experience which would prove invaluable to him for the years to come.

Three years ago he joined Bail Electronic Services where he gained more experience in amateur radio servicing, sales, importing and after-sales service, a field which he claims he has specialised in since branching out on his own 12 months ago.

The frustrations of importing worried him as he thought how wonderful it would be if Australia were to have its local amateur radio industry like the USA, Japan and the UK.

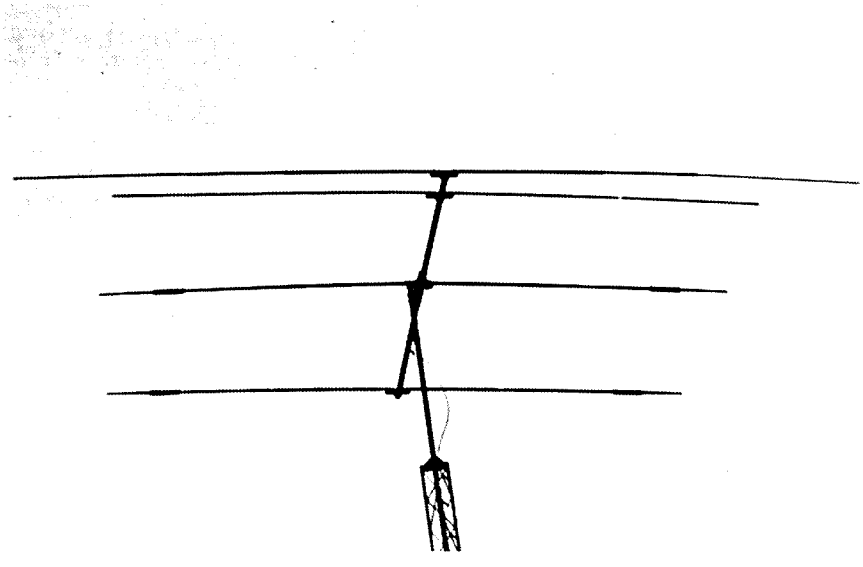
He thought of manufacturing transceivers, but this would be economically impossible due to the large numbers necessary to make the price competitive, but antennas were a different story.

"I knew all the time there was money to be made in this field, and one day when the time was right, I would make the move," Fred recalled last month.

The dream came true last year when there was a slump in the antenna importing business due to Hy-Gain ceasing production, supplies became erratic and prices soared.

It was like the proverb of the wise ancient Greek — When one door closes look for the other that's just starting to open.

• **Roth Jones VK3BG is one of Australia's best known journalists having covered most major stories in more than 30 years of journalism. He has visited more than 60 countries in peaceful and turbulent times. Rarely does he write on amateur radio, yet he has never been off the air since the mid-1930s except for war service with the Royal Australian Air Force. When he heard this story of two VKs who successfully started an antenna manufacturing company he said he could not resist writing it exclusively for Amateur Radio.**



The AM 4-2 duo-bander up in the air.

And this is just what Fred did. Waiting at the opening with similar ideas, and a good friend over many years, was *Tony Owen*, who had just resigned from the management of a civil engineering company to "go it alone".

They pooled their ideas and were in agreement on all. Like a maiden handicap down the straight at Flemington they were both quick off the mark and already they could see the finishing post.

It was a short, but not an easy race. They made it all right well ahead of the field.

Overnight Amtenna Co. Ltd. was registered with Tony as managing director and Fred looking after all sales.

Like any good engineer, Tony started planning and tooling up while Fred looked at the marketing, the sales potential, his advertising and how they would break into and take a share of an already established antenna market.

As Tony recalled last month:

"We both worked long, hard hours designing and testing into dummy loads and on the air. We spent more than 100 hours researching plastics before we settled for products suitable for radio frequencies with high moulding temperatures and good In ultraviolet light.

"Traps were made up and tested for strength, stability and reliability.

"After three months of solid hard work and more testing of front-to-back ratios, side rejection, etc., the AM4-2 was born," said Tony.

"The very rugged, low-priced duo-band beam is proving very popular and orders are increasing every month," said Fred.

Many more hours of work and much money later the 80-10m trapped vertical was perfected. This is selling at less than $100 complete with radials. Then came the tri-bander which consumed more time than predicted.

It had to be deferred temporarily due to the mounting orders for the duo-bander, but Tony is hopeful of commencing construction on these before the winter.

Tony and Fred have based their business on the well-established three aims of *service, quality and price* and in that order.

Now the company is established It seems certain more and more of these antennas will be pushing out hefty signals all over Australia as interstate representatives have already been appointed.

Like any other success story this one had more than its share of bad chapters. The worst was when they asked themselves "Is it really worth it?" when the response to the first ads in the radio journals was a flop.

But that alone was not to worry them. Instead it spurred them on. Soon a few Melbourne novices bought them to *"give them a go"*.

They had, at last, conquered the biggest barrier which they were unaware had existed — the belief held by so many Australians in all walks of life that imported goods be they wine, fashion, cars or electronics are better than the Australian-made product.

They had conquered the big one. They had been accepted because their product had proved itself and was better-priced than the imported ones.

"How silly Is it for people to be blindfolded by fancy names and the fact that it was imported," Fred recalled to me over a cup of tea last month.

Recently they placed their AM4-2 alongside an imported equivalent and were convinced beyond all doubts the ruggedness of their traps was far superior to the imported sample.

Performance is hard to compare, but they genuinely believe their antenna is as good, if not better in forward gain, front to back than the importeds.

The rest of this story is history. As more antennas were sold the unsolicited compliments came in, proof if there ever was one, that they were on a winner.

Naturally there was the odd complaint but this, they say, was due to the initial rush and enthusiasm and was personally corrected.

Packing facilities have been improved and new easy-to-follow instructions prepared. The whole operation has become as professional as a prize fighter.

According to Tony the AM4-2 is one of the easiest and quickest antennas to assemble on the Australian market.

The Colour coding is so simple instructions are almost unnecessary.

This final comment by Tony and Fred seems to sum up the whole operation — "We receive many compliments now which we appreciate after our struggle.

"We will now streamline production and turn out more and better antennas quicker with quality utmost in our minds.

"Then we'll start exporting and Australia will have a new local and international industry it will have reason to be proud of."

This has been a success story because two men set themselves a goal and worked through almost insurmountable difficulties to achieve it.

They won through because they didn't give up and that's what life is all about.

Success comes to those who work for It . . . and it's a great feeling. ■

WATCH IT — THIS COULD BE YOU

Confirmed lifelong DX fanatic departs this world, finds himself in Hades being interviewed by Satan. Opening the conversation, Satan said: "People on Earth like to believe that this is a terrible place, but that really isn't so. Here you can have anything you like — girls, grog, sports cars, anything at all. What is your wish?" The DXer was astounded, but quickly regained his equilibrium. "Well," quoth he, "my only real interest for most of my life has been working DX on Amateur Radio. The thing I always wanted and could never have was a 300 foot tower, complete with perfectly matched high gain beams to cover all bands. The beams would be fed with zero loss coax. cables through the perfect coax switch. I dont 'suppose that would be possible here?" Satan gave a little smile, and said: "No worries, OM — here all things are possible. We'll fix that In a flash!" — which he did. Puff of smoke, and there stood the DXer's dream complete to the last detail, even including the rotators he'd forgotten to ask for. Completely flabbergasted, the DXer tried to stammer out his gratitude, but Satan cut him short. "Look, mate," said Satan, "that whopping great array is no good to you without some gear to go with it. What would you like? Name it, and it's yours." Having somewhat regained his poise by this time, our DXer thought deeply into all the catalogues and reviews he'd ever read — and proceeded to name every piece of gear, regardless of price, that he'd ever drooled over. Satan listened carefully and, when the list reached its end, smiled and said: "No problems there — we'll fix that In a flash!" Puff of smoke, and every single piece of gear nominated appeared — absolutely brand new. Not only that, every single piece was tailored into the most beautiful operating console ever seen. "Though you'd like the job finished properly," said Satan, "what do you reckon?" The DXer inspected Satan's hand work carefully and, after making his thanks, said: "Crikey, I can't wait to get on air and tell the fellows back there how good Hades really is. But tell me, Satan, what is that great cable hanging out of the back of the console?" Satan looked where he pointed, and said: "Oh, that's the power cord for all the gear."

"Right," said the DXer, "let's plug it in and I'll get cracking." Satan looked at him, smiled and said: "Sorry to tell you this, old chap, but we don't have any power down here!"

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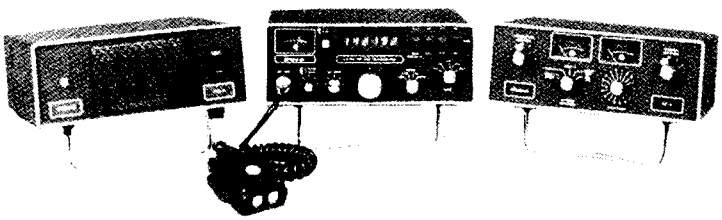

Matching power supply (PSU-5) and antenna tuner (ST-3) provide the necessary additional units for a complete base station.

Frequency Range:

160 Meter Band . . .	1.8- 2.4 MHz*
80 Meter Band . . .	3.0- 4.5 MHz
40 Meter Band . . .	6.0- 8.3 MHz
20 Meter Band . . .	13.8-16.0 MHz
15 Meter Band . . .	20.8-23.0 MHz
10 Meter Band . . .	28.0-30.0 MHz**

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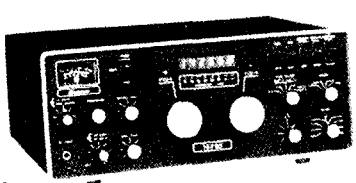
Mode:	CW, CWN, LSB, USB CW Break-in, Full and Semi
RF Input Power:	235 watts all modes, all bands
Carrier Suppression:	Better than 50 dB
Side Band Suppression:	Better than 60 dB
Microphone:	47 K ohms with push button tuning
AF Response:	300 to 3000 Hz

P.O.A.

Performance Specifications

Spurious Radiation:	Harmonics: > 45dB below peak power Other: > 55dB below peak power
Receiver Sensitivity:	10 dB $\frac{S+N}{N}$ or better at .35μV
Image Ratio:	Better than 60 dB
Frequency Stability:	10 Hz/Hr. after warm-up
Receiver Selectivity:	SSB & CW 2.7 KHz (8 pole filter) Shape Factor 1.6:1 CWN 300Hz (Xtal)
Audio Output Power:	Greater than 3 watts into 4 ohms
Power Requirements:	13.8 VDC @ 18A peak (Xmit)

ASTRO 102BX Performance Specifications



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THE OLD BIRD WITH NEW "FEATHERS"

General:

Frequency Range*	160M Band	1.8-2.0 MHz
	80M Band	3.5-4.0 MHz
	40M Band	7.0-7.5 MHz
	20M Band	14.0-14.5 MHz
	15M Band	21.0-21.5 MHz
	10M Band	28.0-29.999 MHz

*approximate 50 to 100 KHz overrange on each band

Readout:	Six digit LED from internal counter
Frequency Stability:	Within 100Hz during any 30 minute period after warm up
Power Requirements:	13.6VDC (11 to 15VDC range) at 1.8 amp receive, 19 amp peak transmit

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RF Output Power:	100 Watts all bands — limited by ALC to 100 Watt output PEP or CW
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Carrier Suppression:	Better than 50dB
Sideband Suppression:	Better than 60dB
Spurious Radiation:	Harmonics > 45dB below peak power Other > 55dB below peak power
Audio frequency Response:	300-3000Hz
Microphone Impedance:	47K ohms
Receiver Sensitivity:	10dB $\frac{S+N}{N}$ Typ. at .35 uV
Image Rejection:	Better than 60 dB
Receiver Selectivity:	SSB and CW - 2.7 KHz bandwidth, two 8-pole crystal filters with shape factor 1.4; 6dB to 100dB CWN - 300 Hz bandwidth. IF crystal filter in series with one 8-pole SSB filter
Bandpass Tuning:	SSB and CW eight-pole cut-off continuously variable highpass or lowpass. LED readout shows approximate audio bandpass. CWN — IF crystal filter continuously tunable over 300-3000Hz with passband control
Dynamic Range:	AGC greater than 100dB Third order intercept + 15 dBm
Audio Output Power:	Greater than 3Watts into 4 ohms

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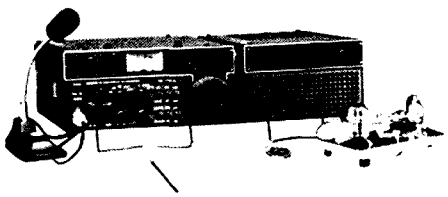

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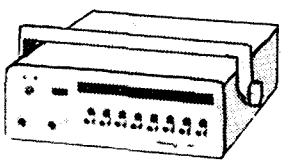

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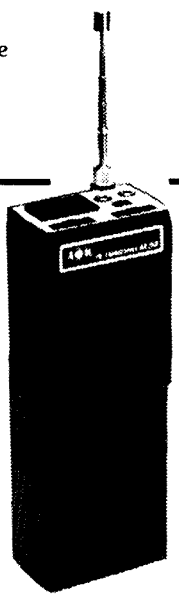

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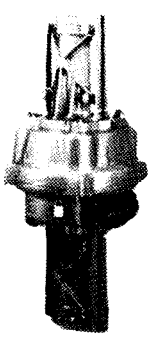

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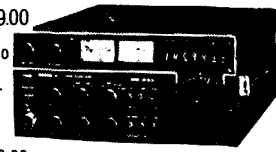

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- High sensitivity

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	Rx438.025MHz to 439.000MHz
Frequency Stability:	Better than 6ppm 0°C to +60°C
Supply Voltage:	11 to 16.2 Volts -Ve earth.
TRANSMITTER	
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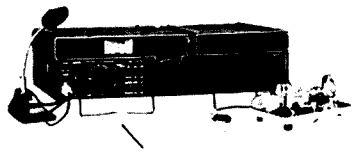

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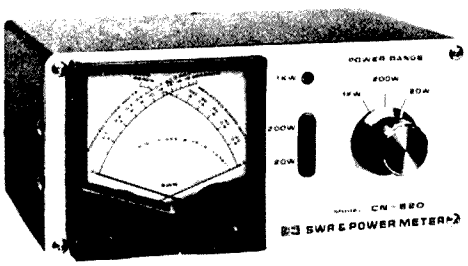

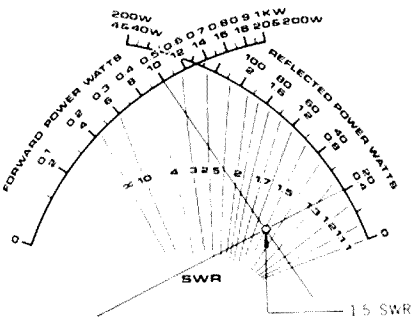

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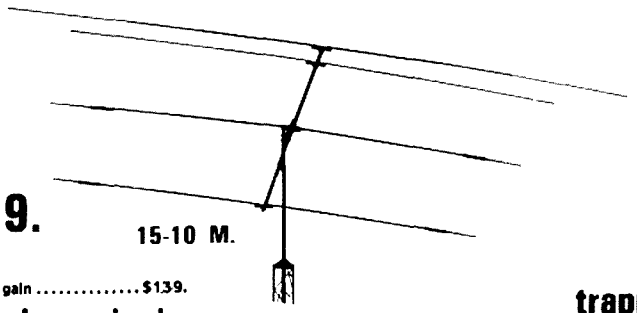

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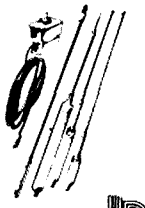

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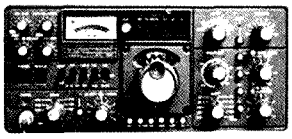

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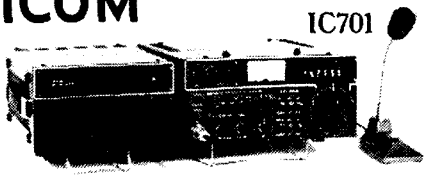

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REVIEW THE IC551D SIX METRE 100 WATT TRANSCEIVER

Reviewed by Gil Sones VK3AUI
Test figures courtesy Kevin Phillips VK3AUQ

The IC551D is a new six metre transceiver. It is a high power version of the recently released IC551.

The packaging and styling is like the IC701 and the IC211, however the IC551 and the IC551D have inbuilt microprocessor control. In previous rigs this could only be provided by the remote controller.

The microprocessor sorts out the signals from the knobs and switches and controls the dial display and the phase locked loop frequency control.

With all such arrangements you should always remember that the display is not an actual counter output. ICOM recognise this and provide an accessory marker. In Melbourne this is not necessary as you may check calibration on a harmonic of VNG. Yes, even Telecom have harmonics.

The unit tested was not fitted with FM as the FM unit is sold as an accessory overseas. They will be fitted to later shipments and may be retrofitted to units without them. This is very simple, as many of the features are in bolt-in, plug-in modules.

The VOX is very interesting as it uses a bucket brigade delay line to eliminate the clipping of the first syllable. This is a very advanced feature and is indicative of the thought and development ICOM put into their equipment. The circuit is similar to the circuit AR readers have seen in Evan VK3ANI's VOX Advance.

Another feature not often seen on VHF equipment is Pass-band Tuning. This can be quite handy for dodging annoying Channel 0 sidebands when listening for beacons.

Together with the Pass-band Tuning ICOM have provided an RF processor which helps greatly under weak signal conditions. The reviewer was able to use this to great advantage when working tropospheric DX. Under such conditions the extra punch provided by the processor helps considerably.

One of the advantages of having a built-in microprocessor is the number of VFOs and memories which may be provided. In this context VFO is probably a misnomer as the VFO function is really achieved by a variable memory storage. There are two such VFOs provided together with three memories.

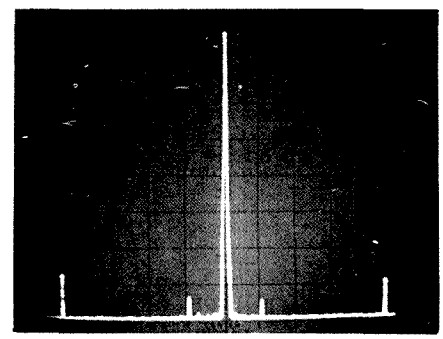
Facilities are provided to transceive on either VFO or any memory. Split frequency operation may be achieved using either VFO for receiver transmit. This can be a very handy feature for DX working. You can also align VFO B with VFO A by a flick of a switch.

The IC551D

Scanning is provided by any of the three memory frequencies or between two of the memory frequencies. This can be very useful for monitoring beacons or to search for signals in a band segment. The scanner stops when a signal exceeds the squelch threshold.

The squelch is operated from the AGC line in the SSB and CW modes and for FM it is the normal FM squelch or mute. The squelch is triggered by minute AGC voltage and is a considerable operating convenience. It was not possible to test it in the very subjective threshold between just hearing weak signals and imagining you are. Band conditions did not oblige in this area.

The power supply type IC S20 is interesting in that it uses a high frequency DC to DC converter to convert the rectified mains voltage to 13.8 volts DC. This results in a much lighter power supply at the expense of some extra complication of circuitry. The shielding is good and the power supply does not radiate noticeable RFI. However, don't sit your transistor radio next to the transceiver front panel as the microprocessor and display radiate for a few inches near the panel.



IC551D, spurious outputs, HP spectrum analyser, frequency 52.05 MHz CW 2 MHz/div. horiz., 30 kHz bandwidth, 10 dB/div. vert.

A similar power supply is built into the IC551 which is the 10 watt output version.

One interesting point in the power supply is the use of Swedish interference suppression capacitors. Evidently ICOM wanted quality components and were prepared to search for them. This is an indication of the engineering design effort that ICOM put into their gear.

Another ineresting point is the extent to which ICOM have developed and refined the VXO or rubber rock. In this rig

there are three such oscillators and they are stable. A great deal of design effort has evidently been put into this development.

On the air the IC551D draws compliments for the quality of the signal and the receiver digs out the weak signals. During the test period the band obliged with a tropospheric opening and with an opening to Japan. The IC551D performed admirably in both instances.

Another area the IC551D shines in Is cross modulation performance which is most critical in a Channel 0 area. When tested, using a KLM 11 element beam, with line of sight to Channel 0 15 km away, the IC551D was able to read signals which were unreadable on a couple of other 6 metre rigs. This is a pretty severe test as previously at this location it had not been possible to point the beam close to Channel 0. A very big plus feature in any area plagued by Channel 0.

One difference between the IC551 and the IC551D other than the power output is in the retention of the memory when the rig is switched off. The IC551 has a power supply built in which may be used to retain the memeory whilst the IC551D merely has the provision for an accessory power supply to perform this function. The result of this is that at switch-on the VFOs and the memory are initialised out of the Australian Band. To get back up to 52 MHz is quite a chore even when using the fast tune position with 1 kHz steps. There is, however, a neat way to get 10 kHz steps by selecting the FM mode. Select FM, give the knob a couple of turns and then switch back to SSB.

The receiver sensitivity was found to be 0.09 microvolt for a 10 dB signal plus noise to noise ratio. A little bit better sensitivity is obtainable by using the Passband Tuning to narrow up the IF selectivity. This would only really apply to CW signals.

The transmitter produced 96 watts which is somewhat better than the 80 watts in the handbook or the 50 watts promised on the box. The power was all on the one frequency, too, as the spectrum analyser photo shows, with spurious outputs being in the region of 65 dB below full output. This is better than the specification of 60 dB down.

The frequency displayed was found to be accurate to better than the dial display accuracy. This is a tribute to ICOM's excellent oscillator design and would be hard to better.

All things considered, the IC55ID is a very well engineered 6 metre rig.

Enquiries regarding supply and price of the IC551D should be directed to VICOM and their distributors. ■

REVIEW

OPERATOR'S REPORT THE YAESU FT-7B

The FT-7 Is a Yaesu transceiver well known to most readers. Until recently it was available at the bargain price of $389. Now the FT-7B is available. This article reviews the FT-7B and compares it with the FT-7.

The Yaesu FT-7B

GENERAL

The FT-7B is a small compact rig of about the same size as the older FT75/FT75B series. It uses the same case as the FT7 and is only 30 mm deeper due to the addition of an external heatsink for the larger PA. The transceiver runs a nominal 100W input, is completely solid state and does not require adjustment of tune and load controls as do rigs with valve PAs. The receiver is almost identical to the FT-7 and is therefore very sensitive and provides a generous 3W of audio to cope with the usual background noise when mobile. The operator has the choice of AM as well as CW and SSB operation.

TECHNICAL FEATURES

The transceiver operates on the 80 through 10m bands. Unlike the FT-7 a full 2 MHz coverage is provided for 10m. The VFO is tuned by a large centrally placed knob and covers 500 kHz. The scale has 1 kHz divisions. Once calibrated the readout error is less than 1 kHz. One revolution of the tuning knob covers 16 kHz. A 100 kHz calibration signal, derived from a 12.8 MHz crystal, is provided. Both receiver and transmitter use fixed and tunable bandpass circuits at signal frequencies. Both the receiver RF amplifier and PA driver circuits are peaked by a single knob labelled TUNE.

A clarifier Is provided to allow reception of signals up to 3 kHz either side of the transmitted signal.

As with the FT-7 semi-break-in CW operation with sidetone is provided. An audio filter has been added and this is a worthwhile feature for CW reception, as it has a nominal 80 Hz bandwidth.

Although the FT-7 could be used with an external VFO this option is not available with the FT-7B but has been replaced by the ability to use the YC-7B remote digital display of frequency. This display can be mounted in a more convenient position for the mobile operator than under the dash with the transceiver.

The RF drive is adjustable, an important feature for AM operation and for the Novice CW operator. An effective noise blanker is provided and another feature not found in the FT-7, a 20 dB RF attenuator, has been added. Although the power rating has been increased by a factor of five and many features added, the weight has increased by only 0.5 kg. It appears that there was a little room left in the FT-7, after all.

CIRCUIT DESCRIPTION

The incoming signal passes through a tuned circuit and is amplified by a dual gate MOS FET which has AGC applied. The amplified signal passes through a bandpass filter and a buffer amplifier to a balanced mixer using Schottky barrier diodes. This gives excellent sensitivity and a low noise figure, most noticeable on 10m, and a high degree of freedom from cross-modulation. The IF is at 9 MHz and the mixer output is coupled to a monolithic filter to give some modest selectivity before passing through an amplifier and a diode noise gate. An 8 pole crystal filter is used to obtain excellent selectivity. The selectivity figures claimed are the same as claimed for most modern transceivers available in Australia, namely 2.4 kHz at —6 dB and 4.0 kHz at —60 dB. Further amplification follows before the signal is detected by a ring demodulator and then passed to the audio stages. An IC provides up to 3W output into a 4 ohm speaker.

For CW reception the audio filter is switched in to give an 80 Hz bandwidth at —6 dB. The centre frequency can be adjusted once the cover has been removed.

There are several unusual features. For example, the noise blanker has a separate mixer and a 455 kHz IF coupled from the output of the main mixer prior to the first filter. There are no adjustments for threshold level, however the blanker was found to work well in both base and mobile situations. The marker generator uses a single IC to divide the 12.8 MHz crystal oscillator signal down to 100 kHz. Coupling to the antenna terminal is via a diode switch. Almost all the RF signals are diode switched, a notable exception being the antenna changeover, which uses a relay.

The VFO tunes 5.0 to 5.5 MHz and the adjustment for calibration is done with a varicap diode controlled by a lever control situated below the main tuning knob. Except on 80m the VFO is premixed with a crystal oscillator before being applied to the Schottky diode balanced mixer. This mixer, along with the filter and part of the IF amplifier, are used for both transmitting and receiving.

For SSB transmission a single IC amplifies the microphone output and drives a diode ring modulator. The resulting 9 MHz signal is amplified, passed through the crystal filter and on to the Schottky diode mixer. After amplification by a dual gate MOS FET, at what is now the signal frequency, the signal passes through the same bandpass filter used in the receiver to a broad-band pre-driven amplifier. This is coupled through a tunable LC network to the PA.

The PA consists of 4 RF transistors operating in a broad-band circuit to produce a nominal 50 watts out. The two output transistors operate in class B in a push-pull circuit using broad-band transformer coupling. Negative feedback is used for the three stage amplifier to reduce distortion. Thermal run-away is prevented by bias diodes mounted on the PA transistors. Harmonic output is reduced by means of a low-pass filter, one for each band, selected by the band-change switch.

A frequency independent directional coupler is used to sense both forward and reflected power. The forward power is used to provide ALC operation and prevents the output being pushed beyond limits. The ALC is inhibited from operating until the output reaches a pre-set level in excess of 50 watts. Any attempt to increase power beyond this level causes the IF gain to be reduced. When the transmitter operates into a mismatched load the reverse power also causes the gain and hence the output to be reduced. The reduction is negligible for a VSWR of 1.5 : 1 but reaches 50 per cent at 2 : 1 and the output is reduced to 20 per cent at 3 : 1. A separate ALC circuit is used for AM operation. This uses a simple diode voltage-doubler circuit and is followed by an additional PI filter for harmonic suppression.

Most of the circuitry is easy to follow and the majority of the components are fitted to 14 plug-in PC boards. This should make servicing very easy. The instruction manual supplied Is adequate with clear print and diagrams, although care is needed when tracing interconnections on the main circuit diagram. A total of 86 transistors, 83 diodes and 7 ICs are fitted inside this little rig. A modification is available to provide operation at Novice power levels.

ON AIR TESTS

The receiver showed itself to be very sensitive and was noticeably better on 28 MHz than a FTDX401, which was used as a standard for comparison. The immunity to cross-modulation seemed to be the same. The unit tested showed a maximum dial error of 300 Hz when checked at five 100 kHz points. The calibrator signals were consistently strong on all bands. Power output was measured at about 60 watts on all bands, for a 13.5 volt supply.

The CW sidetone level was too loud and when the case was opened the adjustment was found to be fully up. It was a simple matter to reset it; it seems to be factory policy to set it right up. Incidentally, as with the FT-7, the covers fit very tightly and need assistance in removal.

There is a generous amount of microphone gain resulting in considerable compression due to ALC action. An input in excess of 130 watts was recorded.

The rig appears to be built for the installation on the operator's right (left hand drive vehicles), as the gain controls and microphone are on the left. Otherwise the controls are well laid out and easy to use and precise in action.

For mobile tests the rig was coupled via an ATU to a 28 MHz whip and operated on 28 MHz. For tune-up the rig was switched to CW and the input set to about 10 watts until the ATU adjustments were completed. Briefly the set performed well and in known poor locations the extra power over the FT-7 was a great asset. Tests were run with both fixed and mobile stations in the Melbourne area. Performance was excellent even in heavy traffic where the noise blanker proved to be quite adequate.

More extensive tests were carried out in the quiet of the shack using the set as a base. An inverted trapped dipole was used on 40 and 80m and a TH6DX for the other three bands. Band conditions were only fair yet three lengthy QSOs were easily held with ZS stations on 15m. All three ZS stations were running 200 to 300W out and gave reports that varied from 1 S unit less to 1 S unit more than the reading on the FT-7B's meter. Shortly after an 0E8 using an FT301D was worked with 5 x 7 both ways. Nine European stations were worked on 28 MHz and reports up to S8 were obtained. A number of other stations were contacted on other bands. In all cases the reports were complementary and under weak signal conditions the reports were better than might be expected for a 100 watt rig. The recovered audio was of good quality, very good in fact, when the size of the inbuilt speaker is considered.

CONCLUSIONS

The FT-7B is a fine, compact rig. It does not have some of the features of the top-of-the-line sets, for example there is no speech processing. It is of course only half the price of these sets and if desired these facilities can often be added externally. The extra power over the FT-7 is most useful and makes the rig useful for serious DX work. The current drain is modest and allows for extended operation from a stationary vehicle without the fear of a long walk home.

It represents good value for money and appears to have serious competition In the market only from the TS120S. It is a rig worthy of consideration whether it is to be your first rig or whether you are trading in your old FT200. The FT-7B gives a good account of Itself in both mobile and base use.

The unit tested was kindly made available by Bail Electronic Services. ■

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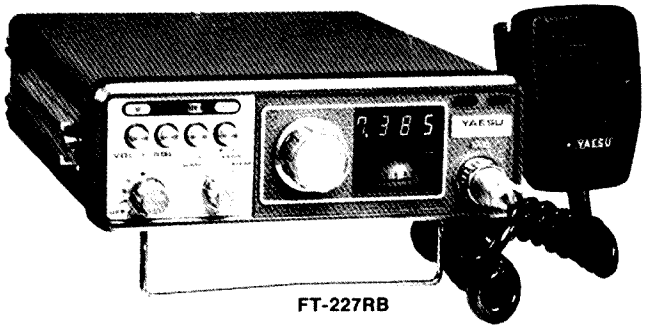

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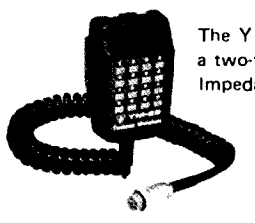

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Mrs. Mac sat quietly in her chair in the Glenwood Nursing Home at Greenwich, a Sydney suburb, listening as Ed Carruthers VK2AQF and myself proudly presented her with a Certificate of Membership to the Royal Naval Amateur Radio Society. She wondered why we were making such a fuss of her. We felt humbled and extremely proud to have met this fine lady. Although paralysed down her right side as the result of a stroke, she maintains an active mind and at times was downright cheeky.

Who is Mrs. Mac? And just why were Ed and myself presenting her with Society membership?

Mrs. F. V. McKenzie, OBE, is Australia's first qualified woman Electrical Engineer, the first licensed woman amateur radio operator — under the call sign of VK2FV, and the first woman member of the Wireless Institute of Australia. Nothing very remarkable in that in this age of liberated ladies. But Mrs. Mac achieved this in the early 1920s. However, this is not her main claim to fame. She is directly responsible for training between 10,000 and 12,000 Allied servicemen and women as telegraphists during the Second World War and is also the founder of what was called the Women's Emergency Signalling Corps (WESC), which later became the Women's Royal Australian Naval Service. Possessed of an active mind, Mrs. Mac also corresponded with Albert Einstein.

To really understand the feats of this remarkable lady, we must delve into the past and trace the story of one of Australia's unsung heroines. A person who is indeed a legend in her own lifetime.

Born in Melbourne on September 28, 1892, Florence Violet Wallace was destined to make her way into a man's world. Her family soon moved to Sydney and so she was educated at Sydney Girls' High School. During her younger years she was fascinated by all things electrical. Even as a girl she was able to fix lights that burnt out and repair fuses, even to rewiring the family home. She fitted a light in the pantry which came on when the door was opened, much to her mother's chagrin.

With such an interest it was natural that when she finished high school she should enrol in a diploma course of electrical engineering at Sydney University. Miss Wallace graduated as an Electrical Engineer In 1923 and commenced in the trade to earn a living working alongside her fellow male graduates. A tiny diminutive figure, just five foot tall and usually wearing blue overalls, she proudly admits that she was treated as an equal by the men. She often took the jobs that many of the men refused because they were not prepared to travel to the outer suburbs to work.

She met and married Cecil McKenzie, another electrical engineer. It was not surprising that they should open an electrical shop, which was located In the Royal Arcade, Sydney. The business was firmly established as a supplier of electrical contractors' items, but some "wireless bits and pieces" were carried as additional stock. Mrs. McKenzie, as she now was, soon realised that the demand for these strange "wireless bits and pieces" would increase, so she and her husband built up their range at the expense of the electrical contractors' supplies.

Always of an enquiring mind, Mrs. Mac was forever asking her "wireless customers" what they used these bits and pieces for. Eventually she became so fascinated by wireless that she began her own studies and added another claim to fame — that of being Australia's first woman amateur radio operator, VK2FV.

The atmosphere in No. 6 Royal Arcade was always friendly and fellow amateurs dropped in for tea and a chat with this young lady who knew so much about radio. From the early days when she learned from her customers, they now came to Mrs. Mac to learn. She seemed a natural telegraphist and amazed people with her skill. Another important asset was developing at that time — the art of passing on information and skills — of teaching.

Around this time Mrs. Mac, together with three others, formed a magazine called "Wireless Weekly". Eventually she had to bow out when the financial pressure got too great and the "Wireless Weekly" went on to become Australia's premier electronics monthly, "Electronics Australia".

Mrs. Mac acquired one of the very first electric cookers. She looked around for a book to tell her how to use it to the best advantage. There wasn't one, so true to form, Mrs. Mac set about rectifying the situation. She was not an experienced cook, so she purchased a dozen cookery books — English, French, German and American. She patiently went through all of them, picking out those recipes she considered contained good sensible ideas. Then she practised them on her husband! Her electrical cook book was such a success it sold out on the first edition.

She then went on to form the Electrical Association for Women and gave electric cooking demonstrations all over the city and suburbs. She wrote a safety book on electricity for children at the request of the NSW Education Department. This was the very successful "The Electrical Imps".

This now brings us to 1939, a time when dark clouds were gathering over Europe. When Neville Chamberlain returned from Munich and said there would be peace in our time — Mrs. Mac did not believe him. She started thinking what she could do and what part women could play in the coming war. She realised that the most important part of the war would be communications and that was one job that women could do. So she opened a school in Sydney to train girls in morse code and radio.

Mrs. Mac took in more than 50 enthusiastic girls in the six months before war was declared at her school at No. 9 Clarence Street, Sydney. It was soon discovered that women have a natural aptitude for morse code and others forms of signalling. The number of trainees increased rapidly, so the Women's Emergency Signalling Corps was formed.

It was not long before the premises at No. 9 Clarence Street became overcrowded. A large old wool store at No. 10 Clarence Street was found to have the first and second floors vacant, access being by two long flights of very steep and narrow stairs. The rent, however, was very reasonable, and finance being a serious problem, it was decided to move to these premises.

One day a keen amateur pilot came to Mrs. Mac and asked her to teach him morse so he could join the Royal Australian Air Force. At this stage a sufficient standard in morse was required for entry into the RAAF. Soon more and more young men with military aspirations were coming to Mrs. Mac to learn morse code. It is interesting to note that later on, several of Mrs. Mac's WESI girls were co-opted into the Air Force Recruiting Centre to conduct morse tests.

From then on scores of servicemen from all services came to Mrs. Mac for morse training. it is estimated that Mrs. Mac and her girls trained between 10,000 and 12,000 telegraphists from Australia, the United States and India.

Mrs. Mac installed audio equipment so that twelve different classes could be conducted at the same time. There were enough partly-trained girl telegraphists to cope with the scores of servicemen and recruits who flocked in. The RAAF installed Bendix radio equipment for training purposes. The Australian Army sent lorry loads of soldiers to have early training in morse before going to the Middle East. The RAAF sent several groups of servicemen in uniform, with their own instructor, Lt. L. George, to use the WESC equipment.

The Royal Indian Navy sent their communication ratings to keep their morse and visual signalling skills up whilst their four corvettes were being completed at Cockatoo Island Naval Dockyard.

Numerous Royal Australian Navy musterings went to the WESC Signalling School to improve their morse.

There were many nationalities attending the school, but never at any time was there any disorder or need for obvious discipline. The conduct of the girls and all who attended the classes was always above reproach, and as up to 12,000 men passed through the school in war-time, some idea of the atmosphere of dedication may be gained. Life at the radio school was never dull. There were always lorry loads of new pupils arriving.

Frequently Military Inelligence would appear on her doorstep with complaints from nervous guests in the hotel next door who thought a spy was at work when they heard morse code in the middle of the night!

Mrs. Mac also trained scores of American servicemen, both from the USAF and the USMC. It is worth quoting from the "Sydney Morning Herald" of 1943: " 'The Americans were greatly surprised to find our girl signallers capable of sending and taking messages equal to their fastest speed,' said Mrs. F. V. MacKenzie of the Women's Emergency Signalling Corps, today. Seventy members of the US Air Corps attend the WESC rooms each day, where Australian girls are instructors at classes ranging from beginners in signalling to those doing 30 words a minute.

At least 10 girls are at the rooms all day and from 50 to 100 come at night, after office hours. 'The only change we've made for the US lads is to alter our morning and afternoon tea to morning and afternoon coffee,' said Mrs. McKenzie.

Already 170 WESC girls have enlisted in the three forces, and a new group of members will begin training in May. Mrs. McKenzie finds that boys and girls learn signalling equally well, but that girls make better instructors. 'They have more patience than men in the instructing job,' she said."

No fees were ever charged for any tuition. The girls of the WESC gave one shilling per week towards the rent, etc. There was also a visual signalling section which was mostly used by Merchant Navy officers sitting for their Second Mate's, First Mate's and Master's Certificates. There was very seldom an occasion for any of them to sit a second time for their examinations. The visual signalling section was equipped with signalling lamps, flags and code books, etc.

According to Mrs. Mac the Americans were anything but ready for war. And she still remembers the frantic young American who rushed up her stairs on a Thursday and begged her to teach him just one thing by the following morning. How to get his craft out of Sydney Harbour safely.

Mrs. Mac thought for a few seconds and then asked him did he know the flag "D" (I am not under command — get out of my way). He said he did. So she told him to fly the flag and to keep his siren going until he reached the sea.

The following afternoon one of her students reported that there was quite a shemozzle on the harbour that morning. "Some crazy Yank, flying D, had sped out of the harbour with his siren going nonstop, bringing all shipping to a standstill." She knew he'd made it!

One day, a particularly dedicated girl brought in an English magazine with an illustrated article about the WRNS, and she was soon joined by a number of the girls, all of whom were fired with the ambition of becoming WRANS if the Royal Australian Navy could be persuaded to use them.

Mrs. Mac immediately wrote to the then Prime Minister, Billy Hughes, to see if Australia could establish a similar service to the WRNS. But he just dismissed it. So she flew to Melbourne to see the Naval Board. The chairman said "Girls in the Navy! What could they do?" Mrs. Mac told him to send an examiner to Sydney and she and her girls at WESC would show him. Eventually Commander Newman, R.A.N., went to Sydney and was astounded at the operations of the WESC. However, all was not plain sailing. There was still a great resistance towards women in the Navy and Mrs. Mac had a long battle with the Naval Board.

She remembers that Board members kept asking about sex, so she told them she had hundreds of men and women working together studying morse code and there had never been any goings on. Finally she threatened to take her girls to the Army or RAAF, and the Naval Board gave in. Twelve of her girls were recruited into the Navy, but with the proviso that there be no publicity on this break with tradition. The WRANS were formed in 1941 and for some time the first recruits kept their green WESC uniforms.

Mrs. Mac and her girls continued training servicemen all through the war. She remembers one Army Major who came to her when his signallers were sent to WESC for morse training and asked her not to teach them fast morse, but just slow and sure, as he did not want his messages mutilated under difficult receiving condition under gunfire. The detachment was eventually sent to the Middle East. After the war this same Army officer wrote to Mrs. Mac to thank her and commend her training as not one of his messages were sent or received incorrectly.

For her services during the war she did not take any form of payment. There were times when she went for days without a meal, as that would have interfered with her work of training telegraphists. After the war she received the OBE for her services.

Even though peace was achieved, there was still work for Mrs. Mac to do in training telegraphists. RAAF pilots were returning to civilian life and looking at the commercial airlines for employment. But morse was required. Who could they go to for training?

Almost without exception the original pilots of QANTAS after the war were trained in morse by Mrs. Mac. She also taught forty policemen morse. Today she proudly wears a special medallion conveying the thanks of the NSW Police Commissioner, who was one of her "boys".

For nine years after the war she kept up her work in training telegraphists. During this time and until his death in 1955, Mrs. Mac corresponded regularly with Professor Albert Einstein. He was intensely interested in Aborigines and she sent him all kinds of data about them.

By 1954 the services all had sufficient training establishments for their own needs and the commercial airlines had set up their own schools. There seemed no more work for Mrs. Mac, even though she was still training the Captains of the Torres Strait Pilot Service. After the Torres Straits Pilots had left, she closed the Signal School and retired to put her feet up in her home in Greenwich, where she still had her original cooker. She would not part with it despite having a more modern one, as the original one had a lot of sentimental value. One of her other hobbies was collecting fine china, with Wedgewood being her favourite. She still taught the occasional student at her home.

Two years ago Mrs. Mac suffered a stroke which left here paralysed down the right side. She now lives in a nursing home in Greenwich. But she is far from lonely. Her "girls and boys" remember her. She has a constant stream of visitors, ranging from her wartime pupils, some of them now grandparents, to the Police Commissioner, senior QANTAS Captains and retired Admirals. Prior to her stroke she would hop on a train at a moment's notice if one of her girls needed help. Re-unions of the WRANS have taken Mrs. Mac across the country and every year on Mothers' Day her boys throw a champagne party and present her with an enormous cake.

That then is the story so far of Mrs. Mac, a delightful lady and a fantastic person to meet. A woman who made her own place in a man's world before it became fashionable. But she is not a feminist and has no time for "pushy females", for in her own quiet way she has achieved far more. "I was born on the same day as Confucius, so it seemed only natural that I became a teacher," Mrs. Mac told me. Even today she still reads the work of Confucius.

In view of the outstanding work of Mrs. Florence McKenzie, OBE, during the Second World War in training telegraphists from all of the Allied armed forces, plus the role that Mrs. McKenzie played in the formation of the Women's Royal Australian Naval Service, the Royal Naval Amateur Radio Society has great pleasure in

annuoncing that Mrs. Mac has accepted membership of the Society. The Society is honoured to have Mrs. Mac as a member and hopes this will be considered as a small recognition of her work.

Mrs. Mac was presented with her membership certificate by Terry Clark VK2ALG, the Australian Branch Manager of the Royal Naval Amateur Radio Society, on August 29th this year.

The cover photograph shows Mrs. Mac and VK2ALG admiring her membership certificate of the Royal Naval Amateur Radio Society.

Membership of the RNARS is open to all amateurs and SWLs who have been or are serving in the Navy, Merchant Navy or been civilians working for the Navy. Details can be obtained by contacting the Australian Branch Manager, T. R. Clark VK2ALG, PO Box 537, Albury, NSW 2640, or by checking into the Society's 80m nets on a Monday night at 1030Z on 3613 kHz or a Tuesday night at 1030Z on 3527 kHz.

Mrs. Mac, RNARS number 1321, we are pleased that you have accepted membership of the Royal Naval Amateur Radio Society, we are honoured to have you as a member. ■

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NOVICE NOTES

ELECTRICAL SAFETY

Extract from the Brisbane Water County Council house journal "Currents", reprinted here in the interest of electrical safety:—

At the beginning of each year, statistics are supplied by the Electricity Association of Australia, relating to fatal accidents. An analysis of fatal electrical accidents reported shows 94 per cent of these occurred in domestic dwellings involving the use or handling of extension three core leads.

Each of us at some time becomes a "do-it-yourself" handyman, and uses an extension lead. I felt a closer look at some of these accidents may help prevent a similar incident in your house. Here are a few examples:

(1) THE DECEASED, while standing on damp ground in slippers, contacted the activated frame of a portable electric saw. The saw was supplied from an unearthed general purpose outlet via three flexible extension cords. This three-pin plug connected to one of the extension cords was broken and the earthing conductor, which was not terminated, was in contact with the active conductor, thus activating the frame of the saw.

(2) THE DECEASED was repairing a motor car in a concrete-floored garage. The car was supported on metal stands and a metal jack so that the engine was at earth potential. Deceased was lying on a low metal trolley with metal wheels, and of a type used by motor mechanics when working under vehicles. A metal edge of the trolley cut a flexible cord connected to an inspection lamp and made contact with the active conductor, thus activating the trolley. When deceased applied a metal wrench to the engine his hands and body were in simultaneous contact with earth and the active conductor.

(3) THE DECEASED received a fatal electric shock when he contacted the exposed live pin of a three-pin plug which was attached to an extension lead. The lead was fitted with a three-pin plug on either end.

(4) THE DECEASED pensioner received a fatal electric shock of approximately 240 volts when he contacted the metal frame of an electric drill which was energised due to an incorrect connection in an extension lead.

(5) THE DECEASED was electrocuted when he made contact with the exposed metal of single insulated hedge clippers which were made alive because of transpositions in TWO OF THE THREE extension cords he was using.

(6) THE DECEASED received an electric shock which proved fatal when rolling up a live electric extension cord. The flexible cord had been used to supply power to a mixer from a power point approximately 90 metres away, and was lying on muddy ground over which motor vehicles had passed, making it subject to damage. The deceased disconnected the live cord from the concrete mixer and began to roll it up. Upon reaching the area where vehicles had been passing over the cord, he made contact with the active conductor and received an electric shock.

(7) THE DECEASED was leaning against the scaffold pipes drilling the metal work of the building which was alive. The three-pin adaptor was pulled slightly out of the extension lead, exposing live pins, which had come into contact with the sheet metal fixed to the building.

On the basis of this information it seems fairly obvious we should immediately carefully examine any extension leads we may have, to ensure:

(1) That plugs on both ends of the lead are in good condition with no internal wiring exposed.

(2) That each core is correctly connected, particularly the earth, which should be green, or green and yellow.

(3) That each core is clamped tightly by the terminal screws, with no stray strands protruding.

(4) That sheath covering cores is in good condtiion with no obvious damage, and that the lead is serviceable in all respects.

Old type plugs should be discarded for the more modern type which have an insulating barrier between the wires inside and also means for clamping the sheathing of the flexible cord and for relieving the strain on the cores at the terminals.— Reproduced from Smoke Signals, September 1979. ■

☆ ★ ☆

ABSORPTION FREQUENCY METERS

The simplest type of frequency meter consists of a coil and a variable capacitor, tunable over the frequency range desired.

A frequency meter of this type, when tuned to the frequency and coupled to the output, will extract a small amount of energy. This energy can be used to light a small torch bulb. See Figs. 1, 2. A more accurate measure of resonance can be obtained by using a diode and milli-ammeter. See Fig. 3.

Although this type of frequency meter is not suited to precise measurement of frequency, it is useful for checking a transmitter, e.g. fundamental frequency, harmonics, parisitic oscillations, neutralization of an amplifier, field strength measurements, or any application where it is desirable to detect a small amount of RF energy and measure its frequency.

HELP!! PLEASE!!

Pictures of Novices etc. required for this column — URGENTLY!! Contact EDITOR.

The inherent losses in the absorption type frequency meter limit its useful accuracy but it is indeed a very useful instrument. Its sensitivity depends upon the indicating device. By using a micro-ammeter very small amounts of RF may be detected. I have one device with a link of coaxial cable and using a 0 to 0.5 mA meter as the indicator with which I can probe into a faulty transmitter and find the offending stage very quickly. BEWARE of HIGH tension voltage!

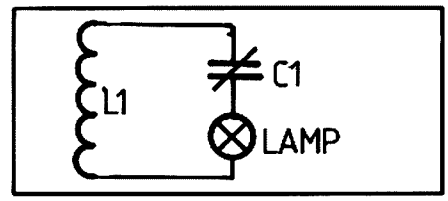

FIG. 1. A simple Absorption Frequency Meter.

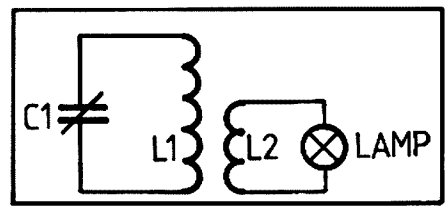

FIG. 2. In this circuit the lamp is Inductively coupled giving a sharper resonance point — due to less load on the tuned circuit.

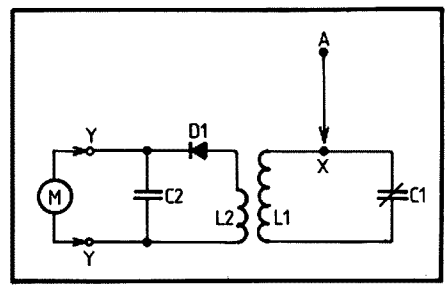

FIG. 3 Absorption Frequency Meter using a diode and meter. "A" is a small pick-up antenna used when the device is used as a field strength meter. It can be a piece of bronze welding rod — length 18 inches. Plugged into point "X". By extending the leads at point "Y" the meter may be used near the operating position.

COIL TABLE — Using 100 pF at C1.

Freq.	Wire Size	No. of Turns	Length	L2
1.8	28 EN	80	1¾"	16
3.5	24	35	1⅝"	10
7	20	15	1½"	6
14	16	8	1¼"	4
28	16	4	1"	2

All coils are 1¼ in. diamter and may be plugged in. Calibration of the instrument may be made by means of a grid oscillator.
Harold VK3CM.

Reproduced from GAR/TV Club Newsletter June 1979. ■

MORE TRICKS OF THE TRADE

Submitted by Eric Trebilcock L30442
(With acknowledgment to SARL (Durban Branch))

Again we have some more rules or hints that might make your DXing a little easier and happier.

(a) Be polite and courteous, no matter how much difficulty you are having or how many poor operators are on the frequency. Remember, 20 stations saying "Stop tuning on the frequency" only adds to the QRM.

(b) Be honest with signal reports. The only way a DX station can judge how he is getting out, is the report that he receives. (I remember a station giving a 5 x 9 report yet not getting the call correct, the right signal report, the handle or QSL information. I am not joking, you hear this repeatedly.)

(c) Do not waste time repeating the DX station's call sign. He knows that already.

(d) When working in a split frequency pile-up, do not change frequency with every call. Stay put for a while and let the mob move, leaving you with a partially clear frequency and a better chance.

(e) If you are calling and not getting results, listen.

Observe the DX station's tuning procedure. If he is listening off his own frequency, spot the station he is answering, determine if he is tuning up or down the band, and keep ahead of the pile-up. Always Identify your report on CW with your call sign and get an "R". This saves you a returned card with "SRI OM, NOT IN LOG", when you thought you had him cold. ■

AMATEUR SATELLITES

Peter Brown VK4PJ

A wealth of information should have been available In last month's Amateur Radio. Is that information going to be utilised successfully? Will It further amateur activity In satellite communication by *many* and not just a few? We need more amateurs communicating by ***satellites***, thus widening and developing our VHF and UHF expertise. We need more 70 cm activity. Do we have more projects than we can handle?

THE OSCARS

Oscar 7 is stil with us providing communication, on mode "B" particularly; mode "A" not so good. What a great unit Oscar 7 has proved to be and a credit to its constructors. Get yourself on to mode "B", 70 cm up, 2 metres down, where there is plenty of room and results are excellent. Oscar 8 is going fine but mode "J" has many baffled as yet (myself included). The AMSAT September 1979 Newsletter has some solutions to the problems.

AMSAT

For the newcomer AMSAT is the organisation with world-wide membership located in Washington, DC, and co-crdinates amateur satellite activities. AMSAT publishes a quarterly bulletin (newsletter) for members. The September issue contains "A new AMSAT for the 80s", "Satellite Tracking for the TRS-80", "Echo 70 Improvement for Mode J", "Orbit Determination Techniques", "Phase III Satellite AZ-EZ Programme for HP 67/97", "Phase III Scientific Special Service Channel" and "Success at Last with Mode J", which latter article tells of trials and tribulations before achieving satisfactory mode "J" operation.

Membership of AMSAT is US$10.00 per annum, Life Membership is US$100.00, to AMSAT, PO Box 27, Washington, DC, 2044, USA.

NETS

You may have noted mention of an 80 metre net, Sunday evenings, 1000Z, on satellite matters? This net, because of QRM and QRN, has transferred to 7065 ± QRM, and VKs 2RX, 3ACR and 4PJ usually participate.

The AMSAT Asia-Pacific net, JA1ANG net controller, commences at 1100Z Sunday evenings, 14275 kHz and takes in most Western Pacific countries.

PHASE III

Here are some notes from Harry JA1ANG on "How to get 100 watts ERP from your current gear".

If your present rig delivers 10 watts output on 70 cm, use an array that has 20 dB power gain. Suppose that the feeder los is 3 dB, then you will lose half your 10 watts. Thus 5 x 100 = 500 watts ERP. You might be able to get away with this, especially if you are going to be on CW most of the time. If SSB then you will either have to:—

(1) Use a 20-50 watt linear amp.

(2) To be on the safe side, use an array that has 20-23 dB gain.

(3) Invest in low loss coax, and aim for a 1.5 dB or less feeder loss.

Elevation control will become a "must" in any case.

However, when the satellite Is near apogee, it will almost "stay put" and thus is called a semi-stationary satellite. When at apogee it will be at an altitude of approximately 36,000 km. The period will be 11 hours (approx.), and when at perigee the altitude will be at 1,500 km, approximately.

When the satellite is at apogee, it will see practically half the globe. If right over the North Pole will see all the northern hemisphere. Thus for 4-5 hours round-table QSOs between Tokyo, London and New York will become commonplace. Position of apogee will change very slowly. In the northern hemisphere for the first 2-3 years, then over the equator, and in 2-3 years over the southern hemisphere. Regardless of the above, Oscar 3A will enable world-wide QSOs.

RECEIVING SET-UP

AO-7 mode "B" users will not have much difficulty, other than perhaps a 1S unit or so weaker signal. However, since the satellite will be spinning at about 60 r.p.m., and uses a "Tristar" antenna, a "funny" modulation of about 3 Hz may cause reception on SSB to be almost impossible. AMSAT suggests the use of a circular polarised receiving antenna such as a crossed Yagi, which can be switched.

PREDICTIONS

This month's Oscar 8 predictions are by courtesy of Norman VK4NP, a front runner in micro-processor operations. He has taken the AMSAT newsletter, December 1978, page 21, period and progression for December to calculate for 1979. The calculations by my observations are quite satisfactory and compare favourably with the W1AW RTTY broadcasts of predictions given daily.

Period: 103.22403 minutes. Progression: 25.807305 degrees.

VK4NP's programme also provides other needed data. Comments please.

VK4PJ. ■

ORBIT PREDICTIONS — DECEMBER 1979

	OSCAR 7			OSCAR 8		
Date	Orb. No.	Eqx Z	Eqx °W	Orb. No.	Eqx Z	Eqx °W
1	23068	0049	79	8863	0133	70
2	23081	0144	93	8877	0139	72
3	23093	0043	78	8890	0000	47
4	23106	0137	91	8904	0005	48
5	23118	0038	76	8918	0010	50
6	23131	0131	90	8932	0015	51
7	23143	0031	75	8946	0020	52
8	23156	0124	88	8960	0025	53
9	23168	0024	73	8974	0030	55
10	23181	0118	87	8988	0036	56
11	23193	0017	72	9002	0041	57
12	23206	0112	85	9016	0046	59
13	23218	0011	70	9030	0051	60
14	23231	0105	84	9044	0056	61
15	23243	0005	68	9058	0101	63
16	23258	0059	82	9072	0106	64
17	23269	0153	96	9086	0111	65
18	23281	0054	81	9100	0117	67
19	23294	0147	94	9114	0122	68
20	23306	0046	79	9128	0127	69
21	23319	0141	93	9142	0132	70
22	23331	0040	77	9156	0138	72
23	23344	0134	91	9169	0143	73
24	23356	0033	76	9183	0004	48
25	23309	0128	89	9197	0009	50
26	23381	0027	74	9211	0014	51
27	23394	0121	88	9225	0020	52
28	23406	0021	73	9239	0025	54
29	23419	0155	86	9253	0030	55
30	23431	0014	71	9267	0035	56
31	23444	0109	84	9281	0040	58

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JANUARY TO DECEMBER 1979

RESULTS OF THE 1979 VK/ZL/OCEANIA RTTY CONTEST

1.	G3HJC	319,700	(100)
2.	HB9AVK	317,804	(84)
3.	JA8ADQ	295,580	(62)
4.	SM6ASD	284,996	(104)
5.	F6ECI	280,742	(91)
6.	VK2CBW	273,420	(60)
7.	EA4XW	252,375	(103)
8.	W7DPW	223,750	(64)
9.	DJ6JC	216,635	(78)
10.	VK3KF	194,724	(49)
11.	F8XT	146,920	(71)
12.	WD8IUP	144,400	(44)
13.	JE2JWK	120,375	(41)
14.	VK4AHD	119,424	(48)
15.	ZL2BR	115,668	(41)
16.	W4YZ	114,460	(36)
17.	VE2QO	107,725	(44)
18.	VK2ATQ	93,345	(31)
19.	VK2[illegible]	78,320	(29)
20.	OZ2X	75,400	(49)
21.	DK8FS	67,876	(34)
22.	VK2AYK	67,440	(28)
23.	OZ8GA	66,890	(65)
24.	VE2AXO	58,120	(30)
25.	VE7BTO	47,848	(26)
26.	JR2TZL	42,040	(24)
27.	DK5WJ	37,493	(38)
28.	VK2BIS	32,040	(19)
29.	DL0WU	28,320	(38)
30.	DM6AK	26,776	(39)
31.	VK2BGL	25,380	(19)
32.	VK8HA	24,856	(14)
33.	W2KHQ	15,744	(14)
34.	DF7FB	12,287	(22)
35.	DM2DLE	11,875	(27)
36.	G3RDG	9,277	(34)
37.	DK6FA	9,116	(18)
38.	VK2AHB	8,820	(11)
39.	DL6WZ	4,897	(16)
40.	IS0ESS	4,364	(9)
41.	SM0EZO	1,430	(20)
42.	SK7HW	1,260	(6)
43.	OK2BJT	650	(16)
44.	HA5KFU	64	(5)

(No. of QSOs in brackets)

MULTI-OPERATOR STATIONS

1.	I5MYL	1,156,744	(184)
2.	VK2TTY	381,780	(62)
3.	DK0MM	269,525	(79)
4.	VK2WG/P	184,788	(47)
5.	VK2BYI	138,360	(38)

SWL STATIONS

1.	Horst Ballenberger	DL SWL	333,764	(91)
2.	Hans Norbert Sokol	DL SWL	115,155	(84)
3.	Kurt Wustner	DL SWL	95,450	(77)

Logs from OK1-11857 and OK1-20677 disqualified due to not recording both sides of the RTTY QSO.

Check logs were received from VK2SG, UA3AHM and DJ4KWA.

SUMMARY

Conditions for the second contest were not at all good. Comments from individual operators indicate that the "woodpecker" caused many loss of points. It is hoped next year to expand the time of the contest as similar to the SARTG contest. The number of VK/ZL stations operating was disappointing, but it is hoped next year more will be on.

Two late logs received well past the closing date were not accepted. We would like to see more logs submitted as only 55 were received from over 300 different stations operating.

On behalf of the VK/ZL RTTY group we would like to thank those who participated, and see you and your friends again next year.

AWARDS OF CERTIFICATES WILL BE SENT TO THE WINNING CONTESTANTS.

73s and good DX de VK2EG/VK2SG
(VK/ZL/Oceania RTTY Contest Committee) ■

TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hemads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be $10 for 4 lines plus $2 per line (or part thereof), minimum charge $10, prepayable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes. ■

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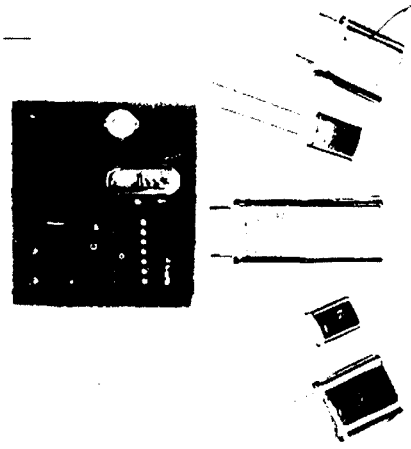

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204-BA 20M 4-el Tiger Array $220
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CDR Ham III heavy duty $175
CDR tail-twister extra H.D. $225
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8-cond. rotator cable, per metre 75c

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MLS right angles RG-58U to PL-259, ea. 75c
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Mike sockets 3 & 4 pin, ea. 60c

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Roy Lopez (VK2BRL) Manager

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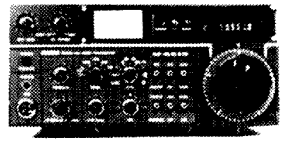

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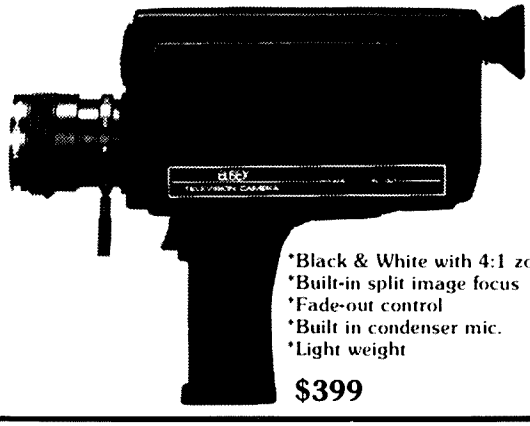

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Eric Jamieson, VK5LP
Forreston, S.A. 5233

AMATEUR BAND BEACONS

Freq.	Call Sign	Location
50.001	WA6MHZ	San Diego
50.004	PY1RO	Brazil
50.005	H44HIR	Honiara †
50.010	HL9TG	Seoul *
50.023	HH2PR	Haiti
50.025	6Y5RC	Jamaica
50.030	HC1JX	Ecuador
50.030	KL7CDG	Alaska
50 030	ZS6PW	South Africa *
50.035	ZB2VHF	Gibraltar
50 050	ZS6LN	South Africa *
50.050	WA1ENX	Maine *
50.059	PY??	Sao Paulo †
50.075	HK3/4	Columbia (repeater)
50.080	TI2NA	Costa Rica
50.088	VE1SIX	New Brunswick
50.091	WA6JRA	Los Angelas *
50.092	W7KMA	Oregon*
50.093	WA8FTA	Michigan *
50.098	K7IHZ	Arizona *
50.100	ZS6HVB	South Africa *
50.101	FO8DR	Tahiti *
50.104	KH6EQI	Pearl Harbour
50.110	KG6JIH	Guam *
50.110	JD1YAA	Marcus Island *
50.110	KH6	Marshall Islands *
50.110	KG6RO	Saipan *
50.110	AL7C	Alaska *
50.500	5B4CY	Cyprus
51.999	YJ8PV	New Hebrides
52.100	VK0BC	Casey Base
52.200	VK8VF	Darwin
52.300	VK6RTV	Perth
52.350	VK8RTU	Kalgoorlie
52.400	VK7RNT	Launceston
52.440	VK4RTL	Townsville
52.450	VK2WI	Sydney
52.500	JA2IGY	Nagoya
52.500	ZL2VHM	Palmarston North
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
52.900	VK6RTT	Carnarvon
53.000	VK5VF	Mt. Lofty
144.010	VK2WI	Sydney
144 400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144 600	VK6RTT	Carnarvon
144 700	VK3RTG	Vermont
144 800	VK5VF	Mt. Lofty
144 900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
145.100	ZL1VHF	Auckland
145.150	ZL1VHW	Waikato
145.200	ZL2VHF	Wellington
145 250	ZL2VHP	Manawatu
145.300	ZL3VHF	Christchurch
145.400	ZL4VHF	Dunedin
432.400	VK4RBB	Brisbane
432.475	VK7RTW	Ulverstone
433.000	ZL2UHF	Wellington
433.100	ZL1VHF	Auckland
433.150	ZL1VHF	Waikato
433.200	ZL3UHF	Christchurch
433 250	ZL2VHP	Manawatu
10370	ZL2UHF	Wellington

* Denotes attended operation.
† Denotes new listing.

The H44HIR beacon listed for the first time on 50.005 is running with 1½ watts at present, no other details . . . from VK5KK.

Gll VK3AUI advises having a 28 MHz contact with PY2WD in Sao Paulo, who is also a 6 metre operator, and being told of a beacon there on 50.059, but language problems prevented further information being gathered at this time.

The GARC Newsletter mentions a 6 metre beacon proposed for Geelong, site probably near Repeater VK3RGL at Mt. Anakie, with the following details: 52.033 MHz, FSK, call sign VK3RGG, two stacked crossed dipoles and 25 watts output. This will be a useful beacon when Ch. 0 finally changes to Ch. 10, but the choice of frequency seems a bit strange, it probably won't worry most operators from the immediate area, but the Geelong amateurs may find it quite a nuisance if it is very strong locally and they want to work DX in the first 50 kHz of the band. 52.133 would be a much better choice surely!

The Auckland Group (VHF) in New Zealand has received a permit to construct a beacon on 51.0125 MHz, or 12.5 kHz inside the bottom of their band. Details later when they come to hand.

Also please note the Townsville beacon is now transmitting again on 52.440 MHz with its former call sign of VK4RTL . . . from VK4ZJP.

DIRECT NEWS FROM JAPAN

A letter from Hatsuo JA1VOK via Peter VK5ZPS re 6 metre conditions makes very interesting reading, and the following extracts are of note: JA1VOK has worked 37 countries on 6 metres as of 20-10-79 over a period of 10 years, and several other JAs are also nearing 40 countries. DX missed by JA1VOK are CE, CX, VE, VK9NI, ZL1BIQ/Kermadec and 9N1BMK. Hopes to work VK2/Lord Howe Island, VK0BC, 4S7EA and VR3AR next March/April.

During February 1979 JA1VOK worked KH6IJ, KH6JSI, AL7C, KL7AP, KL7CQ, KL7SDG, KL7JAI, KA6ADE, P29BH, K5CM, W6s, VK2, 3, 4 and 8.

March: KC6IN, KG6RO, KH6XX, LUs, PYs, P29PN, YJ8PD, KH6NS, W6s, VK1, 2, 3, 4, 5 and 6.

April: A8KQ/MM near VS6, DUs, FO8DR, H44PT, VK4ZZI/H44, KX6BU, LUs, YB0X, ZK1AA, VK3, 4, 5, 6, 7 and 8.

May: WB5QPT/KH2, VU2RM, YJ8OT, VK4 and KV6.

June: HMs, HS1WR, JDIs, P29ZFS and VS6EG.

July: P29ZNL.

August: C21AA, JD1s, WA5CXE/KX6, VK4 and VK8.

September: A35DX, KC6ZZ, KG6JKS, WH2ABO, KX6PF, YJ8IR, HC1JX, KL7s, VK2, 4 and 5. (HC1JX was worked during a fantastic opening on 7-10, the first HC in Japan since Cycle 19!)

6 metres has been opening up nicely to North America during October, KL7s worked on 18-10 and 19-10. JA4MBM also worked eight W7s on 19-10!

All the above exotic call signs show at what a disadvantage we are placed firstly by living in the southern hemisphere and secondly not being able to work on 50 MHz. There is little doubt quite a few countries in the JA1VOK list would have been available to VK had we been able to use 50 MHz.

FROM WITHIN AUSTRALIA

If by some chance Australia was suddenly stuck in the northern hemisphere during October the shock would have been like realising you had been listening all the time without an antenna! Combinations of several factors seemed to give ideal Es and F layer propagation from JA to W to G with many other areas in between. Anyway, firstly in our area let's review the situation.

KH6 openings. Two separate openings to VK5 etc. 30-9 from 0733 to 0810Z and on 17-10 from 1005 to 1205Z with signals peaking to S9 from KH6EQI. The latter opening was also observed in VK2 and 3. Other small openings have occurred but are too minor to mention! Late September brought JA openings more frequently to lower VK and the following 8 metre day-time openings occurred: 27-9, 30-9, 2-10, 3-10 and on 4, 6, 7, 8, 9, 11, 12, 13, 17, 18, 19, 21, 22, 25 and 27-10. Good 52 MHz openings were on all days except 3-10, 9-10, 19, 21, 22 and 25-10, which were weaker. In addition to the above many weak night time openings, best on 17-10, 18-10 and 26-10. In addition KC6SX was heard by VK5KK, VK5RO, VK5LP and VK5ZZZ on 50.105 MHz at 1200Z on 18-10. Signal readable but not much hope of working KC6 anywhere with a JA opening into KC6 at the same time! From comments in other areas KC6 was also heard in VK2. On 7-10 a fast CW signal on 50.065 at 0211Z turned out to be a KJ6 on Johnston Island coming in for a few minutes at S4 at the VK5LP establishment . . . seeking more information on this one from YJ8PD.

From VK6 is would seem more people over there aren't listening at the right time! On 27-10 around 0400Z VK6WD worked W6XJ, who was on 52 MHz cross band to 28 MHz. No two-way on 6 metres. At the same time (0400 to 0430Z) W6XJ was copying VK4RTL Townsville and many VK4s on 52 MHz working JAs. Oh dear, Oh dear! W6XJ could not raise one VK4 because it is suspected the JAs were stronger!

PERTH HEARD IN BRITAIN

Several times British TV on 40.5 MHz has been copied about the place but not much of the higher channels. On 27-10 VK6HK copied 48.25 MHz sound and confirmed that it was British by checking programme material with a G station on 10 metres. Time approximately 0900Z. To top that G4BPY copied VK6RTV Perth beacon on 52.300 MHz from 0858 to 0909Z peaking RST 549!!! Further to that, VK5ZDR copied a W7??? on 50.035 around 0500Z on CW. Call signed was not identified but signal heard by others on tape. It would seem quite a bit happened on 27-10!

NEW ZEALAND GETS 50 MHz

To digress from actual working to some good news from New Zealand. As from 28-10-79, ZL amateurs with suitable licences are now able to use 50.000 to 50.150 MHz under the following conditions.

Operation is allowed basically on a non-interference basis with Channel 1 TV. Operation is unrestricted outside TV hours but allowable during periods of non-programme transmission (i.e. test pattern periods). The situation is not quite clear with respect to transmission during programmed periods outside the service area of Ch. 1. If it is still on a non-interference basis then it would seem allowance will be made for operation in this period.

However, that's ONE BIG STEP in the right direction and moves have been afoot in VK for some time to get a similar agreement. I have advocated in these notes many times that there seemed to be a case for operation on a non-interference basis in VK, particularly outside the service areas of the Ch. 0 transmitters. When stations outside those areas would be wanting to work DX on 50 MHz the Channel 0 transmitters are not audible, being at a distance not being propagated by F layer and other modes.

Generally speaking, I feel the VK amateurs in the main have been very law abiding — there have been many occasions when overseas stations could have been worked on 50 MHz but the temptation has been resisted. VK5LP has been a good boy and not worked FO8DR, XE1GE and a KJ6, all available on 50 MHz, and there are plenty of other operators just as good! (We also know of several that were not!! — Ed.)

If P. and T. see fit to allow us to join the world-wide company of stations operating on 50 MHz, it is hoped the segment could be a little wider than the New Zealand one, say at least 50.000 to 50.500 MHz because if all operating in VK to Japan shifts down to 50 MHz the band will be filled with dogpiles of stations over the entire part of the spectrum available, thus excluding opportunities for working more rare stations. It would seem sensible for VK to work JA during periods of good conditions on 52 MHz, shifting down to 50 MHz as the band closes. This plea and the plea for more space is made as a result of the fact that JA is likely to be worked from VK more often than ZL.

It would seem from earlier experience this year, and from the September/October period, that March/April/May next year could be the peak for the present cycle. It is hoped that if we are to be granted operation on 50 MHz it will be done as soon as possible and not after that period — many

operators will need to improve or change antenna systems to successfully work on both 50 and 52 MHz, it can be done but it takes some time. Here's hoping!

SPORADIC E

Es conditions have again appeared in the southern hemisphere but as could be expected the occurrence has been low. On 12-10 the band opened to Townsville from VK5 from 0830 to 0915Z. This occurred at the same time as (or rather it created) a JA opening to southern areas. Similarly VK4RO was 5 x 9 ++ from 0515 to 0545Z on 13-10. On 26-10 good opening between Sydney and Adelaide with 5 x 9 ++ signals between 1045 and 1125Z. Also VK1FT worked VK5ZPE. From 1240 to 1403Z VK8ZRT (Roger) from Alice Springs worked into VK5 and VK3 with signals peaking over S9 in VK5 at least. Equipment IC502 into 35 watt linear and 4 element yagi. Interesting contact heard the other day . . . JA7ZZZ to VK5ZZZ. Try saying that over and over using phonetics!

LOOKING OVERSEAS

As usual everything is happening overseas. First station information regarding DXpeditions. VK2BYX/ Lord Howe Island heard working JA on 27-10. Gocd news for YBOX hunters. From 29-12-79 to 6-1-80 YBOX will be active again. A more permanent station may be allowed on 6 metres (YB1CS). VU2RM is going, despite rumours, and was recently heard in Okinawa on 7-10. 4S7EA transmits on 50.120 between 0200 and 1400Z when he can, but does not have a set schedule yet. KC6SZ active from 12-10 to 26-10. WA4TNV/KL7 leaving Shemya in November. EL3FY's equiment would seem to be an FTV650B to a 4 element beam. H44HIR beacon on 50.005 at present being tested on 1.5 watt driver stage from Honiara. FK8AB has 50 MHz capabilities now. VS6BF active on 6 metres to JA. KC4AAD is going to the Antarctic. Normal call sign is K6DYD and he will be running a kilowatt with an SSB tape loop on 50.105 MHz. He will also operate on 28.885. In case you may be wondering where the call sign of YJ8IR was coming from on 18-10 on 50 MHz then relax, Peter YJ8PD was showing some visitors the JAs on 6 metres! EI2W is now definitely active as from 19-10, although some doubt is expressed about the fact that he is running much power. Or maybe he isn't running much power compared with the W1, 2s, etc., working him!

Now small gatherings of what everybody else has been working around and about VK. A35DX active on 22-9 to JA. HL9TG worked YJ8PD on 29-9. KC6ZZ worked 850 JA stations and 5 other DX stations on 6 metres during September. H44DX copied TI2NA around 0250Z on 7-10 and played signals back via 10 metres. On 4-10 FO8DR worked YJ8PD, two KX8 stations and of course JAs. YJ8PD copied W6XJ and vice versa on 7-10 but no contact. JA also worked HC1JX and XE1 on 7-10. 4S7EA's antenna up on 12-10. ZS6LN heard British and Irish TV signals on 51.750 MHz, mistaking them for VK TV signals, from 1549Z on 12-10!

VK4RO worked KC6SZ on 14-10 on 52.030 CW. YJ8IR working JA around 50.185 on 18-10. JAs working KC6JJ, KC6SX nd KC6ZZ on 18-10. Same day a JA4 heard W5LIG. On 20-10 JA8RC heard in VE1. W6XJ to ZL1BPW on 20-10 at 2330Z. During 18 and 19-10 period VE1 and W1, W2 to ZB2. On night of 20-10 first "quiet" night to JA in H44 for more than 2 months! ZL to W6 on 21 and 22-10. W6XJ copied Ch. 0 sound from Brisbane on 22-10 at 0000Z for some time but not VK4s heard. VE1s copying 49.750 MHz TV from Russia on 22-10.

On 23-10 JA to PY2 at 0000Z. Several quiet nights also to YJ8 from JA up to that time. On 23-10 JA to W6 and W7. On 27-10 W6 to ZL and JA up to 5 x 9! Same for 28-10. W6XJ worked G cross-band 50 to 28 on 27-10. All that sums up Pacific DX. Cross Atlantic DX was furious in late October with many cross-band contacts 28 to 50 MHz with G. Highest Solar Flux for the period was 242 on 20-10, lowest 7-10 with 196. Highest A index on 9-10 was 29 and the K index did reach a value of 6 for a short period after 0600Z on 8-10. During extensive JA-W-VE-G working average K index 1 and A index 8.

YJ8PD worked 8J4ITU early October, this is the ITU station in Tokyo. FK8AX is active on 8 metres. VK4RO reports at least 4 stations active from KX6 Marhall Islands. 27-10 JA7JGU reported KH6EQI 5 x 9 + at same time as 6 metres open to VK1, 2, 3 and 5. YJ8PD now running 500 watts output on six.

THE WORLD ABOVE 144 MHz

While six metres has been rolling you might think the other VHF bands might go quiet. WRONG!

From VK4 comes the following: On 6-10 and 7-10 tropospheric conditions between P29 and VK4 gave numerable contacts. A lot of contacts via both VK4 repeaters and the Pt. Moresby repeater. One more unusual contact was between Bundaberg and Cairns via the P29 repeater! VK4RO worked P29ZEV on 6-10 on 2 metres SSB. Some direct QSOs from Cairns to Pt. Moresby, hand-held to hand-held! What with ZL and now P29 close handy on 2 metres has anyone in VK4 now got three countries on 2 metres?

Down south the tropo season has started again with contacts from VK3 and VK6 to VK5. On 20-10 the band opened to Melbourne but only VK3OT heard on the band! On 23-10 VK3RTG audible from VK5CK's QTH in the mountains from 0705; VK6RTW on 144.5 audible in Adelaide from 0600Z with contacts being made by VK5CK, VK5ZPS, VK5ZDR, VK5RO, VK5KK, etc., to VK6KJ, VK6XY, VK6WG and VK6ZKJ. At 1426Z VK6XY to VK5KK, 5 x 3 on 432.1 MHz for first 432 MHz contact over the Great Australian Bight this season. On 24-10 band still open to Albany up to 0200Z with VK5RO, VK5ZDR, VK5KK to VK6KJ, VK6ZKJ and VK6WG around 2130 to 2230Z. No signals on 432 MHz. VK5LP worked Roy VK3AXV via Ch. 2 northern repeater, and shortly afterwards on 52 MHz! Roy was not operational on 144 at the time. One 25-10 VK5CK to VK3ARS south of Melbourne at 1035Z plus many other contacts into VK3 from his superb QTH near Mt. Lofty, and with the new stacked pair of 13 elements working very well thank you! Several VK3 repeaters audible over the next few days, but very little SSB activity.

Jim VK5ZMJ at Port Pirie has been upgrading equipment and is now a force to be noted on 52, 144 and 432 MHz, with 100 watts on 52 and 144, and 50 watts on 432. Another country station is Garry VK5AS, at Cowell, looking for contacts on 52 and 144 MHz.

NEWS FROM BRAZIL

Gil VK3AUI sends a copy of a letter from Rolf PY1RO, who advises he has located his beacon near the home QTH and is able to use it with his 6 element yagi when not operating himself. During the day when he is at work the beam is turned towards ZS, about 100° from Brazil, and when he comes home about 2200Z the beacon goes off and is turned on again when he goes to bed. At that time the beam is pointed due south for VK land and will stay that way till about 1100Z, when he goes off to work again and turns the antenna on to ZS land.

Rolf reports there have been good openings to VK on 10 metres between 0400 and 0600Z, which is between 1 and 3 a.m. local time! He indicates however that if he hears of anything, or is heard, and is advised, he will be glad to get up for three or four days and try and make contact with VK. He has already worked into JA and 5B4AZ lately, the latter making country number 26.

SOUTH AFRICA

Gil VK3AUI also gives some information about South African 6 metre activity and advises Jack ZS6LN cannot tune much above 52.1 MHz, but will come up on 52 MHz if there is an opening. Most likely frequencies would be 52.002 or 52.020, mainly due to calibration problems, as he is using an overlap from the 51 MHz segment. He knows of our 52.050 calling frequency but would prefer a signal to net on to. Jack ZS6LN can be found on 28.885 MHz around 0700Z when he has a sked with KH6NS. Jack's phone number is Area Code 01521 and phone number 4366. If you have ISD facilities I am sure Jack would like to be told you are hearing him on six metres!

FROM WESTERN AUSTRALIA

Andy VK6OX at Carnarvon has written outlining activities from northern VK6. An outline is given here to allow you to compare notes with your own area. 6-9: JA Class I TEP); 6-9: JA2, 3, 4, 7 (I); 7-9: 0420Z strong burst of noise on 52 MHz. 0535 to 0622Z worked HL9TG on 52.005 5 x 9 both ways, no sign of JAs. 10-9: 0923-1230Z JA1, 2, 3, 4, 5, 6 (II); 11-9: 0816-0920Z JA2, 3, 6, very strong (I); 12-9: 0936-1002Z JA3, 4, 5 (I); 14-9: 0855-1023Z JA2, 3, 5, 6, 9, S1-8 (I); 18-9: magnetic storm 0905Z; 19-9: 0205-0257Z JA1.

22-9: 0923-1410Z — JA1, 2, 3, 4, 5, 6, Class I and II, 5 x 9. During the period Andy worked JH6TEW on FM using his PRC10 and A50-12 linear, 8 watts output, 5 x 9 both ways! 25-9: 0944-1025Z JA1, 3, 4, 5, 6, 7, 9, 0 (I). 3-10: 0150-0210Z four way contact with HL9TG, VK6ZCC (local) and Wayne VK6WD in Perth (backscatter). HL9TG 5 x 8, Wayne 3 x 1. 5-10: 0838-1240Z JA1, 2, 3, 4, 6, 9 (I and II). At 1218Z worked A8KQ/MM on a tanker somewhere in the South China Sea. Uses an IC551 to a small antenna. Signals 5 x 5 out, 5 x 8 in.

Finally Andy reports that JE1HYR passed on that 4S7EA has a new TS600 and 6 element yagi, and may possibly run a beacon on 50.120.

GENERAL NEWS

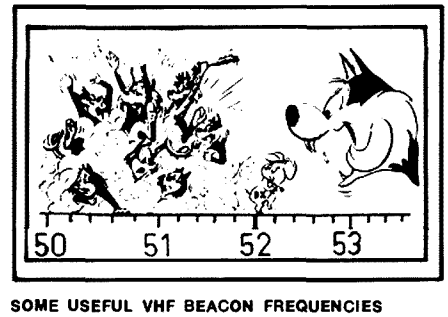
From "Break-In" comes a report there appears to be quite a high level of interest in VK in monitoring the 2 metre path between ZL and VK. Rod Graham VK2BOJ has a microprocessor controlled 2 metre scanning receiver programmed to cover the ZL repeaters, whilst other amateurs appear to be monitoring the ZL repeater output frequencies.

From "Hamlarks" comes a warning from Emie ZL30V, who advises if you are in the habit of carrying nicad batteries in your pocket, or use a short as part of the recovery process for nicads with a "memory", beware, these innocent devices can and will explode during high current discharge with disastrous effects!

This column this month represents the start of the 11th year of production from the VK5LP establishment. (A tremendous effort, Eric, and greatly appreciated by all.—Ed.) A separate article outlining the highlights of the past ten years on the VHF/UHF bands is almost ready, and it should make interesting reading — lots of things have happened in that time, old call signs have migrated to other bands, new call signs have come into prominence, such is the passage of time.

This month will also include Christmas once again — may I take the opportunity of wishing all my readers the Compliments of the Season, and to thank the various contributors who have so kindly supported me during the past year, and the Editor of AR for his tolerance. I especially would like to thank David VK5KK for his extra help filling in the gaps in VHF activity in this State, the things I don't hear, and the result of his band monitoring. Closing with the thought for the month: "They are a nuisance, but strings of Christmas tree lights teach the family a valuable moral lesson — the whole strand is only as strong as it weakest bulb."

73. The Voice in the Hills. ■



SOME USEFUL VHF BEACON FREQUENCIES

The Aerodrome Terminal Information Services' (ATIS) VHF AM transmissions listed below carry weather and terminal information for the associated cities. The transmitting antenna is usually vertically polarised and omnidirectional in pattern. They operate, in most cases, 24 hours per day.

ATIS Location	Frequency (MHz)
Adelaide	117.3
Sydney	115.4
Perth	113.7

Cairns	113.0
Canberra	113.5
Rockhampton	116.9
Brisbane	113.9
Melbourne	113.9
Alice Springs	115.9
Darwin	113.7
Port Hedland	114.1

From Avondale Heights, Melbourne (about 8 km from Melbourne Airport), the Adelaide ATIS has been heard at strength 5 and Rockhampton at strength 2. The receiving antenna was a 2m vertically polarised 6 element beam 13m above ground (approximately 65m ASL).

Other beacons worth looking for are the ABC FM transmissions from Adelaide, Sydney, Canberra and Melbourne.

Information from Cyril Maude VK3ZCK.

(A contact was made last January from the RAAF base at Pierce to Darwin airport using groundplanes and 10W AM transmitters on a frequency of about 120 MHz. This path should be open on 2m for well equipped stations when the ATIS signals are audible.—Ed.) ■

INTERNATIONAL NEWS

WARC 79

By the time you read this WARC 79 will be past history. It may take at least two or three months before the final conclusions can be put together for publication. Meanwhile listen to Divisional broadcasts for official news as it becomes available. Pay no heed to rumours.

When this article was scripted very little news had come forward because WARC 79 was still at the working groups stage and some of the work was running behind schedule.

Perhaps the most important warning was that any decisions can be modified at subsequent meetings of working groups or main committees as well as at a plenary meeting. In some instances a see saw situation might develop.

Any country can enter reservations on any particular final decision, by means of footnotes to the tables — assuming something of this nature continues into the future.

WARC 79 "work" was "delayed" whilst deliberating the choice of a chairman. Mr. Roberto Severini of the Argentine was elected chairman and 9 committees were set up, of which not all were of direct interest to the amateur service — as examples, credentials and budget control. Committee 5 was the frequency allocation committee chaired by Mr. Harbi of Algeria, and with him were five working groups, each responsible for a segment of the frequency spectrum.

Later, one of these working groups was split into two sub-groups of 5ba and 5bb. 5ba dealt with allocations below 4000 kHz under Mr. Cook YV5FJL, and 5bb dealt with 4000 kHz to 27.5 MHz under Mr. Peter Barnes VK3GH).

Committee 6 (Mr. Jim Wilkinson, the leader of the Australian delegation, was vice-chairman of this) handled Regulatory Procedures, Committee 4 Technical Regulations and Committee 8 the restructure of the Radio Regulations.

Altogether 137 radio amateurs had been identified as among the Conference attendees, totalling over 1,900 from 147 countries and 38 international organisations.

Working Group 5c dealt with allocations from 27.5 to 960 MHz. Working Group 5d actively discussed and re-discussed the spectrum area around the 23 cm and 13 cm bands and the USA "powersat" proposals around 2.5 GHz were sent to CCIR for study.

Article N30/41 of the Radio Regulations was discussed on 6th October. It was agreed that the frequency above which morse qualification would not be necessary be amended to 30 MHz. The USA had proposed that the morse requirement should be optional throughout the spectrum. At this meeting the IARU were asked by the chairman for comments and information. The IARU has accredited observer status at WARC's and hence may speak but not vote. Existing RR 1563 (6357) specifies 144 MHz as the lower limit.

A proposal by China in Working Group 5c on 3rd October to introduce land and maritime mobiles into the band 28 to 29.7 MHz on a secondary basis was withdrawn after discussion and negotiation. Committee 5 recommended no change for the band 28.0-29.7 MHz on 11th October; unless there are any "second thoughts" this will go to the plenary.

The 6m band was discussed in Working Group 5c on 9th October. The band was maintained as amateur exclusive in Region 2 — i.e. 50-54 MHz, but Region 3 posed more of a problem with a number of countries desiring to add other services to the band. The amateur service was strongly supported by Australia (which went so far as to say it could support a world-wide amateur allocation), Republic of Korea and Japan. No support developed in Region 1 for an amateur allocation at 50 MHz beyond the present footnotes which pertain to Southern Africa.

There appears to be general support for increasing the amateur satellite frequency bands. At a full meeting of Committee 5 on 20th October there was a lengthy discussion on HF broadcasting. Sweden stated that if there is to be a separate HF broadcasting conference at a later date then WARC 79 must agree to an appreciable expansion of the spectrum available for HF broadcasting, a view which was supported by the USA. India, in a long prepared statement, considered there should be a firm frequency assignment plan for broadcasting (in contrast to the present system in which there is a flexible quarterly review of individual needs by the users on a co-operative basis), which was supported by the USSR as it needed that spectrum for its fixed services.

Committee 5 ended up by forming a working group which is to study all of the proposals related to HF broadcasting and to consider, inter alia, the preparatory work that would be necessary to organise an HF BC conference, including the development of principles and the technical bases for planning.

Once again, please view all these comments with caution — anything could happen to them late in this WARC.

The Radio Amateur Societies of Cayman and Fiji have been duly elected as the 106th and 107th members of the IARU. ■

Where the action is! ITU WARC 1979 Conference Buildings.

COMMONWEALTH CONTEST 1979

As is well known, the ratio of the number taking part in any contest to those who go to the trouble of sending in an entry is very small indeed. This year's Commonwealth Contest was no exception to the rule, but the total entry at 126 was a continuing improvement on that of recent years. In fact, the entry received from VK was a record 41, topped only by the United Kingdom 45, with 22 VEs, 6 ZLs and 12 others from 11 different countries.

The points range of the first 6, 6613 to 5251, was very similar to 1978, 6677 to 5249, but the leading VKs improved their positions to 12, 14, 19, as compared with 23, 27 and 34 last year.

The leaders were:—

	Points		Points
1. VE7CC	6613	5. G3FXB	5516
2. VE3KZ	5796	6. G3MXU	5251
3. VE5RG	5646	12. VK2BPN	4400
4. VE3BVD	5527		

RECEIVING SECTION

2. Eric Treblicock BCRS195, 2830 points.

AUSTRALIAN SCORES

	Points		Points
12. VK2BPN	4400	80. VK4LV	1090
14. VK4XA	4093	85. VK4UR	1008
19. VK3MR	3786	86. VK3RJ	1005
23. VK2AFG	3635	91. VK2BDU	948
25. VK5MD	3405	91. VK3CG	948
27. VK4KX	3160	97. VK5KL	780
28. VK2GW	3090	98. VK5RG	770
29. VK7BC	2900	101. VK8DB	740
38. VK3ZC	2348	103. AX6IE	655
40. VK7RO	2320	105. VK3YL	620
44. VK3AEW	2059	106. VK8SU	610
48. VK7RY	1955	108. VK3BDH	565
51. VK3XB	1850	110. VK5FG	555
52. VK3CM	1813	113. VK4XJ	505
57. VK6RU	1685	114. VK2GT	490
60. VK3AYO	1545	118. VK5DL	400
66. VK5SW	1425	119. VK7ZO	358
72. VK7CH	1290	121. VK3CT	275
74. VK3YK	1218	122. VK5HO	200
77. VK7JB	1175	124. VK3ABA	75
79. VK8GG	1095		

Single band entries among the above were:—
14 MHz: VK3AYO Overseas leader, VK3BDH, VK3YL, VK5DL.
21 MHz: VK3ABA.
28 MHz: VK4XU.

OTHER PACIFIC AREA RESULTS

		Points			Points
10.	5W1BZ	4736	73.	VS6EJ	1250
11.	ZL2BR	4519	83.	9V1TL	1023
29.	ZL1HV	2900	89.	ZL2BCO	995
31.	ZL2TX	2880	102.	ZL1AZE	730
67.	P29EJ	1385	116.	ZL2MM	423

AUSTRALIAN AWARDS

The Silver Medallion for the leading VK entrant was won by Peter Naish VK2BPN, who repeated his success of 1974.

The Bronze Medallion for the VK middle placing was won by Graeme Challinor VK8GG.

How the leaders made their scores:

QSOs/Bonus areas per band, 80 to 10.

VE7CC	31/23	106/42	144/54	158/45	78/43
VE3KZ	34/12	94/38	196/51	149/28	114/24
G3FXB	11/8	66/40	121/59	86/48	66/35
VK2BPN	17/15	38/31	105/48	70/35	37/26
VK4XA	17/15	27/25	128/50	43/26	44/25
VK3MR	21/18	36/28	164/51	22/18	13/12

RSGB COMMENTS

This year's Commonwealth Contest again produced a satisfactory entry, with the total number of logs received increased by eight percent over 1978. Many comments reflected the unique nature of this contest, with, perhaps, G3DYY summing up the overwhelming view: "The friendly contest — that's what it should be called." Without doubt, it is one of the most demanding events in terms of strategy and experience, but also requiring a high degree of efficiency in equipment and a comprehensive range of antennas.

Band conditions were generally good throughout the contest, although the lower frequency bands, and 7 MHz in particular, were not as good as in 1978. Conditions on the day seem to have favoured western Canada and the Pacific area, as reflected in the number of those stations high in the table.

After two years in the runner-up position, Lee Sawkins VE7CC took top honours. The good transpacific openings enabled him to build up a total of 207 bonus QSOs which put him in a commanding position ahead of Bob Nash VE3KZ. Al Slater G3FXB continued his dominance of the UK side of the contest, notching up his seventh successive win of the Col Thomas Rose Bowl.

The Receiving Section continued to be a tussle between Ron Thomas VRS51822 and Eric Trebilcock BCRS195, with the Receiving Rose Bowl going to the former this year. This was Eric's 38th "BERU" and he must join the list of those eligible for long service awards!

The 14 MHz band again attracted most single-band entries, with VK3AYO taking the lead position overseas, with 109 QSOs and 50 bonuses, using a TS820 and 18AVT vertical antenna. At home, on this band, G3PVA's FT401/quad combination produced 108 QSOs and 53 bonuses.

There was a considerable amount of comment on various aspects of the rules. The overall concept of the contest came in for discussion in a number of logs, with the suggestion that its format should be changed to the style of the Commonwealth versus the rest of the world. This would clearly be a major change and not one to be made lightly. It would put the Commonwealth Contest in a very similar position to many other contests, removing what to many people are the unique features of "BERU". However, it would obviously also vastly increase the potential activity and the size of the entry. Somewhat related to this issue is the question of the system of bonus points. There is some feeling, notably in VK and ZL, that the present arrangement is very unfair to UK stations, and that the different G call areas should count separately, with the implication that G stations would be able to work one another. The scoring was changed some years ago to allow bonus points for the first three contacts with each call area. The main reason for this change was to try to even up the inequality between the UK and the rest of the world. It is open to debate just what weighting the various factors have on how close to the top of the table a particular station comes. Apart from the scoring system, the relative abilities of the operators involved, the phase of the sunspot cycle and the actual band conditions on the day, all play their part. In very recent years the top of the table has been dominated by western Canada and Oceania, but anyone who feels that this is an unchangeable situation should look at the results for 1975 when the leading G station was only 26 points behind the leader, and the top VE7/VK/ZL could only achieve seventh place.

The other areas of the rules mentioned in logs is the actual duration of the contest, with a number of suggestions that it should revert to 48 hours, or that it should be 24 hours out of 36 or 48. About an equal number of entrants would like it to stay at 24 hours. The rules are reviewed each year, and the HF Contests Committee would be pleased to receive any comments and suggestions at any time.

Next *year* sees the 50*th anniversary* of the first BERU contest, and the committee hopes that there will be bumper activity, and that many stations who took part in the first event in 1930 will be able to make an appearance.

1980 CONTEST

1200GMT 8 March to 1200 GMT 9 March. Rules will appear in February AR. ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

1/3 Waverton Ave., Waverton 2060
17 *October*, 1979

The Editor,
Dear Sir,
With the very large increase in the number of licensed amateurs in Australia, there will be many of them who will have some difficulty becoming aware of the excellent technical articles which have appeared in AR from time to time.

It would seem to me that there would be a real benefit in reprinting some of the articles which have aroused special interest, or which have included designs which have become specially popular over the years. For example, the G5RV antenna is widely used, is cheap to construct and would appeal to a lot of new amateurs. As far as I can see, one would have to go back to the January 1973 issue of AR to get details, although, of course, many amateurs who use them could describe them. However, people like to read the whole article for themselves, I would think. In addition to original articles, some of the variations and improvements could be included.

As an amateur of only three years *standing*, I do not know what other good, old articles might be considered, but such things as the linear amplifier for Australian conditions could be constructed by a lot of people, and would still offer scope for home-brew construction.

I hope this suggestion will be of some interest.

Yours faithfully,
R. Jim Somerville VK2BJS.

EDITOR'S NOTE:
Consideration has been given but costs to date have precluded such a venture. ■

Templers Rd., Wasleys, SA 5400
17-10-79

The Editor,
Dear Sir,
In answer to VK3OT's letter on page 27 of July 1979 AR I think one should just take a slightly broader view than that given. I do agree to a great degree with the comments with respect to the WAVKCA, it's only commensense, after all some 30 VK stations had contacts with VK0 alone in 72-73 season. Many operators today neglect that fact but myself, as a 12-year-old SWL, still remember the openings of 10-11th December 1972.

Now reading further into the letter, VK3OT says that VK5KK didn't work VK9ZNG first and that VK3ZCG did. VK3OT however fails to give ACCURATE details of the claim. The opening referred to by VK3OT occurred on 29-11-75. VK3OT refers to this as the day he missed out. MY FIRST CONTACT occurred on 26-11-75 at 0100Z to VK9ZNG on 52.06 MHz SSB. I worked VK9ZNG at 0225Z on 27-11-75, this time with 59 signals from his long-wire. That QSO must have lasted 45 minutes, as we talked about virtually everything going on 6 metres. The contact on the 26-11-75 was VK9ZNG's **FIRST VK QSO** according to Martin. Talking to VK5ZZ (ex-VK2ZGC) I learnt that many VK2s worked Martin over and over again, yet very few received a QSL card.

Recently I came across the VK9NI saga. Now that VK9 (Norfolk Is.) is pretty dead on 6 metres I hope that VK3OT can make a good go of a DX-pedition! Keep up the good work in AR.

David Minchin VK5KK
Active VHF/UHF Operator (not HF).

EDITOR'S NOTE
This letter has been edited. ■

The Editor,
Dear Sir,
The Divisions of the WIA have endeavoured over many years to serve the needs of amateur radio in each State, with varying degrees of success from committee to committee. Many have worked with great dedication and ability, some others with great dedication and no ability, and some with no dedication to the wellbeing of amateur radio and with some ability to destroy it. I believe we probably have some from each category in power at this time in the Divisions. It is time that the third group is exposed and if you are in the position to go to Divisional meetings you will soon find out who belongs to which group. It is your job at the next annual election to make *sure* people of the first group mentioned get on the committee, and if you run out of those put some of the second group in.

Hopefully, having elected a good committee, they will see the wisdom of dissolving Divisions, certainly the other groups can't. The Arnold report, and more recently the anonymous ERIS in Amateur Radio Action, have advocated moves along these lines. Using Victoria as an example, what do I as a country member get out of the Division — Sunday morning broadcast and QSL bureau (which I don't use). This is very little for my money. Many clubs run similar set-ups for about a third the cost so is it any wonder many say why should I join the WIA. By getting rid of the Divisions and having clubs and zones who can go direct to the federal body the overall efficiency will be greater. However, as the federal body would have more work, more paid staff would be needed. Even so the overall efficiency would be greater and membership dues may be reduced.

Have a think about this, members, if the WIA is going to represent more than 50 per cent of the amateur population, sensible changes are needed to it to make it more attractive to non-members. A good committee will see the advantages of such a move, they are not doing the job in the WIA as an ego trip.

Yours faithfully,
R. D. Champness VK3UG. ■

GPO Box 5076, Sydney 2001, NSW

The Editor,
Dear Sir,
I would like to make a few comments re how I see amateur radio in Australia today. When you consider that 27 MHz has been taken from amateurs without compensation and that some of our bands' usefulness have been limited, due to ever increasing numbers of commercial broadcasters, I feel that the prestige and/or usefulness of having an amateur radio licence is limited.

Giving signal reports, discussing latest equipment and antennas, the weather, is all very nice,

but not essential. What practical reasons to the community can we show for our existence? Why should we study and pass exams and build or establish radio stations? How does it benefit the community, who should be reminded often that we are not CB radio operators; we can provide benefits to the average citizen quite easily (if only our hands were not tied by the Wireless Telegraphy Act).

I believe that the loss of 27 MHz so quickly and easily should be a reminder to us all that in the future we may be pulling crystals out more often than plugging in new ones.

I would like the editor or someone to give me the answers to the following proposals.

(a) Why are Australian amateurs not permitted to have the full frequency coverage of 60 and 40 metres?

(b) Why are we limited to 400 watts PEP SSB output?

(c) Why are Australian amateurs not permitted to handle third party traffic and handle overseas phone patches, or provide a useful service such as a "HAMAGRAM" or similar. Is Telecom Australia scared of competition?

(d) Why do we adopt or allow a known problem, i.e. 27 MHz CB, to be permitted and not a useful service such as C?

I believe if amateurs are going to be able to maintain their present frequencies and privileges (?) they must show a more positive reason in the community for their existence.

We are constantly being labelled as crazed CB operators, and confused with same, by the majority of the community who cannot discern any difference.

Australia was ten years late in obtaining colour TV, FM radio broadcasts, cable TV seems buried before birth.

Oh well, I guess things could be worse. After WARC we may even be restricted even more in frequency; forbidden to use first names and discuss the weather; power may be limited to 1 watt (input) and operation strictly pedestrian mobile CW; crystal controlled, of course, and during daylight hours only.

Let's hope that some day Australia could inaugurate some benefits to local amateurs on its own merit. Why can't we inherit the good ideas of other countries (USA) and not just the bad (CB).

One can always dream, I guess. Has anyone seen my pools coupon? I think I have more chance of winning them than having any one of the above proposals adopted.

See you on the band some day — I think!

Sincerely,

James Goodger VK2JO.

EDITOR'S NOTE

(i) Re points (a), (b), (c) and (d) — basically the answer to these rests with "Official Government Policy". Please peruse ARs for the last three yaars — Editorials, WIANEWS and WARC items for a better insight to the WIA view.

(ii) Hamagrams?? — Good grief!! — (VK3UV.) ■

WICEN

Ron Henderson VK1RH
Federal WICEN Co-Ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

This issue sees the commencement of a series of articles on Emergency Series Communications Procedure. These should be read in conjunction with the previous column on prowords.

WICEN groups and operators should be able to use this series as training and instructional notes, thereby minimising the need to type local precis and handbooks.

At the onset it should be emphasised that WICEN will normally be working in conjunction with emergency services, police, fire brigades, etc., so good adherence to this common standard is necessary to avoid confusion and enhance our image as communicators.

EMERGENCY SERVICE COMMUNICATIONS PROCEDURES (SECOND EDITION REVISED 1979) REFERENCE

Civil Defence Communications, Part 3, 1969.

INTRODUCTION

1. The information contained in these notes is based on the Civil Defence Publication "Communications Procedure (Radio Telephone and Telephone)". It has been somewhat simplified having regard to the specific needs of the WICEN Organisation and by deletion of reference to pure civil defence (in the sense of nuclear attack) procedures.

2. Message passing procedures is an important means to an end — the end is the carrying of information quickly and accurately. It cannot be stressed too much, however, that procedure is only means to an end. An over rigid, inflexible adherence to a particular form of procedure, in certain circumstances, can have an affect reverse to the effect intended.

3. Good amateur operating practices, together with a fundamental net discipline is very little different from the procedure outlined in this pamphlet. Therefore do not be frightened by the use of this procedure. Use it for what it is, a useful guide for the better regulation of a communication net and a means, by the use of standard phrases, to avoid inaccuracies.

DEFINITIONS

4. The following definitions are used in these notes:

(a) CALL SIGN: The call sign is the call sign of the amateur concerned or, in the case of a group station, the nominated call sign.

(b) CONTROL: One station on a network (or "net"), normally the one serving the senior Headquarters, is appointed Net Control Station (NCS). It is responsible for the efficient clearance of traffic on the net and the maintenance of net discipline.

(c) LINK: Two stations operating on the same channel for the purpose of communicating to one another is termed a Link.

(d) NET: A number of stations operating on the same channel for the purpose of communicating with one another is termed at Net.

(e) PROWORD: (i) Prowords are pronounceable words or phrases which have been assigned meanings for the purpose of expediting message handling. A proword, or a combination of prowords, must not be used as the text of a message. (ii) The prowords given in a recent AR are authorised for general use.

(f) SUB-STATION: Any station on a net other than the control station.

(g) USER: A person, other than an operator, who uses a radio net.

TYPES OF MESSAGES

5. There are four types of radio telephone communication:

(a) Conversations: Usually a series of alternate voice transmissions between two users in which subjects may be discussed, questions answered and information exchanged. The transmission must be as brief as possible.

(b) UR messages: A user may wish to ask a question to get information, etc., without discussion. He can do this by giving his message verbally to the operator or by writing it down for transmission by radio as an Unregistered Message (UR). It consists simply of the user's text with an indication of the addressee where necessary. A UR message may be written on a message form with "UR" written over the Classification/ Originator's Number spaces.

(c) Formal messages: A formal message is one that is written down and signed by the originator. It is normally written on a message form (CDF2 or CDF3). Records of formal messages are kept in signal centres or, if there is no signal centre, at the radio terminal.

(d) Service messages (SVC): A service message is one between communications personal concerning any phase of signals facilities or circuit conditions.

Service messages are identified by one of the following: (i) Reference to another service message; (ii) The abbreviation SVC as the first word of the text; (iii) By being specifically addressed to a signal centre.

Service messages generally concern messages previously handled, addressed to or refiled by the originating station, and will normally be assigned a precedence equal to that of the message to which they refer.

HOW TO SPEAK

6. Clear speech is necessary to help the receiving operator to understand you. The following factors are important:

R — RHYTHM; S — SPEED; V — VOLUMNE; P — PITCH.

7. Rhythm: Any phase in ordinary conversation has a natural rhythm which helps to make it intelligible. This rhythm is to be preserved when the phrase is spoken and the following rules are to be observed:

(e) The message is spoken in short complete phrases that make sense, and not word by word, e.g. —

Rations will be brought up/as soon as point Y is reached.

NOT

Rations / will / be / brought / up / as / soon / as / point / Y / is / reached.

NOR

Rations/will be/brought up as soon as point Y is reached.

(b) Do not say "er" after a word, or insert it between phrases.

8. Speed: (a) Speak steadily at medium speed. If you speak too quickly your speech will be received as an unintelligible jumble of words. Remember that the receiver often has to write what you say. (b) The speed of speech must be constant throughout. (c) The less important words must not be hurried. (d) If the message has to be written down by the receiver, pauses between the transmission of phrases must be longer.

9. Volume: (a) Speak more loudly than in ordinary conversation, but do not shout. (b) In ordinary conversation the important words are stressed, while less important ones are slurred over. Avoid this when speaking on the radio. Every word is spoken equally loudly, and the voice must not fade away on the last word. (c) Perhaps the most important thing is to keep the mouth close to the microphone, and speak correctly into it.

10. Pitch: High-pitched voices are more clearly understood. A deliberate effort should be made to speak with a higher pitch than usual. ■

QSP

IN THE VERNACULAR

The following gem is from a service manual for a power supply (which for our purposes shall remain nameless!).

"Regulator IC failure: It is difficult to provide any helpful advice on this subject as, after some years field experience with these ICs, the only failures that we have encountered have been two failures entirely as a result of our own incautious test-probing. However, under normal operating conditions, if the voltage across VR1 is about 24 volts, the IC should draw 9 mA typically, 12 mA maximum — which drain can be calculated from measurement of the voltage drop across R21. Approximately 7 volts should be measured between IC pins 9 and 7 — absence of this voltage indicates that the IC is definitely stuffed." — Submitted by Ivan VK5QV. ■

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SPECIFICATIONS

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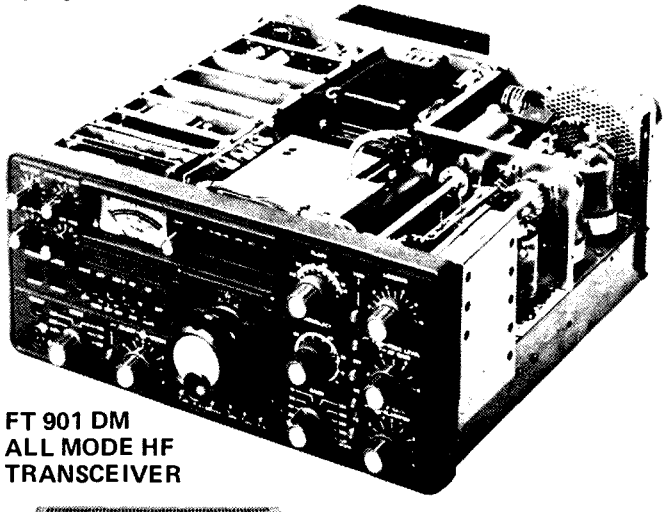
Frequency range: 0.25–29.9 MHz
Modes of Operation: AM, SSB, CW
Sensitivity: SSB/CW-Better than 0.7 μV for S/N 10 dB AM-Better than 2μV for S/N 10 dB (400 Hz 30% modulation).
Selectivity: SSB/CW ±1.5 kHz (–6 dB), ±4 kHz (–50 dB), AM ±3 kHz (–6 dB), ±7 kHz (–50 dB)
Stability: Less than ±500 Hz drift for any 30 minute period after warm-up.
Antenna requirements: Random wire for 0.25–1.6 MHz, 50 ohm unbalanced feed for 1.6–29.9 MHz.
Speaker impedance: 4 ohms
Audio output: 2 watts
Power requirements: 100/110/117/200/220/234 V AC, 50/60 Hz**
Power consumption: 25 VA
Size: 360(W) x 125(H) x 295(D) mm
Weight: Approx. 7 kg

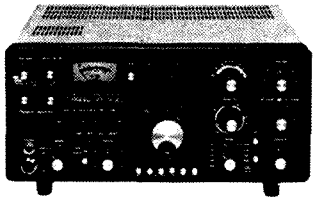
** 117 volts AC for UL-approved model.

FRG-7 GENERAL COVERAGE COMMUNICATION RECEIVER

STATION ACCESSORIES



FT 901 DM ALL MODE HF TRANSCEIVER



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BALUNS
AS-BL Asahi 50 ohm for beams
BL50A 50 ohm, 4 KW, 1:1 for dipoles
BL70A 70 ohm, 4 KW, 1:1 for dipoles

TUBES
6KD6 Finals for Yaesu linears
6JS6C Finals for Yaesu transceiver
12BY7A Driver
6146B Finals

CW FILTERS
FT101E Yaesu
TS520S YG3395 Kenwood
TS820S YG88C Kenwood

MORSE KEYS
HK702 Deluxe Key with marble base
HK708 Economy Key
HK706 Operator's Key
MK701 Manipulator (side-swiper)
PALOMAR 1C Keyer

JAYBEAM ANTENNAS
5Y/2m 5el 2m, 7.8 dBd gain, length 1.6 m
8Y/2m 8el 2m, 9.5 dBd gain, length 2.8 m
10Y/2m 10el 2m, 11.4 dBd gain, length 4.4 m
10XY/2m 10el 2m, cross yagi, 11.3 dBd
D8/70cm Twin 8el, 70 cm, 12.3 dBd, 1.1 m
PBM 18/70 18el, 70 cm, 14.9 dBd, 2.8 m
MBM48/70 48el, 70 cm, 15.7 dBd, 1.83 m
MBM88/70 88el, 70cm, 18.5 dBd, 3.98 m
PMH/2C Phasing harness
8XY/2m 2m cross yagi, 8el, 9.5 dBd, 2.8 m
12XY/70 cm 70 cm cross yagi, 12el, 13.0 dBd, 2.6 m

SCALAR
M22T 1/4 wave 2 m mobile whip, top only Qty 1-4
M25T 5/8 wave 2 m mobile whip, top only Qty 1-4
BASE B/L for above

MICROPHONES
VM-1 Noise cancelling, hand ptt, low z

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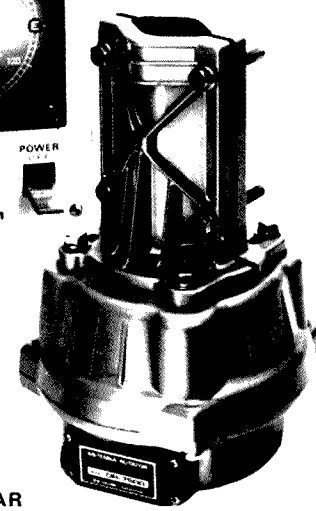

ICOM GEAR
IC701 transceiver
IC22S 2m transceiver
IC551 6m traceiver
IC280 2m fm remotable
IC502 6m ssb portable
IC202S 2m ssb portable
IC211 2m all mode
ICRM3 Remote control unit

ICOM

IC-551 6M TRANCEIVER WITH SCANNIN FACILITY

CW ELECTRONICS

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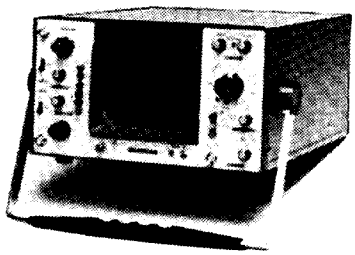
OPEN THURS. NIGHT & SAT. MORN.

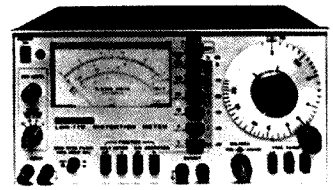
LEADER
TEST INSTRUMENTS

LBO 508A OSCILLOSCOPE



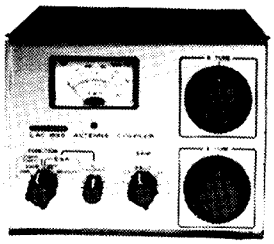
Bandwidth DC-20 MHz. Sensitivity 10mV/cm. 130mm highly C.R.T.

LDM 170 DISTORTION METER



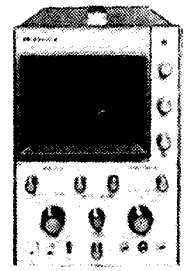
20Hz-20kHz 0.3% F.S. Measures distortion, signal-to-noise ratio, signal levels.

LAC 895 ANTENNA TUNER



Built-in SWR and in-line Watt meter. 5 bands from 3.5 to 28 MHz. 500W pep transmitter input.

LBO 510A OSCILLOSCOPE

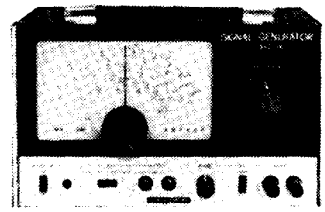


20 mV/4MHz. FET'S input

LAG 26 AF SIGNAL GENERATOR

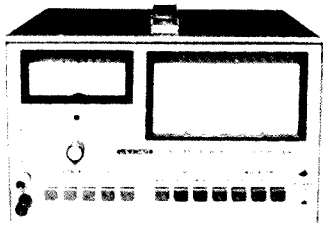
100KHz-100MHz Solidstate RF signal generator. Suited for aligning the IF circuits in AM, FM and TV sets.

LSG 16 RF SIGNAL GENERATOR



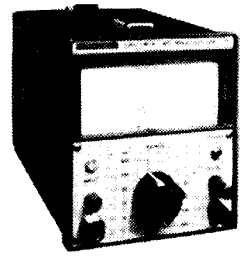
20Hz-200kHz Stable generator for all types of audio circuit.

LFM 39A WOW AND FLUTTER METER



For accurate and easy determination of the wow and flutter characteristics of tape recorders to JIS, CCIR and DIN standards.

LMV 181A AC MILLIVOLT METER



AC Voltages from 100yV up to 300V. 5Hz-1MHz.

CW ELECTRONICS

STORE (07) 48 6601, OFFICE (07) 341 5377
TELEX AA 40811 A.H. BRIAN 341 4767
CRES. 273 2552, BEV. 341 282 (GOLD COAST)

commodore

the PET computer

The Pet has a television screen, a keyboard as simple to use as a typewriter and a self-contained cassette recorder which is the source for programmes and for storing data in connection with these programmes. And it has, in its standard configuration, an 8K user memory. (This is in addition to the 14K operating system resident in the computer).

SPECIAL AT NO EXTRA COST

$200 value of programmes will be provided with each PET purchased prior to December, 31st, 1979.

2001-16/32

The CBM Computer is now a truly sophisticated Business System with the announcement of these Peripherals.

The CBM incorporated with the Floppy Disk and Printer makes an ideal business system for most professional and specialized fields, medicine, law, dental, research, engineering, toolmaking, printing, education, energy conseration etc . . . The CBM Business System as a management tool, delivers information to all levels of Business previously attainable only with equipment many times more expensive, the CBM Business system is one of the most cost efficient business tools today. It offers a wide range of applications from logging management strategy in major corporations to organizing accounts and inventory control of small businesses. Here are just a few of the cost saving uses in the corporation, professional office or small business stock control, purchasing, forecasting, manufacturing,costing, customer records, mailing list, etc. The CBM Floppy Disk and Printer, a compatible business system at a reasonable price. Take a closer look at these Peripherals.

2040

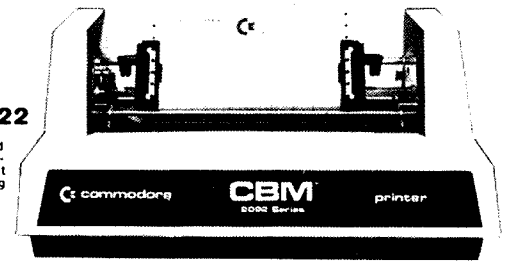
Dual Drive Floppy Disk

The Dual Drive Floppy is the latest in Disk technology with extremely large storage capability and excellent file management. As the Commodore disk is an "intelligent" peripheral, it uses none of the RAM (user) memory of the CBM. The Floppy Disk operating system used with the CBM computer enables a programme to read or write data in the background while simultaneously transferring data over the IEEE to the CBM. The Floppy Disk is a reliable low cost unit, and is convenient for high speed data transfer. Due to the latest technological advances incorporated in this disk, a total of 340K bytes are available in the two standard 5¼" disks, without the problems of double tracking or double density. This is achieved by the use of two microprocessors and memory I.C.s built into the disk unit. Only two connections are necessary — an A/C cord and CBM interface cord.

Tractor Feed Printer

2022

The Tractor Feed Printer is a high specification printer that can print onto paper (multiple copies) all the CBM characters - letters (upper and lower case), numbers and graphics available in the CBM. The tractor feed capability has the advantage of accepting mailing labels, using standard preprinted forms (customized), cheque printing for salaries, payables, etc. Again, the only connections required are an A/C cord and CBM connecting cord. The CBM is programmable, allowing the printer to format print for: width, decimal position, leading and trailing zero's, left margin justified, lines per page, etc. It accepts 8½" paper giving up to four copies. Bidirectional printing enables increased speed of printing.



CW ELECTRONICS

**CNR MARSHALL RD & CHAMBERLAIN ST.
TARRAGINDI – BRISBANE PH. (07) 48 6601
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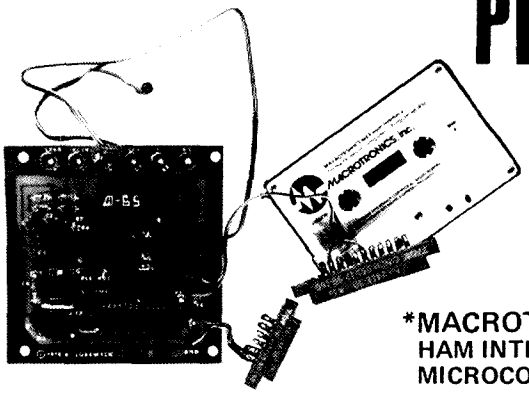
CW ELECTRONICS

PROCESSED HAM



*MACROTRONICS M65 HAM INTERFACE FOR PET MICROCOMPUTERS.

The M-65 is a complete Morse Code and RTTY system for the PET microcomputer. It is made up of two parts: the hardware and the software consists of one PC board which is connected to your rig and to your PET user port. No modifications are required to either your radio equipment or to the PET – everything plugs into existing jacks. No external power supply is required.

The software consists of two computer programs – MORSE and RTTY – supplied on one audio cassette. Both programs are written in BASIC with machine language subprograms. Each requires 8K bytes of RAM. Program MORSE allows continuous speed adjustment from one to 100 words per minute in any of three modes of operation: Receive, Send, and Code Practice.

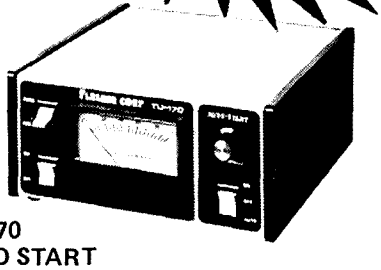
In addition, up to ten programmable message memories (2550 characters total) allow "brag tapes", pictures, etc. direct from the keyboard. A special feature allows sending the time automatically at the press of a single key!

Other MACROTRONIC modules include the M650 Deluxe RTTY and Morse system Interface with software cassette.
MLK-1 loop Keyer module.
MSK-1 Solid State Keyer module.
FSD-1 Phased-locked loop de-modulator.
especially for the RTTY enthusiast.
If you have a TSR-80 or a Sorcerer, we can help you too!

AUST. AGENTS

*FLESHER CORP.

TR 128
RTTY REGENERATIVE SPEED CONVENTOR



TU-170
AUTO START

TTL compatible connections for direct hook-up to the Felsher TU-170, also adaptable to other terminal units.

- 60, 67, 75, 100 WPM and 110 BAUD ASCII.
- Stable crystal-controlled oscillator.
- 128 Character storage capacity with storage status meter to show buffer fill.
- Pre-loads and repeats up to 128 characters.
- Continuously variable character rate
- Low power CMOS circuitry.
- One-board (total circuitry) construction.
- Power requirement; 115V 60Hz, 5W

State of the art design features make the TU-170 ideal for HF and VHF autostart operation at an unchallenged price.

- SIZE: 7¼"W x 3¼"H x 7½" D.
- Proved 170 Hz shift active filter demodulator.
- Lighted tuning meter for easy tuning.
- Current regulated loop keyer and power supply.
- Autostart with threshold control and solid state relay.
- Stable audio frequency shift oscillator produces phase coherent sine wave tones.
- TTL compatible inputs and outputs for auxilliary equipment.
- High level output for scope tuning.
- 100 Hz shift CW keying input.

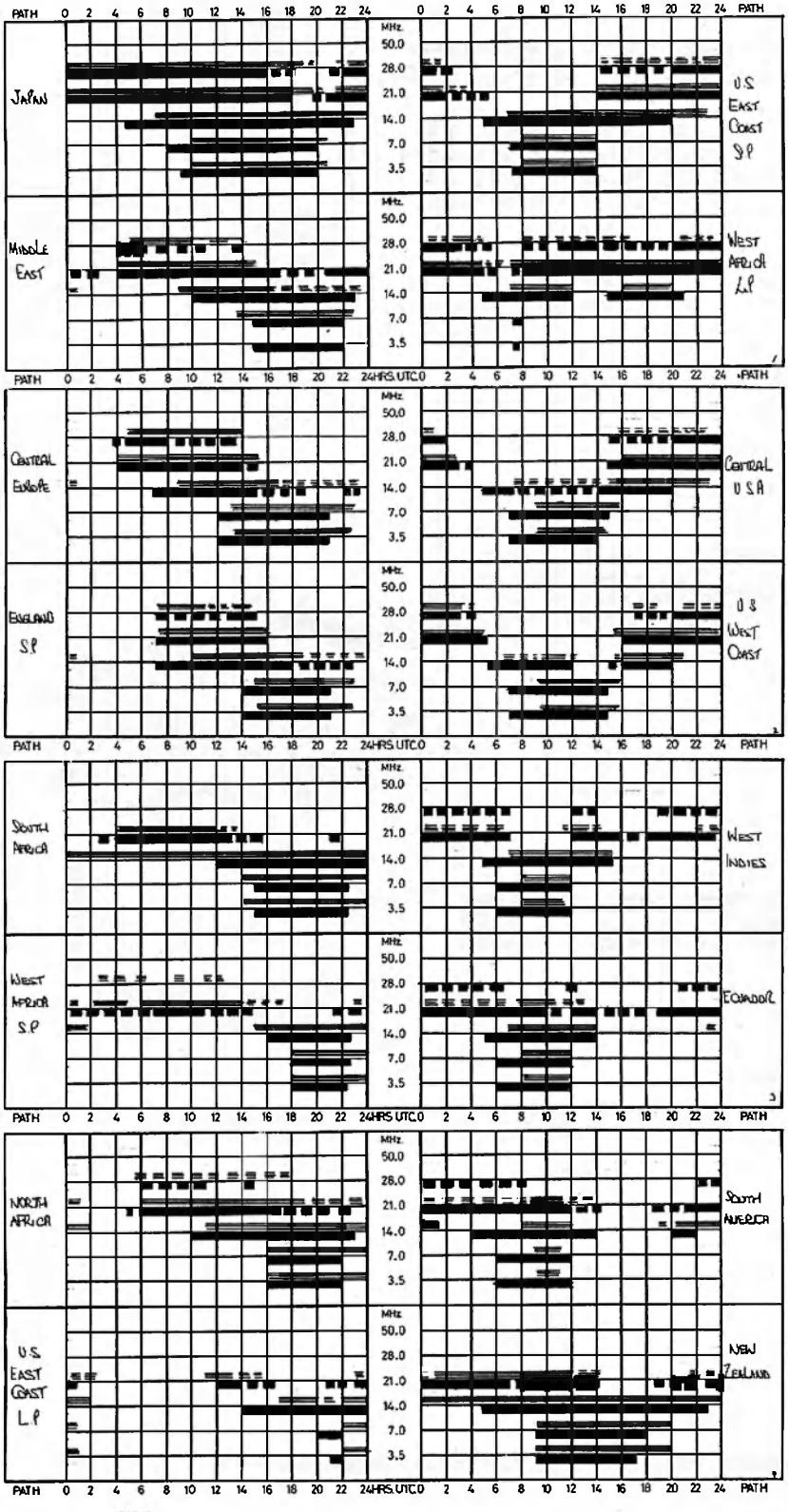
*DEALER ENQUIRIES WELCOME

CW ELECTRONICS

CNR MARSHALL RD & CHAMBERLAIN ST.
TARRAGINDI – BRISBANE, QLD.
"YL's and XYL's call me for Christmas advice – Brian

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



DIAL-A-PROP

A telephone service, telephone (02) 269 8614, provided by the Ionospheric Prediction Service, detailing the state of the sun, the ionosphere and the earth's magnetic field, began on 1 October, 1979. The daily report includes the following details:

1. The current status of IPS disturbance warnings. If one is current, its text will be given. The warnings include details of solar activity, sudden ionospheric disturbances (daylight fade-outs), and current and expected geomagnetic disturbances.
2. The current state of solar activity (flares, active sunspot regions), and the expected course of solar activity over the next three days. Flares are described on the M (1-9) and X (1-9) scales which refer to their medium or strong X-ray effect.
3. A report on ionospheric conditions in the Sydney area and a forecast of general radio propagation quality for the next three days (good, fair, poor).
4. The current state of the geomagnetic field and its expected behaviour over the next 24 hours.
5. The Ottawa 10.7 cm solar radio flux for the previous 24 hours and the predicted values for the next three days.
6. The observed magnetic A-index (Fredericksburg) for the period two days previously and the predicted values for the following three days.

The duration of the message is between 45 and 90 seconds and the contents of the message is updated daily at about 1000 AEST (0000 UT), with more frequent amendments at times of high solar, geomagnetic, or ionospheric activity.

This service is titled the IPS Daily Solar Geophysical Report and the telephone number is (02) 269 8614. ■

YOU and DX

Mike Bazley VK6HD

8 James Road, Kalamunda W.A. 6076

I enjoy chasing DX! No doubt you do, too, otherwise I expect you would not be reading this. Unfortunately VK6HD only has a few hours per month to spend on this hobby and therefore does not, by any means, hear all that is going on. If you really believe that AR should have a DX column why not do your bit by providing information. All that is needed is a short note on a piece of paper stating that you heard so and so was going to "Woop Woop". When I wrote the first copy for this column I mentioned that I only got the job because no one else was willing; I assumed that others would think it worthwhile and would chip in. I'm happy to collate the information but I cannot be on the bands 24 hours a day; between us all we can cover most bands, most of the time for the benefit of all. How about you? What have you heard worked? Have you any DX photos? Remember, it's our column, if you want it to be, or will you let it die a natural death. Please spend 20 cents this month.

DX NEWS, RUMOURS, FACT AND FICTION

A couple of months ago I asked whether anyone had received a QSL from YI4SC. No sooner had this query gone to print when the QSL was received. YI4SC was a special call issued to a scientific camp and the QSL was received via Box 5864, Baghdad. These things come in cycles, of course, and at about the same time the QSL had arrived a QSO was made with YI1BGD/P, who complained to me of the lack of VK stations in his log! He asked me to pass on to those interested that he operates around 14210 kHz most days from about 1700 GMT. That time is a bit of a killer, especially in the eastern States. QSLs via the QTH given above. The amazing thing with the QSO I had with him was that there was absolutely no pile up and after our QSO he had to make a couple of CQ calls to get his next contact. It looks as if this country at least as far as

Europe is concerned is off the wanted list. Thinking about the trouble I had in finally nailing this country, my thoughts went back to the late forties and early fifties when YIs were ten a penny we didn't have decimal currency then!) and the band was full of C, VS9, XZ, etc., all countries I now need from VK6.

Did you QSO one of the T4s the other day? Stations heard active from here included T4A, ZS6AEC/T4 and WA6QFO/T4. QSL the last named via K9KXA. T4 is another independent state within South Africa, along with S8 and H5. Rumour has it that those areas will be counted as new countries by the ARRL DXCC committee after March 31st, 1980, but QSLs will be accepted from the date of independence. The moral of this story is that if you are a DXCC QSL chaser it might be as well to make sure you have the QSLs from these three.

For those of you who chase LF DX I hope you did not miss the superb two day openings during mid-September. If you did next time ten metres appears to be really flat check the LF bands at sunrise or sunset. For VK6HD 160 metres produced 25 W QSOs plus one European and the opportunity to hear, but not work, my first UB5 station on the band. Lots of other VKs were heard making DX QSOs and everyone seemed to have their own mini pile up.

At the other end of the scale 10 metres has been just as good, with the following being reported: AP, A2, A7, C6, CP, D2, FG, FM, J6, KH2, PZ, S8, ST, VP8, ZD7, ZD8, ZP, 3B9, 5T5, 5H, 7P, 9X5, to name just a few. One really needs to keep on one's toes when those sunspot numbers start climbing. Whether LF or HF DX, it is all good fun and adds pleasure to our unique hobby.

Franz Joseph Land now has three active stations, UA1PAL, UK1PAA and UK1PGO. All of these are fairly active on CW, usually around 14024 kHz. It is also reported that a SSB rig is now on its way, so those of you who chase on the "Donald Duck" mode I would suggest that 14140 kHz may be a good frequency at around 0500 GMT.

KH5 — Kingman Reef and Palmyra. Seven operators plan to put these spots on the air in November using 4 stations, all bands 10-160, CW and SSB. It is reported that the US government intends to purchase Palmyra for use as a nuclear waste dump. If this is true it could mean that this would be the last from this area.

Marion Island, ZS2MI, still being reported active on 14240 daily from about 1200 GMT. If you still need this one it looks as if a bit of midnight oil burning is required but at least the band is open to South Africa at that time of morning.

Still need A5I Bhutan? Try checking into the South-East Asia net on 14320 at 1200 GMT or alternatively look around 28570 at weekends between 0800-1000 GMT.

HK0EEA is a new station active from San Andreas Island. QSL via PO Box 484, San Andreas Island, Colombia.

That XZ operation mentioned in an earlier column still looks good. Keep checking 21225 kHz with an occasional check on 14225 kHz.

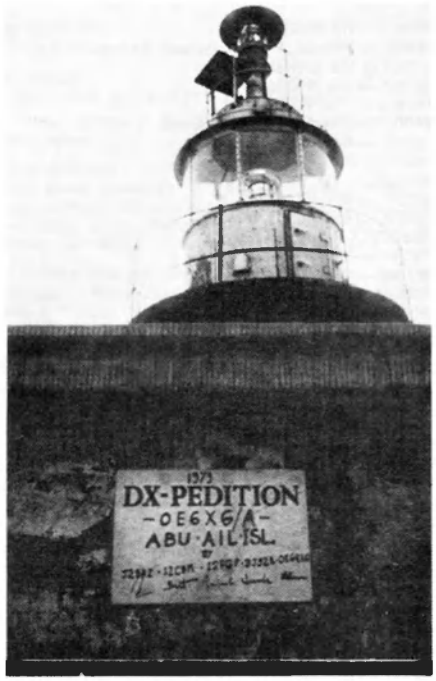
LU3ZY, Sandwich Islands, is now being reported on all bands from 40 to 10 metres CW. Mostly working into Europe or North America. It has been reported that he has been on 21240 kHz. At present there has been no confirmation of this SSB operation.

VP5WJR is quite active on 10, 15 and 20 SSB. Bill asks for QSLs via WB5UEP.

Two new stations have been reported active from Syria. OE2SPW/YK has been worked on 10 CW and SSB and asks for QSLs via his home QTH, and VE1AMA/4U is on from the Golan Heights and asks for his QSLs to be sent via VE3KQI.

A note from VK3NOY mentions that 28500 kHz is used as a primary call frequency for mobile stations and could other stations keep this frequency clear. For myself I do see some problems here, in that certain DXpeditions operate just below 28500 listening a few kHz up.

The photo of the OE6XG/A DXpedition site was kindly supplied by Ken VK3AH. It is worth noting



Abu Ail OE6XG/

that this operation from Abu Ail produced 12,700 contacts, and I'm sure that anyone who heard them on 10 metres was able to make a QSO. The equipment, apparently, was supplied by JY1 King Hussein, the operators being I2CBM, I2FGP, J28AZ, DJ9ZB and OE6EEG. Ken also mentions that 5V7GE is very active in 14182 or 14340, QSL via VE2AS, and that OX3EA often calls into the Pacific DX net (14265 Tuesdays and Fridays).

Murray VK4KK notes a few goodies for the rumour corner, F6FFQ/TT8, TT0KP, supposed to be QRV, also TL8JM, is reported as being back on the air. At the time of writing there has been a change of government in TL8 land, so I don't know what this will do for further TL8 operations! On the positive side Murray reports ST0FT (QSL via DL7FT), VP8SB (QSL via G3ZMF), N6ZV/3D6, DJ8NX/HB0, AP2TN, 3B6CD to mention a few on 14 CW, and OY5NS, SV9JI (QSL via Box 502, Iraklion, Crete), 5N0DOG, J6LCT, T2AAA, 9X5PP, to note a few on 20 SSB. All in all, taking all the DX bands it looks as if "we have never had it so good".

Pse QSL! A phrase that is said more often to an Australian amateur than used by him. What is your reaction to a request? Most will reply "sure QSL" but only a few mean it. QSLs now represent a reasonable outlay in funds, so let's try and have an honest QSL policy. If you do not QSL, say so; if you only QSL on receipt, say so; if you only QSL against an addressed envelope and return postage, say so; don't let the person at the other end waste his time and money. Remember there is no obligation on the part of a station to QSL, but there is a moral obligation to be honest in your reply to the request "Pse QSL!".

For the DX chasers on 10 and 15 I hope you have been enjoying those long path openings. With the northern winter now in full force try pointing your beam to the north and start using the "Northern lights" as a reflector. It's amazing the goodies that come to light on this unusual path.

TN0HL is still being reported as being active on 21 MHz SSB. Usually heard somewhere around 21.160/170. The operator "Joerg" is a DM and should be there for approximately one year. He does not like pile ups and tends to QSY when the going gets rough. QSL via DM2XLO, Wolfgang Lichthardt, Logauweg 6, D-1117, Berlin GDR.

Louis Varney G5RV will be in Uruguay from early December, for six months, operating under

OK2PGU

SP3BQD

the call LX5RV and will be looking for VK QSOs. G5RV, who has held the call VK8LV, is perhaps better known for his 5RV multi-band antenna.

VK4DY has forwarded details of a trip he is making to Norfolk and Lord Howe Islands. Fred will be active from VK9ND 1 December until 9 December, followed by Lord Howe from 10 to 14 December. Preferred frequencies 3.550, 7.100, 14.150, 21.195 and 28.500. Operating will be spasmodic as this is a holiday and not a DXpedition trip, but he suggests that checking 80 metres upwards from 0900Z to 2100Z may find him. All QSLs will be answered via the bureau.

NEW PREFIXES

H8A-H9Z has been allocated to Panama. T4 has been allocated to Vendaland. (Did you catch T4AHC on RTTY or WA6QFO/T4, T4A, ZS6ZS/T4 or ZS6AF/T4? QSL T4A via ZS6AK, ZS6AF and ZS6ZS via ZS4ML.) T3 has been allocated to Kiribati (Kiribati comprises Gilbert Islands and Ocean Island VR1, Phoenix VRiP and Christmas Island VR3). Those PA50, 51, etc., stations are in recognition of 50 years of amateur radio in the Netherlands. Operation was from October 10 to November 10. PA0 equals PA50, PA3 equals PA53, etc.

The tentative dates for the N2KK DXpedition are as follows. November 24 FR7, December 1 FR7/T, December 10 FH8, December 15 FR7/G, January 1 FR7/J, January 10 3B8, January 12 3B9, January 20 5R8 and January 30 602. Cost is set at $30,000!!!

Dave will be accompanied by K5CO and N5AU, CW/SSB operation on all bands 10-160m. Donations to WB5WYE, Indian Ocean DXpedition Trust Funds, Commonwealth Bank, Box 34349, Dallas, Texas 75234. (Thanks G. Watts.)

During the recent ZK1 Manakiki DXpedition the boys rattled up over 15,000 QSOs. There is no doubt about it, the QSO rate in a DXpedition is about three times above the rate, of say, 10 years ago. Do we all have better gear or are we better organised?

ZS2MI still very QRV on 15 and 20 SSB, but is reported to use CW on either band on the 25th of the month. He has not been heard at my QTH on CW, though has been copied several times on SSB.

If you QSOed U0Y during October-November you should direct your QSL via UK0AAA. This DXpedition was very active and was reported on all bands 80 to 10m CW and SSB. QTH Tannu Tuva, which is in Zone 23 for WAZ.

A7XA is QRV every Sunday on 28050 at 1200Z working to a list taken earlier by a DL station. To get on that list I would suggest monitoring the frequency from about 1130 GMT.

4U1UN has been active lately on 28002/3 CW. Most Friday mornings (WA local) from around 2130 GMT.

VP8SO (South Orkneys), VP8VN (South Georgia), VP8QI (Argentine Islands) are three stations quite active on 20m SSB. QSL via G3KTJ, Bureau and G4CHD respectively.

OE3GEA and three other West African Communication Research Society members plan a trip to CN, 3V, 5U, XT, C5, etc., November 1970 to January 1960. Further information available from PO Box 20, A-4023, Linz, Austria. Donations are sought and the QSL manager will be OE3GBB.

One doesn't hear many TA stations active these days. TA2KS is reported as being QRV daily on 14235 ± from 2030 GMT. QSLs go via G3SCP.

The Franz Joseph Land station is still being reported active. Usually the call to look for is UA1PAL and he can often be found between 14012 and 14027 CW.

Several S8 stations are being reported active. Though these are not in the DXCC list rumour has it that they soon will be accepted by the ARRL and confirmation will count from the day Independence was granted. Look for S8AAT on SSB and S8AAM on CW.

Those needing Bangladesh should look for DK9KO/S2 QRV on SSB 10, 15 and 20. Urban will be there for three years. QSL via PO Box 108, Dacca.

A22 is the new prefix for A2C. I don't know about you but for myself I have difficulty in keeping up to date on prefixes these days.

That's it I'm afraid for this month. Thanks to VK3AH, VK3NOY, VK4KX, VK6AJ and VK6LK. Also to Geoff Watts' News Sheet. Have fun, good DX.

Have a very happy Christmas and I hope that 1980 brings you all that you require to live happily. Thanks during the past year to all who have supported this column.

73 es DX Mike VK6HD.

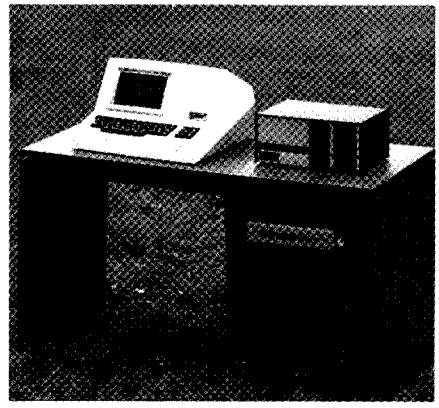
QTHs YOU MAY HAVE MISSED

CN8CG — Via F6ETL.
CT2QN — Via W2KF.
D68AK — BP 50 Moroni, Comoros.
F0FIC/FC — Via DF3CB.
FG7AS — Box 444, Guadeloupe.
FP8AA — Via K2RW.
FW0XN — Via DK7XN.
FW0XR — Via DK6XR.
J28CA — Box 215, Djibouti.
KC8SX — Via JA1NRH.
KC6SZ — Via JE1JKL.
KX6PW — Via KH6JUO.
T2AAA — Weather Station, Tuvalu, Central Pacific.
T4AHC — Via K9KXA.
TR8CR — Via F6AQO.
VK9YN — Via WA3HUP.
VP8SU — Via G3RCA.
VQ9TR — Via N2IT.
XT2AV — Via VE2DFR.
OE2SPW/YK — Via OE, Buro.
ZS2MI — Via WA2IZN.
3B8DB — Baccus, Modern Square, Vacoas.
3C1AA — Via EA4MY.
5W1CF — Via N6DX.
9N1MM — Via W3HNK.
EA6DD — Box 14, Palma, Majorca.
FK8DD — Box 3040, Noumea.
FY7BF — Box 733, Gayenne.
GJ5CZQ — Via DK7JR.
HH2VP — Via N4XR.
WD8QGQ/KH7 — Via KH6JEB.
W6SOT/LX — Via DA1TM.
OY5NS — Via W3HNK.
VP1SM — Via W5QPX.
VP2KAA — Via N4PN.
VK9TR — Via N2IT.
VS5DD — Via G4EXY.
ZS3AG — Via WA2JUQ.
3B8DB — T. Baceus, Modern St., Vacous, Mauritius.
3B9CF — Via 3B8CF, 6 Shastri Rd., Canous, Quatre Bornes, Mauritius.
3D6AX — Via WA5IEV.
5N0DOG — Via W4FRV.
9Z5PP — Box 863, Kigali. ■

AROUND THE TRADE

GFS VICTORIAN DISTRIBUTOR FOR SWTP

Recently GFS was appointed Victorian distributor for South-West Technical Products Corporation USA (SWTPC), manufacturers of new and powerful Motorola 6609 based computing systems.



The machine's capacity and options range from hobby level through to business or professional level. Also we have available a large range of supporting software packages, which includes a number of amateur radio oriented programmes such as log bookkeeping, RTTY transmit and receive, and shortly we hope to have morse code software. ■

JOSTYKIT GUIDE

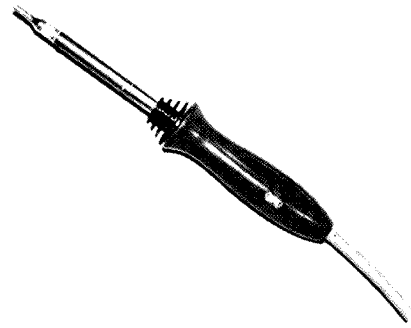
Jostykit now include a Kit Guide with kits being assembled for sale in Australia. Very soon all kits will have this manual included. A sample of this kit guide shows it to be a most comprehensive aid to anyone assembling the kits. It provides assistance in identifying components and in soldering technique and is packed with useful tips and information.

Jostykits are available from VICOM and their distributors. ■

PLEASE SUPPORT OUR ADVERTISERS

TEMPERATURE CONTROLLED IRON FROM SCOPE

Scope Industries have recently announced the release of a 60 watt pre-selectable and automatic temperature control iron. The TC60, as it is known, follows a line of similar irons and features 14 interchangeable iron plated tips, a handle cooling device and an ability to display any temperature between twenty and four hundred degrees Celsius.

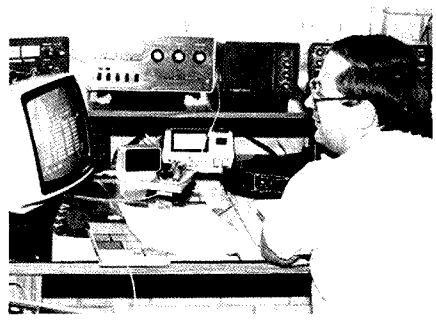


For further information contact Barry McIntosh, Scope Laboratories, 3 Walton Street, Airport West 3042. Phone (03) 338 1566. ■

CW ELECTRONICS

Brian Beamish VK4AHD, well known Brisbane amateur, has opened his own amateur radio shop in Terragindi, a suburb of Brisbane.

Cres Everdell VK4ZAO will manage the shop. Cres, himself a well known amateur, will also be remembered as previous manager of Dick Smith's Brisbane Store.



A rather unique introduction letter was sent to over 2000 northern amateurs. The letter included a survey form. We are still waiting to see if any of the several hundred replies has won $15,000 from a half share ticket in the Queensland lottery offered as an incentive. ■

NEW ANTENNAS

Chirnside Electronics have recently expanded into the field of antenna manufacturing and now manufacture a range of amateur antennae.

They currently have available a range of mono band beams in various sizes, but their most popular is the CE4-2 15-10m duo-band. This beam antenna will cover 15-10m and is in great demand for novice use, having 8 dB forward gain and better than 20 dB F/B ratio. The boom length is 13 ft., the longest element 23 ft. 6 in., and weighs approximately 15 kg. Recommended retail price is $139, which includes a 1 : 1 balun.

Also available is a new range of top loaded helical whips from 80m through 10m. They are manufactured from 3/8 in. solid fibreglass rod and covered with good quality heat shrink PVC tubing and take a 3/8 x 24 TPI thread. They also have an adjustable stainless steel rod for easy tuning. Recommended retail price ranges from between $19 and $22.

For further enquiries contact Chirnside Electronics, 26 Edwards Road, Lilydale 3140. Phone (03) 726 7353. ■

AWARDS COLUMN

Bill Verrall VK5WV
7 Lilac Ave., Flinders Park, S.A. 5025

SUN VALLEY AWARD
Here are the details of an award issued by the VK4 Brisbane Sun Valley 10X Chapter. The award is available for working 10X Chapter members on 10 metres.

NET FREQUENCY AND TIME
Saturday on 28.595 MHz at 2330 UTC.

BASIC AWARD
Requires 10 points, including one BC or one VIP member. Cost $2.00 airmailed — award value 1 point.

FIRST ENDORSEMENT
Requires 50 points, including one BC or one VIP member. Cost $1.00 airmailed — award value 1 point.

SECOND ENDORSEMENT
Requires 100 points, including two BC or VIP members. Cost $1.00 airmailed — award value 2 points.

VIP PENNANT
Requires 250 points, including five BC or five VIP members or combinations. Cost $3.00 airmailed — award value 6 points.

NOTE
Any station may be worked twice for the VIP Pennant and the points totalled, provided the contacts are 24 hours or more apart. All points can be carried forward to the next endorsement.

Basic award holders are classified ASSOCIATE members and are denoted by the suffix "A" — value 2 points.

Chapter members by number only — additional $1.00, worth extra 1 point.

Charter members are designated by suffix "C" — additional $2.00, worth extra 2 points.

First State and First Country add one point to credit value.

Charter members are worth five points each.

DESCRIPTION
The award measures 255 mm x 225 mm printed in two colours on matt finish yellow card. The two logos are in red and the remainder in black.

Applications should be submitted to the Awards Manager, PO Box 90, Holland Park, Brisbane, Old. 4121, Australia.

MINERAL FIELDS AWARD
This award is available from the Mount Isa and Districts Radio Group. It is issued to create an interest in the north-west of Queensland and to bring an awareness of local conditions to interested amateurs.

The award is on a points attained basis, and point scores are as follows:

Contact with a Mount Isa Station on HF — count 1 point.

Contact with a Mount Isa Station on VHF — count 2 points.

Contact with a District Station on HF — count 2 points.

Contact with a District Station on VHF — count 3 points.

RTTY and CW counts double points score for that contact.

The District Stations are those stations within the boundary of the area north of Boulia to the Gulf and west of Cloncurry to the Northern Territory border.

Stations can be claimed one per band, per mode (phone, CW, RTTY), e.g. VK4ACE: 80m phone, 40m CW and phone, 15 CW and phone and VFH equals 1 (1 plus 2) plus (1 plus 2) plus 2. Contacts after 1-1-76 may be claimed for the award.

AWARDS

1. LEAD/ZINC
10 points, at least one contact with a station in Mount Isa and one District Station compulsory.

2. COPPER
LEAD/ZINC plus 5 points.

3. SILVER
LEAD/ZINC plus COPPER plus 5 points.

When applying for this award CHC/GCR rules shall apply.

DESCRIPTION
The award measures 255 mm x 400mm printed in three colours on high quality matt finish white card — border and background in yellow, illustrations in brown and black.

Applications should be submitted to the Awards Manager, Mount Isa and Districts Radio Group, PO Box 232, Mount Isa, Old. 4825, including 4 IRCs or equivalent ($1.20) to cover P & P and costs.

Good hunting. ■

ALARA

AUSTRALIAN LADIES' AMATEUR RADIO ASSOCIATION

NEWS FROM VK YL
In Tasmania, there are a few YLs who are active on the bands. Helene VK7HD has regular skeds on 20m and 10m each week. You can catch Helene during the day providing she's not relieving a vacationing pharmacist or assisting her three teenagers with their activities. She is also the secretary of the Southern Branch Tasmanian Division WIA and the State Co-ordinator for ALARA.

Sue VK7NSU/ZSU has had the double call sign since February 1978. Her radio activities involve her on the executive of the Southern Branch Tasmanian Division WIA, as Southern Scribe for their QRM Newsletter, and on the Tasmanian Amateur Advisory Committee. On the air, Sue is very active on 2m. She was on holidays in Queensland during October with her two children and made contacts through the local 2m repeater.

Pauline VK7NPK passed her NAOCP last year, along with her husband. Both sat for the last AOCP exam and are awaiting the results.

In the north is Lucy VK7NSB, who received her Novice ticket in October 1978. Lucy is secretary of the Northern Branch Tasmanian Division WIA.

The Annual General Meeting of ALARA was held at the home of Heather VK3AZU in Brighton, Victoria. Results of the elections will be posted next month. YLs interested in joining ALARA are invited to write to the Secretary, Box 110, Blackburn, Victoria 3130.

The ALARA net is Monday evenings at 1030 GMT on 3.56 MHz ± QRM.

Mavis VK3BIR, president of ALARA, travelled to Port Vila in October and operated with a YJ call sign. The pile-ups were incredible and Mavis worked the DX stations easily and tirelessly.

Congratulations to Daurel VK3ANL (VK3NCS) for her award from the YL-OM Contest. Her category was YL from Australia on CW.

VK3NQQ. ■

DIVISIONAL NOTES

VK2

The University of NSW Amateur Radio Society will hold its 7th annual amateur radio study course from 14th December. The course extends for 6 weeks, is held on Tuesday, Thursday, Friday and Saturday, 18.00-21.00h at the WIC, 14 Atchison Street, and enrolments can be for either the Novice course or the AOCP course. Cost $22 per head ($5 morse only), all textbooks and notes are supplied. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1979 Call Book.

FOR SALE

12 Brand New 4-125s, still in cartons, $15 ea.; also like to purchase or swap sockets to suit same. VK6ZED, QTHR.

TH6-DXX Beam, 6 el., 10-15-20m, with BN-86 balun; two C42 38-60 MHz FM transceivers with 24V DC PSUs, mics, cables, ATU. Offers to VK2BRB, QTHR. Ph. (065) 45 1527.

Swan 500C EC, ext. 508 VFO, VX-2 VOX, 230X and 14C DC power supplies, box spares and tubes, $400, ONO. Jack VK3NQA, QTHR. Ph. (03) 523 6537.

Palomar (USA) IC Keyer, brand new, now unwanted, sends manual, semi-auto, dot memory, squeeze and iambic, 5 to 50 w.p.m., operates from 9V transistor battery, purchased direct ex USA, including duty, for $122 (retail in VK $139), will sell $120, ONO. VK2BFJ, QTHR. Ph. (043) 32 5758.

KDK FM201, 6A, 1000 ch. 4 memory with memory scanner, 15W output, 2m rig, $300, ONO. Barry. Ph. (02) 99 4993 after 6.30 p.m.

Kyokuto 2m FM Transceiver, synthesised, 800 ch., with inst. book, as new, $280, ONO; FL2000 Yaesu linear, with inst. book and 2 sets spare tubes, $250. VK3PR, QTHR. Ph. (056) 62 2711.

Kenwood TS520S Tcvr, as new, transmitted only into dummy load, $590, ONO. Will consider swap for micro-computer equipment. R. Pardini VK6ZAE, QTHR.

FT101B, exc. cond., little use, all access., new finals, $590; Kenwood TS600 6m all mode Trx, new, complete in factory packing, $590; Kenwood TR2200G 2m portable, exc. cond., nicads, built-in charger, complete, $150; 14AVQ-WB 10-40m trap vertical, good cond., inst. book, $70. VK5YX, QTHR. Ph. (08) 74 2350 Bus., (08) 274 7219 A.H.

Kenwood TS820, complete, dig. display, DC-DC power supply, 4 fix xtals fitted, aux. band installed, "Phantom" DC supply at mic. socket for preamp mics., wired for headset mic. comb, add. rear outlets for access 12V, foot PTT, recorder, factory mods done, Hi Gain FETS fitted with sockets, owner's manual, workshop service manual with bulletins, cables, original carton, $950. VK2BXU. Ph. (02) 57 4648.

204 BA 20m Monobander, 4 elements, $140. Ph. (03) 592 7662.

Kenwood TS520S with 12V op., good cond., $600; also FT200, unmodified, ideal for Novice use, $400 (both for urgent sale); also two Rxs of interest to listeners at $100 each. VK3BKT. Ph. (03) 62 4575 Bus., or (03) 288 2346 A.H.

Generator, Kawasaki KG1300, 240V, as new, $350; Icom IC212 (IC215), nicad batteries, xtls R1 to R8, 40, 50, $250; Trio 9R-59DS Rx, exc. cond., $120. VK2WW, QTHR. Ph. (02) 546 1927.

KW2000A, 160-10m, $425; 6 and 2m transverters, complete with own built-in p/supply, $180; 27/3.5 transverter, $80; VS41 trap vert., $70; 432 ATV Tx and sub-carrier generator, $90; Hallicrafters HT37—3.5, 10 m, $150; K109 SWR bridge, $20; 2 and 6m connectors, 7 MHz IF, best offer; also 2m AM T/R, best offer. Ph. (043) 96 4553.

Yaesu FL/FRDX400 Tx and Rx, good cond., spare finals, $500. Don Campbell VK2DAC, QTHR. Ph. (02) 440 8382.

FT200 Yaesu Transceiver with AC power pack, FP200, in good working order, $300. VK3BW, QTHR. Ph. (03) 59 2322.

TH3JNR 3 el. Triband Bm., still in carton, new, unused, 6 months old. VK2NVA, QTHR. Ph. (02) 909 1130 A.H.

Kenwood TS520S, 9 months old, AC-DC, good cond., 30W, suit Novice, manual, $620; Oskerblock SWR-200, $60; MOD-02X, instructions, suit Cybernet CB, up to 400 ch., unused, $50. Ph. (07) 282 2449, QTHR.

Converted Johnson Viking, covers full 10m Novice band, $120. VK3BXS, QTHR. Ph. (03) 439 9328.

Swan 500C with power supply, spare valves, 400W PEP, excellent cond., $400, ONO. VK2BLK, QTHR. Ph. (02) 57 5606.

Converted CB for 10m Universe SSB 224M, 23 ch. in 5 kHz steps, 5 kHz clar., 28.480 to 28.595 MHz, complete with mic., power cord, mounting bracket and handbook, only 2 months old, works exc., sell for $90. John Brereton VK5NHB, QTHR.

Signetics KT9500 (2650) with RSMB, 16k ram, PSU, manuals and software, all working, $400. VK5ACE, QTHR.

2m FM Multi 7 Tcvr, simplex 40, 50, repeaters 2, 3, 4, 5, 6, 7, 8, $185; 8m AM, SSB Tcvr, Belcom Liner 6, 8W AM, 20W PEP, $240. VK3CBA. Ph. (03) 232 0005 A.H.

Yaesu 2m FT221 all Mode Tcvr, little use, as new, spare PLL board, English inst. manual, carton and packing, $600, ONO. VK4GB, QTHR. Ph. (07) 396 2321.

Yaesu FT225RDM, 2m all Mode Tx/Rx with digital R/O, memory, AC or 12V DC, is matching equip. to FT901, FT101Z, and FT625, 25W out., in mint cond., compl. with higain long yagi, no further use due to change in QTH, $750 firm; ATU-HY power labs model HS250, as new and surplus to requirements, $50; auto CW keyer, Katsumi MK1024, selectable auto or semi-auto dashes, four indep. linkable memories of large message capacity, 5 to 80 w.p.m., iambic operation unit will run from AC or 12V DC, will key either by relay or solid state with back panel switch, $125. Ian Foster VK3ST. Ph. (051) 56 8311.

Hallicrafters HT37 Tx, CW/SSB, 80-10m, in very good cond., with manual, $130, ONO. VK3AUC, QTHR. Ph. (03) 99 2470.

FTV-850 6m Transverter, complete with all leads and manual, $170; FR101D digital Yaesu Rx, 160 to 2m, has all xtals and filters, mint cond., necessary connection leads and manual, $800. VK4UX, QTHR. Ph. (074) 62 2596.

Yaesu FT200/FP200, late model (black front panel), good wkg order, plus some useful mods, including 6EH7 RF and IF mods, some spare values and handbook included, $350; Swan 350, DC supply, by Harbros, uses 2N3055 transistors, works OK, $40. Greg Nixon VK5ZER/NGN, 6 West Tce., Tumby Bay, SA. Ph. (086) 88 2455 A.H., (086) 88 2456 Bus.

Yaesu FTDX100 Tcvr, good working order, all solid state except driver and finals, recently o/hauled and aligned, includes new set of finals and handbook, $375. Bert Shire VK5NMS, QTHR. Ph. (086) 88 2276.

Triband Beam TA33 with 40m traps and balun, $175, ONO. VK3ACN. Ph. (054) 42 1288 Bus.

FT200 Tcvr, 80-10m with AC supply, handbook and ZL FT200 club notes, v.g. cond., $340; also model 15 teletype w/ loop power supply, $45. Brian VK2BVH, QTHR. Ph. (02) 525 2547.

Hy-Gain Ant., 18 AVT, 80-10m trapped vert., $50; Q-Craft SWR meter SWR-2, $20; Katsumi elec. keyer, model EK-108A, $40; coaxial (5 posn.) switch, B & W, model 55A, $20. VK3AUT, QTHR. Ph. (03) 89 5206.

Multi-Palm II, complete in orig. pkg., exc. cond., 12 xtals (one each chan.), $230, ONO; Kenwood TS700A all mode 2m Tcvr, comp. with VOX 3 and MC30S mic., $550, ONO; Kenwood 2200G 2m FM Tcvr, 12 chans., AC-DC, car bracket, $100. VK2ZQH, QTHR. Ph. (02) 498 7867, A.H.

Kenwood TS700A 2m All-mode Tcvr, exc. cond., fully complete, $600, ONO; SV230 Siewa 2m mobile Tcvr, 25W out, ch. 2, 3, 4, 6, 8, 40, 50 and 51, $160. VK3BBM, QTHR. Ph. (03) 232 7084 A.H.

Trio-Kenwood Amateur TX599 Custom Special and JR599 custom special with speaker SP520 and mic., units can be used combined or separate, as new, $950. M. Gerdau, PO Box 80, Pennant Hills 2120. Ph. (02) 848 0414 A.H.

Johnson Viking Matchbox, 10-80m, coax in/out or single wire, bal. 2 wire line, relay switching, 2 kW PEP rating, $75; home-brew ant. matching unit, 10-80m, VSWR indicator, roller inductor Tx capacitors, wide impedance matching range, prof. appearance, sell for component costs, $50; Swan model 45 mobile ant., 10-80m, with switching, complete with base and spring, $65; Oskerblok SWR 200, as new, English manual, $50; Drake W-4 wattmeter, 0-2 kW, 0-200W, $60. Laurie Wade VK2AQW. Ph. (02) 849 9563 A.H.

Trio TS500 HF Tcvr, $350; home-brew frequency counter, 200 MHz, requires 1 MHz crystal, $90 or offer. Steve VK2ZSC. Ph. (02) 674 2104.

Kenwood TS-520S for sale or exchange for TS-120V. VK3NLH, QTHR. Ph. (053) 35 7563.

Kenwood TS820S with CW filter, $850; external UFO VFO 820, $120; Kyokuto 2m FM Tcvr, $240; Kenwood KP202 hand-held 2m Tcrv, with charger and helical whip, $150; KP202 good cond., all others as new. G. H. Herden VK5ZK, QTHR. Ph. (08) 297 4950.

Yaesu FRG 7000 Comm. Rx, 250 kHz to 30 MHz, digital readout, GMT/local clock display, $529. VK2BBJ. Ph. (02) 84 7170 A.H.

Oregon Masts, 1/33 ft., 2/22 ft., capped, painted, fitted nylon pulleys and halyards, steel cleats, complete with tilt-over footings and side plate; on ground, buyer to remove. Offers to VK3SV, QTHR. Ph. (03) 80 2330.

Yaesu FT101E Txcvr, AC-DC, fan, mic., etc., with SP101B ext., speaker, good cond., $650; Yaesu FRG7 Rx with narrow filter and Jackson slow tuning, exc. cond., $250. Enquiries to VK3NMJ, QTHR. Ph. (03) 789 3129 A.H.

2m Transceiver IC202, with H/B 4 element yagi, $175. VK3BCY, QTHR. Ph. (03) 848 4775.

Amateur Radio Magazines, 1974-1979, best offer. Ph. (03) 29 3709.

6m Linear Amp YL1060 Final, 200W PEP, incl. power supply, $85; Vinten MTR20 2m FM Tcrv with ch. 2, 40 and 50, xtals, $40. VK6ET, QTHR. Ph. (092) 276 8928.

Yaesu FTDX401B, mint cond., CW filter, noise blanker, also most spare tubes, sacrifice $450, ONO; would accept FT7 as part payment. VK3YOG, QTHR. Ph. (03) 873 4071.

AR ADDRESS LABELS

Please check your call sign, name, initials, address, grade and other details on your address labels.

Advise any corrections NOW to your Division or direct to WIA, Box 150, Toorak, Vic. 3142.

- The coding on the label reads: Letter Numeral Two digits One digit Two digits Grade Division Unused Distribution Zone.
- The Call Book data derives from the same EDP file.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. M. GRIMWOOD L31005

WANTED

6m Conversion information on ex-CB Equipment, "SBE IV" (or similar would assist), also circuit, copy for "Tiara II" LM 280 linear 10m amp, will defray all costs. Please send to VK2YGN, QTHR.

June 1979 issue of Amateur Radio which failed to reach my QTH during the recent NSW mail dispute; would be pleased to return same after reading it. VK2BFJ, QTHR. Ph. (043) 32 5758.

Drake CW Filters, 250 and 500 Hz, for R4C Rx, 1.2 kHz filter available sale or swap. Peter Nesbit VK3APN. Ph. (03) 317 9001 Bus., (03) 523 6932 A.H.

240V Power Supply and Speaker to match Yaesu FT200. Details VK5XR, QTHR.

Antenna Rotator, all hardware, also 3 element triband Yagi. VK2VKS, QTHR. Ph. (069) 62 4138.

R5223 Rx, ex Aust. Army and manuf. by TCA in 1965, circuit or any other information. Lionel VK4NS, QTHR. Ph. (07) 59 1845.

Amateur Building Blocks, require a set of boards or any partially completed boards or units for SSB transceiver, any cond. Chris Skeer VK5MC, QTHR. Ph. (087) 35 9014.

TRADE HAMADS

Hy-Gain Beams for 40, 20, 15, 10, 6, 2 and 70 cm, also UHF CB and ATV repeaters, DSI frequency counters and kits, Mirage PWR/SWR meters, also 2m amps with preamp. Write ATN Antennas, Box 80, Birchip 3483, for catalogue.

ADVERTISERS' INDEX

'DICK SMITH ( ) WILL MATCH ( ) ANY GENUINE ( ) ADVERTISED PRICE IN AUSTRALIA ( ) ON YAESU ( ) GEAR'

That's right! If someone advertises Yaesu for lower than our advertised price, take a copy of the advert to your nearest Dick Smith store. We will guarantee to match — and better any genuine advertised Australian Yaesu price! You can't lose!

INTRODUCING:

- Digital frequency display
- 320 channels 144 – 148MHz
- Auto or manual scanning
- Keyboard entry of frequency
- Memory with back-up
- Any repeater splits
- 12.5kHz scanning steps
- 4 bit CPU for frequency control

The Yaesu FT-207R 2 metre hand held

This is the receiver you've dreamed of. Gone are the horse-and-buggy days of crystal controlled hand-helds. This new Yaesu uses a four-bit microprocessor to give you more features, more control than you'd imagine possible. If you really want to get into 21st century amateur radio, the Yaesu FT-207R is the transceiver to take you there.
Expensive? No, not when you remember you're holding a computer in the palm of your hand. A computer ready to go to service for you.
Yaesu FT-207R. 21st century ham radio.

Cat D-2888 **$358.00**

Price includes NiCad battery pack.
CREDIT TERMS TO APPROVED APPLICANTS

Some other fine Yaesu products from Dick Smith. . .

FT-901D: all HF bands, all modes, 180W input.
For the discerning amateur who wants the best technology available today. Vox, FM unit, RF speech processor, digital frequency display, RF negative feedback, crystal filter . . . you name it, the 901D has it! Outstanding value. Cat D-2854 **$1266.00**

FT901D Options:
FC-901 Antenna tuner Cat D-2855 **$265.00**
DC-DC Converter Cat D-2856 **$75.00**
Memory Unit Cat D-2858 **$149.50**

FT-101Z all HF band transceiver. 180W DC input.
A worthy successor to the FT-101E. All the features of the previous model, but with 6146B finals, selectable AGC, front panel VOX control, Rx/Tx clarifier, and fully compatible with the FT-901 series of accessories. Superb! Cat D-2862 **$849.00**
(For accessories refer above to FT901)

FT-7B: Up-rated mobile HF transceiver. 100 W.
Now a massive 100 watts with AM, USB & LSB, the FT-7B is a force to be reckoned with. Designed for mobile use (single knob tuning makes it a breeze) but makes a great base station, too. 13.5V operation, a superb performer. Cat D-2868. **$649.00**

FT-625R: 6 metre, all mode transceiver.
The sunspot cycle is nearing its peak. Don't miss the chance of some rare DX! The 625R will get it for you. ALL modes, so you aren't going to miss any of the action. Cat D-2886. **$795.00**

FT-227RB: 2 metre mobile transceiver.
Here's a chance to go 2m mobile and save. We've reduced the price of this unit by $46.00! Simplex, repeaters, etc etc, all easily accomplished! 1W or 10W output. Cat D-2891 **$399.00**

CPU2500RK: The ultimate 2 metre transceiver!
Central processing unit (CPU) controls the action. And there's plenty of that. 800 channels from 144-148MHz, LED readout, dual gate front FET front end, 25 watts output . . . it really is a brilliant piece of gear. Call in for a test drool! Cat D-2889 **$549.00**

FRG-7: listen to the world! 0.5 – 30MHz coverage.
This extremely sensitive communications receiver is used by monitoring services throughout the world. It runs from mains or 12 volt, is a delight to use. Cat D-2850 **$395.00**

YAESU MOBILE ANTENNAS

The greatest mobile system you'll find: Buy the gutter mount base and 2 metre stub and you're on the air immediately on 2m. Then, as you need them, buy the whips for the HF bands you want to operate on. It's as simple as that. Now there's no excuse not to go mobile — with Yaesu mobile antennas from Dick Smith Electronics.

RSE-2-M	RSE-2A	RSL-145	RSL-3.5	RSL-7	RSL-14	RSL-21	RSL-28
Gutter mount	2 metre stub	6 & 2 metre antenna	80 metre antenna	40 metre antenna	20 metre antenna	15 metre antenna	10 metre antenna
Cat D-4100	Cat D-4102	Cat D-4104	Cat D-4110	Cat D-4112	Cat D-4114	Cat D-4116	Cat D-4118
$32.50	**$10.95**	**$23.95**	**$19.95**	**$19.95**	**$20.95**	**$20.95**	**$20.95**

DICK SMITH ELECTRONICS

NSW	125 York Street,	SYDNEY.	Phone 290 3377	ACT	96-98 Gladstone Street, FYSHWICK. Phone 80 4944
	147 Hume Highway,	CHULLORA.	Phone 642 8922	VIC	399 Lonsdale Street, MELBOURNE. Phone 87 9834
	162 Pacific Highway,	GORE HILL.	Phone 439 5311		656 Bridge Road, RICHMOND. Phone 428 1614
	30 Grose Street,	PARRAMATTA.	Phone 683 1133	QLD	166 Logan Road, BURANDA. Phone 391 6233
	263 Keira Street,	WOLLONGONG	Phone 28 3800	SA	203 Wright Street, ADELAIDE. Phone 212 1982
				WA	414 William Street, PERTH. Phone 328 6544

EXCEPT WHERE NOTED, ALL ITEMS SHOWN IN STOCK AT PRICES GIVEN AT TIME OF GOING TO PRESS.
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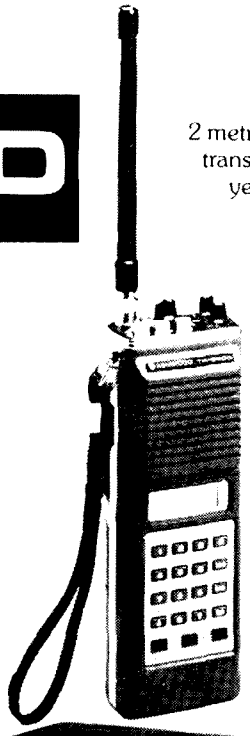

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