

MAY  
1975

THIRTY PENCE

Vol. XXXIII  
No. 3

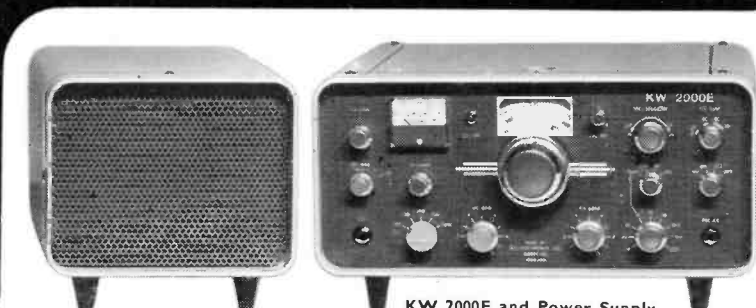
THE  
**SHORT  
WAVE**  
MAGAZINE

**WORLD WIDE  
COMMUNICATION**

**FOR THE RADIO AMATEUR AND AMATEUR RADIO**

# PROFESSIONAL PERFORMANCE

## with KW



**KW 2000E and Power Supply**

**KW 2000E Transceiver** covers all HF Bands 10-160 metres (10 metres in 4 Bands), 500 kHz VFO. SSB/CW. Outstanding TX audio quality. Excellent receiver signal-noise figures. Includes VOX, break-in CW, 100 kHz and WWV calibrator. Reliable 6146's in P.A.



**KW 108**

**KW 108 Monitor Scope.** Monitor your transmissions 10-160m. two-tone test generator incorporated to ensure optimum linearity for SSB.



**KW 1000**

**KW 1000 Linear Amplifier.** 10-80 metres. 1200 watts PEP input max. Designed to be "driven" by KW 2000A/B/E or other Unit of similar power rating. In-built 2.5 Kv. PSU. PA tubes pair T160L. Very quiet in operation.



**KW 107**

**KW 107 Antenna Tuning System.** Incorporates E-Z match, SWR/RF Power meter dummy load, Antenna switch. A high power version KW 109 is also available.



**KW 204**

**KW 204 Transmitter.** Well known for really good audio quality (SSB) and a favourite with CW enthusiasts. 10-160 metres. Reliable PA Tubes (2 x 6146).

**Other KW Favourites.** KW 1000 Linear Amplifier; KW E-Z match ATU; KW 160 ATU; KW 103 SWR/RF Power meter; KW Dummy Load; KW Traps (The original and best) KW Trap Dipoles; KW 109 Supermatch (High Power Version) KW Low pass Filter; KW Balun; KW Antenna Switch.

KW Spares are normally carried for a minimum of five years after date of manufacture of equipment.

Stockists for Hy-Gain beams and verticals. CDR rotators, Shure microphones, etc.



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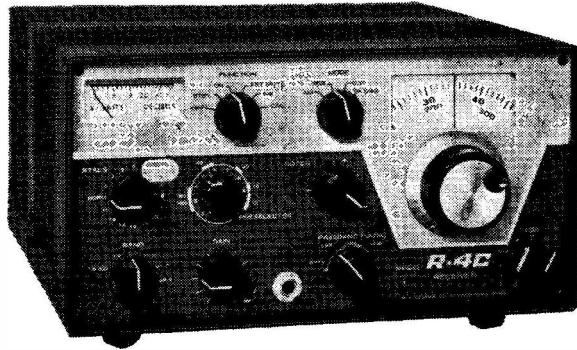
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### ★ LONG TERM RELIABILITY ★

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PRICES INCLUDE VAT

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R-4C Receiver, SSB, AM, SW, RTTY	... £279.72
FL250 Filter for R-4C	... £28.62
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FL4000 Filter for R-4C	... £28.62
FL6000 Filter for R-4C	... £28.62
4-NB Noise Blanker for R-4C	... £37.26
MS-4 Matching Speaker for R-4C	... £12.96
AL-4 Loop Antenna for SPR-4	... £16.20
SPR-4 Receiver, General purpose	... £291.60
Amateur Bands crystal kit for SPR-4	... £14.53
5-NB Noise Blanker for SPR-4	... £37.26
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TA-4 Transceiver adaptor for SPR-4	... £20.52
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DSR-2 Digital Receiver	... £1,441.80

The above prices include VAT at 8%.  
Next-day delivery by Securicor costs £2.50 per major item.

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# LOWE ELECTRONICS



## TRIO TS520



The TS520—latest in the new TRIO line of superior amateur radio equipment. Its styling and finish put all other rigs in the shade; and it is not just pretty—the front panel is a die casting giving unheard of strength and stability.

All semiconductor except for driver and PA, the TS520 is at home mobile, portable or fixed station thanks to built-in AC power supply and 12v. inverter. Blower cooled 6146's for long life and exceptional linearity.

\*TRIO exclusive. Built-in speech compression for that extra DX punch—without distortion, due to amplified ALC system.

Drop us a line for details. You'll be hearing them on the air from now on.

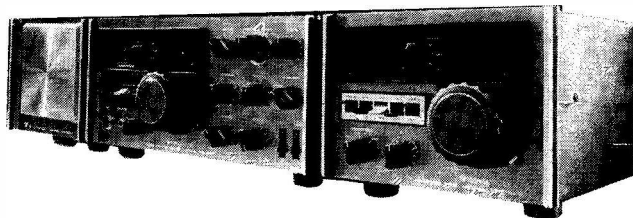
### FEATURES

R.I.T. ★ NOISE BLANKER ★ AMPLIFIED 2 SPEED AGC ★ 25 kHz CALIBRATOR ★ BLOWER COOLED PA ★ FIXED CHANNEL OPERATION ★ 4 FUNCTION METERING ★ AMPLIFIED ALC ★ BUILT IN SPEECH COMPRESSION ★ LED INDICATORS FOR FIX, VFO, RIT ★ LOW POWER TUNE UP FOR LONG PA LIFE ★ TRANSVERTER OUTPUTS (MATCHING TRANSVERTER ON THE WAY) ★ 12v. DC/240v. AC OPERATION ★ MATCHING SPEAKER AND VFO AVAILABLE ★

OBTAINABLE ONLY FROM LOWE ELECTRONICS PRICE £290 (VAT EXCL.)



## TRIO TS900



This is probably the finest amateur transceiver ever made. Professional design and construction make the TS900 a joy to own and use.

As QST (July 1973) said "This device has to be the pace-setter for the 1970's".

Full coverage 80-10; superb stability and selectivity; all mode operations including RTTY (crystal controlled RTTY shift built-in); all solid state except driver and PA; DC power supply and external VFO both available.

300W pep ★ All Modes ★ Separate USB/LSB Filters ★ 500Hz cw Filter Option ★ Four Function Metering ★ Two speed AGC ★ Noise Blanker ★ 0.1 Micro Volt Sensitivity (ARRL Measurements) ★ Blower cooled pa ★ Crystal controlled rtty generation ★ VOX ★ Break in cw ★ AC psu ★ DC psu ★

Write or phone for full specification and the reasons why the TS900 is the ultimate transceiver.

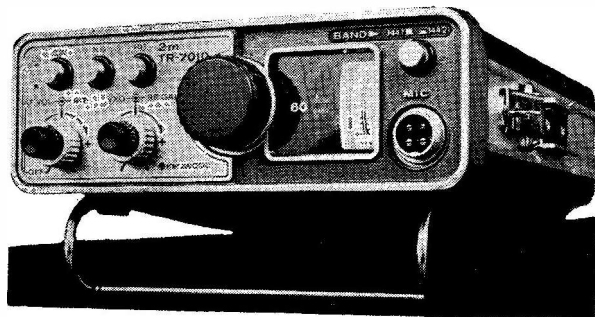
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# LOWE ELECTRONICS



## TRIO

### TR7010



Following the worldwide success of the TS700, Trio have taken the TS700 basic design and packaged it for 2 metre SSB mobile use.

The TR7010 sets new standards in receiver sensitivity and low spurious emission on transmit. Operating CW and SSB from 144.1-144.3 MHz, the TR7010 covers CW, SSB and beacon activity. 40.5 kHz channels plus VXO and RIT provide continuous coverage. 8 extra channels can be used without retuning in the range 144-145 MHz by fitting auxiliary crystals.

Single conversion using an IF of 10.7 MHz with a superb crystal filter provides outstanding selectivity. Wide range amplified AGC and newly developed FET devices in RF amplifier and mixer stages allows maximum sensitivity to be used with freedom from overload due to adjacent signals.

Single conversion transmitter with new fully balanced mixer system generates a beautifully clean signal with crisp audio quality.

The first lucky owners are on two metres right now. Listen to the signal and make up your own mind. Why not send for full details of the all new TR7010 right now.

Price £165 (VAT exc.)



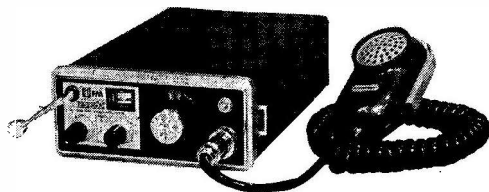
### TR7200G 2m Mobile Transceiver

22 Switch selected transmitting and receiving frequencies in the 2m. FM band between 144 MHz and 146 MHz, five of which are factory-equipped with TX and RX crystals. Illuminated channel indication.

Channels Fitted 145-50 Simplex 145-15/75 Duplex

145-525 Simplex 145-175/775 Duplex

145-55 Simplex Price £125 (VAT exc.)



### TR2200G

The world's most popular 2 metre handy transceiver now comes complete with tuning fork controlled repeater access tone and facilities for 12 channels. With the advent of repeater operation in this country, it is now possible to work long distances with low power equipment and the sudden popularity of portable 2 metre equipment testifies to this fact. The TRIO TR2200G is a high performance transceiver with features not found in other rigs. Supplied with 3 channels fitted:

145-50 Simplex 145-55 Simplex 145-175/775 Duplex

Most other I.A.R.U. channels available.

Price £80 (VAT exc.)

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119 Cavendish Road, Matlock, Derbyshire. Tel. 2817 or 2430 (9 a.m. - 9 p.m.)  
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John G3JYG, 16 Harvard Road, Ringmer, Lewes, Sussex. Tel. Ringmer 812071  
Sim GM3SAN, 19 Ellismuir Road, Baillieston, Nr. Glasgow. Tel. 041-771 0364

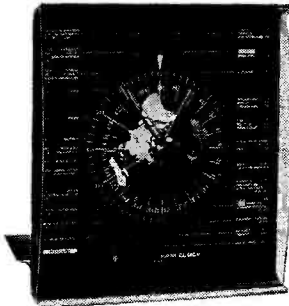
OPEN 9.00 — 5.30 TUESDAY TO SATURDAY INCLUSIVE

# LOWE ELECTRONICS



## TRIO STATION ACCESSORIES

### HAM CLOCK



Have you ever wondered why the amateurs in Hong Kong are not replying? Maybe it's because they're in bed and you forgot just how many hours time difference there is! The TRIO HC2 Ham Clock is a 24 hour battery powered (up to 1 year on a single HP2) clock which gives instant readout of the time anywhere in the world. Beautifully styled so that you won't know whether to keep it in the shack or out in the home, it is a real asset to the DX chaser. At only £11 (VAT exc.) it is incredibly good value.

### LOW PASS FILTER LF30

You know how difficult it has been in recent years to obtain a good low pass filter. Now the TRIO LF30 fills this need. The specification tells its own story.

POWER HANDLING	1 kW
CUT OFF FREQUENCY	30 MHz
STOP BAND ATTENUATION	90 dB
INSERTION LOSS	1.5 dB at 30 MHz
IMPEDANCE	50-100 ohms
CONNECTORS	SO239/PL259
DIMENSIONS (mm)	224 x 50 x 40

PRICE: £9 (VAT exc.)

### BAND PASS FILTER BPF2

This is a specially designed band pass filter centred on 145 MHz and is intended to be used between your 2 metre equipment and the antenna. Eliminate those out of band sprogies from your transverter in one easy move.

POWER HANDLING	50W continuous
PASS BAND	144-146 MHz
STOP BAND ATTENUATION	90 dB
INSERTION LOSS	1.5 dB
IMPEDANCE	50 ohms
CONNECTORS	SO239/PL259
DIMENSIONS (mm)	150 x 50 x 50

PRICE: £8 (VAT exc.)

### MC50 MICROPHONE

Matching microphone for all TRIO equipment. Contemporary styling and dual function construction allows use as hand or stand microphone. Dual impedance 600Ω/50kΩ and two coiled cords give complete versatility. Built in locking PTT switch. The TRIO MC50 is an attractive addition to any station and its performance is superb.

POLAR PATTERN	Cardioid
FREQUENCY RESPONSE	300 Hz-9 kHz
SENSITIVITY	-76dB at 600Ω -56 dB at 50 kΩ

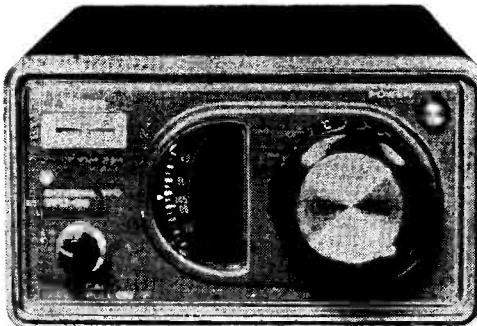
(which really means that it will drive any transmitter that we've tried it on)

PRICE: £18 (VAT exc.)

### MC10 MICROPHONE

Superb hand microphone matching all Trio equipment. Press to talk or VOX operation. Supplied complete with coiled cord and 4-pin plug.

PRICE: £6.30 (VAT exc.)



### VFO 30G

Matching VFO for TR7200G. Gives full band 144-146 MHz coverage on transmit and receive with built-in repeater shift. Centre zero tuning meter provided for accurate receiver tuning. Low frequency heterodyne type VFO for stable QSO's over long operating periods.

PRICE: £55 (VAT exc.)

# LOWE ELECTRONICS

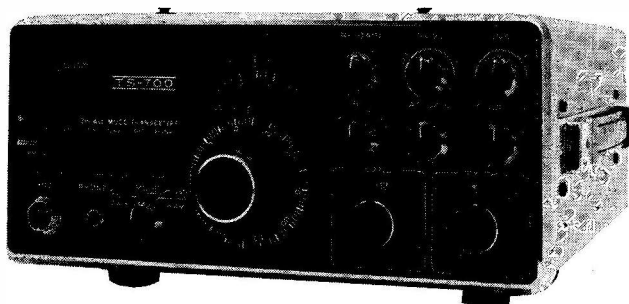


## TRIO

## TS700

### TS700 Specification

FREQUENCY RANGE	144-145 MHz
MODES	usb, lsb, cw, am, fm
VFO COVERAGE	144-145 and 145-146 MHz
CRYSTAL OUTPUT	22 Channel capability
POWER OUTPUT	10W minimum
ANTENNA IMPEDANCE	50 ohms
CARRIER SUPPRESSION	50dB
SIDEBAND SUPPRESSION	Greater than 40dB
SPURIOUS RADIATION	Better than -60dB down in all modes
DEVIATION	± 10 kHz or ± 3 kHz
REPEATER TONE	1750-Hz Tuning Fork Oscillator
IF	10.7 MHz for ssb, am, cw, single Conversion 10.7 MHz and 455 kHz for fm, double Conversion
SENSITIVITY	0.5 µV for 10 dB S and N/N ratio
IMAGE REJECTION	Greater than 60 dB
IF REJECTION	Greater than 60dB
IF SHAPE FACTOR	Better than 2:1 all modes
AF OUTPUT	Greater than 2W into 8 ohms
STABILITY	Better than 200Hz in any 30 min. period after warm-up
REPEATER SHIFT	Standard 600 kHz transmit downshift provided
CALIBRATOR	Built-in 1 MHz Calibration points
DIAL READOUT	To better than 1 kHz all modes
R.I.T.	4 kHz shift of receiver with respect to transmit frequency
NOISE BLANKER	Advanced circuitry noise blanker for noise free mobile or fixed operation
ALC INPUT	Socket provided for ALC input from linear
AUX RELAY	Socket provided for switching external linear



POWER REQUIREMENTS	120/240v. 50/60Hz AC ; 12-16v. DC negative earth
CONSUMPTION	Receive 45 watts AC ; 800 ma DC Transmit 95 watts AC ; 4A DC
DIMENSIONS (mm)	278 wide x 124 high x 320 deep
WEIGHT	11kg 24.2 lb

**Price £300 (VAT exc.)**

## SECONDHAND GOODIES

### Receivers

EA 12	...	...	...	£120
SR550	...	...	...	£45
KW77	...	...	...	£80
FR50B	...	...	...	£60
FR101D	...	...	...	£280

### Transceivers

KW2000A	...	...	...	£150
FT75 + AC PSU, DC PSU and VFO	...	...	...	£125
Paros 3 Bander	...	...	...	£95
FT220	...	...	...	£175

### Transmitters

Vespa 2	...	...	...	£85
FL50B	...	...	...	£60
<b>Sundries</b>				
FV400S	...	...	...	£25
FV101	...	...	...	£35

All prices include VAT but not carriage. The list will no doubt have changed by the time you see it but call us if in doubt.

EXTENSIVE CATALOGUES AVAILABLE. PLEASE SEND 20p TO COVER POSTAGE.

THIS MONTH'S QUOTE (or "Throw away your Linear")

"The Greater the Power, the Greater the Abuse." Burke.

Supplied by Dick Winters, Melton Mowbray.



# Western

UNITED KINGDOM DISTRIBUTOR  
OF THE WORLD'S FINEST RANGE OF AMATEUR  
RADIO EQUIPMENT



BY

## YAESU MUSEN

### YOU'LL REGRET NOT WAITING FOR 'IT'!

- ... "it" has a PHASE LOOP LOCKED VFO FOR 144-6 MHz
- ... "it" has AM as well as SSB — FM and CW
- ... "it" is YAESU'S NEW FT-221

We regret that there's one thing wrong with "it" however! The FT-221 will not be available until about July. However, as a bona-fide Yaesu distributor we have that inside information which gets our orders for shipment of FT-221's in on Yaesu's desk first so we hope you will favour us with your order. Price? Not yet known but circa £300 no doubt.

It's worth remembering that when you deal with WESTERN ELECTRONICS you have the best after-sales service in the country. We have the best equipped service department in the country in our trade and provide free collection and re-delivery on all warranty work. It's all part of our service!

**YAESU PRICES.** WE REGRET THAT DUE TO INCREASED COSTS NEW PRICES WILL APPLY TO NEW STOCK PROBABLY IN MAY

*It's really reliable and the best buy in Britain . . . The FT200*

YD844

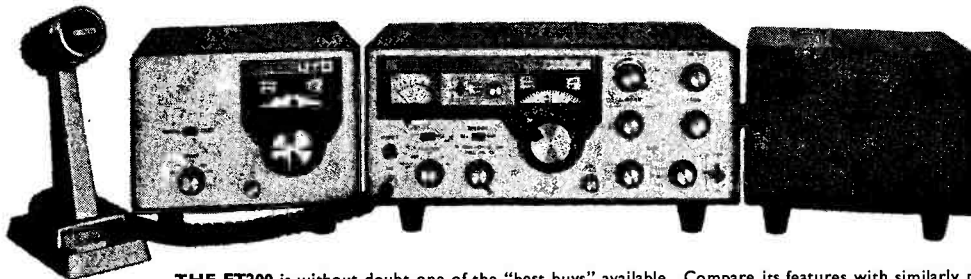
FM200

FT200 (£183-60)

+

FP200 (£48-60)

PRICES inc. VAT



FOR  
260w. p.e.p.  
10-80m.  
SSB-CW-AM  
1kHz READOUT  
CLARIFIER  
100 kHz  
CALIBRATOR

**THE FT200** is without doubt one of the "best buys" available. Compare its features with similarly priced units and kits. SPECIFICATION: 260W p.e.p., 1/p SSB/CW. 75W AM 1kHz readout on all bands 3.5-4, 7-7.5, 14-14.5, 21-21.5, 28.5-29 MHz (3 optional crystals available for 28-28.5, 29-29.5 and 29.5-30 MHz. Stability: 100Hz, 30mins after warm-up. Sensitivity: 0.5µV 10dB/S + N. Selectivity: 2.3 kHz (6dB), 4 kHz (60dB). Clarifier ± 5 kHz. Break-in CW keying. You will pay more for a kit with less power, only 5 kHz readout and no receiver incremental tuning (Clarifier control). These prices only apply whilst current stocks last. Three extra crystals fitted for full 10m. coverage COST £8-10 inc. VAT.

**REMEMBER!:** We have the experience and first introduced the "Yaesu" brand name to you in August 1970 by "Western Electronics," started by our managing director, Hal Perkins, G3NMH.

**VALVES (Post and packing 30p) Minimum order £2.** MOST VALVES ARE OF FIRST GRADE TOSHIBA MANUFACTURE. VAT EXTRA.

572B (Cetron)	£11-20	6AW8 ...	60p	6CB6 ...	40p	6GK6 ...	55p	12AU7 ...	50p
5763 ...	£1-55	6BA6 ...	35p	6CH6 ...	85p	6GV8 ...	72p	12AX7 ...	45p
6146 ...	£4-50	6BE6 ...	40p	6CL6 ...	75p	6IS6C ...	£1-75	12AT7 ...	52p
6146B ...	£4-85	6BM6 ...	50p	6EA8 ...	50p	6KD6 ...	£1-75	12BY7A ...	50p
6AH6 ...	£1-05	6BM8 ...	80p	6EH7 ...	50p	6LQ6 ...	£1-75	12DQ6 ...	£2-25
6AM6 ...	55p	6BN8 ...	45p	6EJ7 ...	50p	6U8 ...	55p	OA2 ...	96p
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6AV6 ...	33p	6BZ6 ...	40p						

**CATALOGUE.** We will be pleased to send you a copy of our COMMUNICATIONS EQUIPMENT catalogue (25p) or TOWERS. ANTENNAS and ROTORS catalogue (25p). No SAE required. (Closed on Saturday, May 24th).



# Electronics (UK) Ltd



## NEW! for the serious FM Repeater operator — the **STANDARD C828!** There's no other choice!

We're so fascinated by this little beauty that we think it makes everything else "obsolete" (or expensive!). The Price? **£125 + VAT**

- \* 10 watts (Hi), 1w. (Lo) output.
- \* 12 channels SIMPLEX or REPEATER.
- \* Single crystal control of REPEATER means you only have to buy 1 CRYSTAL PER REPEATER.
- \* Fitted S20, S22, R5, R6 and R7.
- \* LED (BUSY) indicates whether you have accessed the repeater or not.
- \* LED's to indicate EXTERNAL VFO, TRANSMITTER ON REPEATER OPERATION.
- \* SPEAKER/MIC gives PRIVATE LISTENING and has switch to override the channel selector enabling a changeover to be made to an external VFO.
- \* SIZE: mm 8½ wide × 24 deep × 6 high.
- \* TONEBURST is built in.

## NEW!

HERE IS THE LATEST IN  
**SSTV**  
From **HAMVISION**

This advanced system is packed full of features and beautifully styled. The SS-727M (Monitor and SS-727C (Camera with lens is **£485 + VAT**).



## NEW! REX DG-100 10-160m. DIGITAL TRANSCIVER £399 + VAT



## NEW! CO-AX SWITCH DC - 1500 MHZ, 1 kW

This is a superb commercial quality co-axial switch. It is NOT a rotary wafer switch but a gold plated micro-stripline constant impedance device. Specification: Power handling capability: 1 kW. AM. Insertion loss less than 0.2 dB. Isolation better than 60 dB. SWR: less than 1.2:1 at 1,500 MHz. Impedance 50 ohms. Connectors: UHF standard (gold flashed). BNC, N, C & F available to order.



## NEW! AC-3 Remotely operated Antenna Switch

No extra cables required! The AC-3 enables one of 3 antennas to be remotely selected using a single co-axial feeder. No multicore cable is required. Handles 500w. pep up to 150 MHz. Connectors: UHF. Without doubt this is the best 3-way remotely operated switch we have ever seen.

## Western Electronics (UK) Ltd

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# STOP!

**Are you interested in buying top performance VHF or UHF equipment? Then look no further! . . .**

## 144MHz Mosfet Converters

We offer you the only professionally specified converter for use with modern highly accurate 28-30 MHz receivers. We have now standardised the design of our 28-30 MHz converter using a zener-stabilised 116 MHz crystal oscillator, giving a typical read-out error of better than 1 kHz. The converter is now available in the two versions, with and without the local oscillator output facility.

**MMC144/28** Price £16.42 inc. VAT  
**MMC144/28 LO** (with 116 MHz output) Price £17.60 inc. VAT

### SPECIFICATION

Noise figure: 2.8dB max. Gain: 27dB typ.  
 Image rejection: 65dB typ.  
 Crystal oscillator: 116 MHz (zenered)  
 Frequency error at 144 MHz: 3 kHz max.  
 Power supply: 35mA at 12 volts.  
 116 MHz o/p power: 5mW min (LO o/p version)

We have extended our popular range of single conversion converters to include the following I.F.s:  
 9-11, 12-14, 14-16, 18-20, 24-26, 28-30 MHz Price £16.42 inc. VAT

**70 MHz MOSFET CONVERTER**  
 I.F.'s available: 4-4.7, 14-14.7, 18-18.7 MHz.  
 Price £16.42 inc. VAT

**70 MHz CONVERTER FOR SSB—MMC70/28 LO**  
 SSB is now widely used on the 70 MHz band, and we are now manufacturing our 70 MHz converter with the local oscillator output facility provided at 42 MHz. Specification and price are as above for the 144 MHz version.

**144 MHz DOUBLE CONVERSION MOSFET CONVERTER**  
 I.F.s available ex-stock: 2-4, 4-6 MHz. Price inc. VAT £16.42  
 This unit was developed to meet the heavy demand for a converter suitable for use with receivers having better performance at lower frequencies. It uses two dual-gate mosfet mixers, both fed from the output of a 70 or 71 MHz crystal oscillator. Selectivity is obtained at the first IF in the 74 MHz range, thereby over-coming the usual problems associated with low-I.F. single conversion converters.

**136 MHz SATELLITE BAND CONVERTER**  
 I.F.s available: 28-30 MHz and others. Price inc. VAT £16.42

All our converter and varactor units are housed in durable alloy diecast boxes, well-finished in matt-black stove-enamel. Each unit measures 110 x 60 x 31 mm, and weighs approximately 200gms. With the exception of the 1296 MHz units, Belling-Lee 75 ohm sockets are used for RF input and output connections. Units can be supplied from stock fitted with 50 ohm BNC sockets at an

**432 MHz MOSFET CONVERTER**  
 I.F.s available ex-stock: 14-16, 18-20, 24-26, 28-30, 144-146 MHz.  
 Price inc. VAT £19.55

This unit uses a dual-gate mosfet mixer for excellent strong-signal performance preceded by two BFY90 transistor RF stages for high sensitivity. All UHF tuned circuits are printed using Microstrip technology, and a crystal in the 100 MHz region is used in the oscillator chain to overcome unwanted beats in the tuning range.

**1296 MHz CONVERTER**  
 This converter has been developed using an extension of the microstrip techniques that have been well proven in our 70cm. converter design. Two versions of the design are available using either a 96 MHz or 105.666 MHz crystal to produce I.F.s of 144-146 MHz or 28-30 MHz respectively, corresponding to the 1296-1298 MHz band. We are using crystals of a very tight tolerance to minimize the offset that would otherwise be very noticeable when using a high performance 28-30 MHz tunable receiver. The multiplier chain uses three BFY 90 transistors and the mixer is fabricated using a pair of MA 4882 Schottky diodes in a balanced hybrid ring configuration. The I.F. head amplifier uses a selected low noise dual-gate mosfet to give an overall noise figure which is typically better than 8.5 dB, and a gain of 25 dB. Microstrip UHF circuitry ensures repeatability of this high performance design. The unit is housed in the same small die-cast box as the rest of our range of converters and is fitted with 50 ohm BNC connectors for optimum UHF performance. The converter operates from a nominal 12v. supply and is available in negative earth version only.  
 Price inc. VAT £25.92

**VARACTOR TRIPLERS**  
 We manufacture varactor triplers for 432 and 1296 MHz. Both are highly stable, with low level harmonic output, and capable of AM operation at the 50% power level. These units are aligned using swept-frequency and swept-power drive sources, the output of each unit being monitored on one of our spectrum analysers. Great attention is paid to harmonic suppression and linearity. All harmonics are greater than 40dB down on the wanted output.

**432 MHz VARACTOR TRIPLER**  
 Maximum input power at 144 MHz: 20 watts. Typical output power (at maximum input): 14 watts. Price inc. VAT £18.90

**1296 MHz VARACTOR TRIPLER**  
 Maximum input power at 432 MHz: 24 watts. Typical output power (at maximum input): 14 watts. Price inc. VAT £27.00

**144 MHz DUAL OUTPUT PREAMPLIFIER**  
 Gain 18dB, N.F. 2.8dB. Ex-stock. Price inc. VAT £9.72

additional charge of 40p per socket. PTFE feedthrough insulated terminals are used for DC power connection.

Terms: Cash or cheque with order, or by Giro Transfer to our account, no. 633 4159.

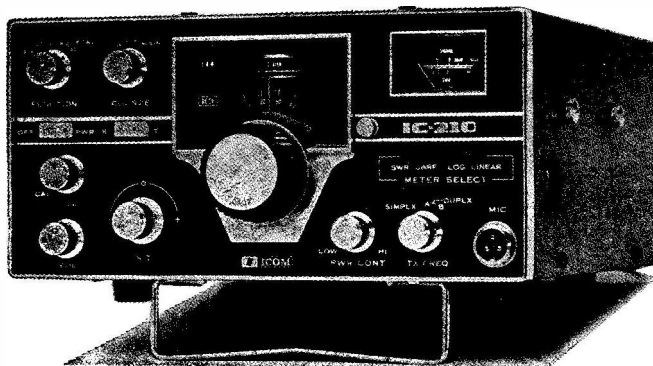
Delivery: Ex-stock by return of post.

# MICROWAVE MODULES LIMITED

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# THANET ELECTRONICS

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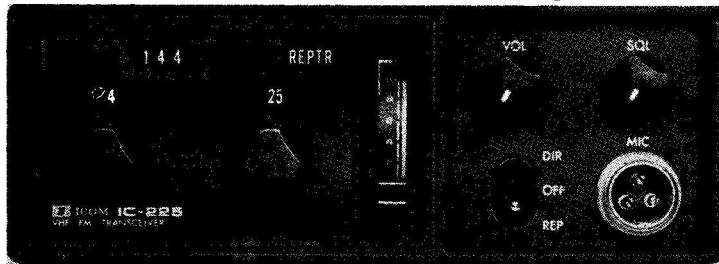
PAUL  
G3VJF

IC-210

## UK INOUE IMPORTERS

IC-210 STILL AVAILABLE AT THE AMAZING LOW PRICE OF £200.00 + VAT

We are still able to offer the IC-210 at this bargain price although this situation is not likely to last much longer. If you are thinking of taking advantage of this offer we would advise you to act quickly or you may be too late. The 210 is fully VFO on both transmit and receive and is stable as a rock because it uses a special phase-locking technique whereby the 11 MHz superbly built VFO is not multiplied. In addition 3 spot crystal frequencies can be used (145 MHz is already fitted). The Duplex facility automatically drops the Tx frequency by 600 kHz and introduces a tone-burst thus making the rig usable through all proposed UK repeaters. Operation is from built-in mains PSU or 12v. neg. earth. A built-in 50 kHz crystal calibrator and centre-zero meter makes setting easy and accurate.



IC-225

This superb 80 channel FM mobile transceiver is becoming extremely popular. It uses a phase locking technique giving 80 channels at 25 kHz spacing all packed in a case 58 mm. x 156 mm. x 247 mm. Other "in-between" channels can be obtained by use of another crystal (e.g. 144.48). The same Duplex facility as that used in the 210 is fitted and a tone burst is automatically inserted when switched to "Repeater." Thus the IC-225 can be used on all proposed UK repeaters without having to buy further crystals. The price is £195 + VAT.

**IC-22.** The IC-22 is the ideal low-priced mobile rig for the man who prefers to increase the number of channels he has available by buying extra crystals when he can afford them. It comes fitted with an automatic tone burst which operates only on selected channels, i.e. those fitted with repeater crystals, without having to turn any switches or press buttons at the right time while driving at 70 m.p.h. When operating on simplex channels the tone burst is automatically switched out. It has a total capacity of 22 channels and comes fitted with SO, S20 and S22 included in the purchase price of £109.26 + VAT. At the time of going to press we have crystals in stock for all the UK repeater channels at £4.00 per pair + VAT. The receiver sensitivity is excellent (0.4uV for 20 dB quieting) and the audio quality and clipping ideal for both repeater and simplex working. We check all our transceivers before dispatch and set up the deviation correctly. You won't be making a mistake by getting a 22 if you can't afford a 225—ask anyone who has one.

**IC-3PA.** This is a mains PSU and extra loudspeaker made to operate the 22 or the 225. It comes supplied with a cradle to hold either transceiver and has built-in automatic current overload protection and warning lights. It will easily give 3 amps at 13.6v. and is ideal for converting your mobile rig into a base station. The price of these has now been reduced to £35 + VAT.

TRADE ENQUIRIES WELCOME

24-HOUR  
ANSAPHONE  
SERVICE

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APPOINTED *for*  
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**THE YAESU MUSEN  
CO. LTD.**



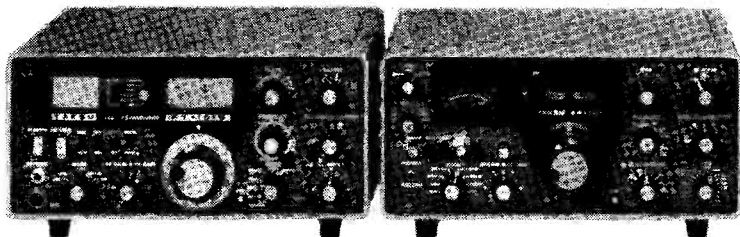
## FR-101 Receiver

FOUR MODELS NOW AVAILABLE

FR101S	STANDARD
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FR101SD	STANDARD WITH DIGITAL DISPLAY
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- Solid State Receiver with Total Spectrum Coverage 160 thru 2 Metre plus provision for Major Short Wave Broadcast Bands. This set is a must for the dedicated SWL

AND FOR THE  
LICENSED OPERATOR  
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WITH THE FT-101B ▶



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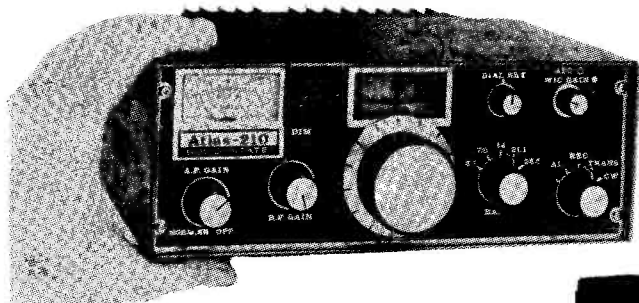
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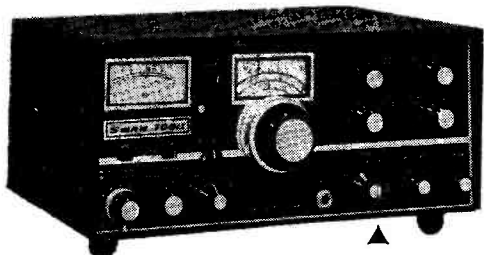
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**NEW MODELS!**

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**PLANET 808 SUPERB NEW SPEECH PROCESSOR!**

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A COUPLE OF STAMPS (WE'LL PROVIDE THE ENVELOPE) WILL BRING YOU OUR LATEST USED EQUIPMENT LIST OR INDIVIDUAL INFORMATION ON SPECIFIC ITEMS—21 PENCE BRINGS THE LATEST GLOSSY SWAN OR YAESU CATALOGUE (FULLY REFUNDABLE AGAINST EVENTUAL PURCHASE)

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# SOUTH MIDLANDS

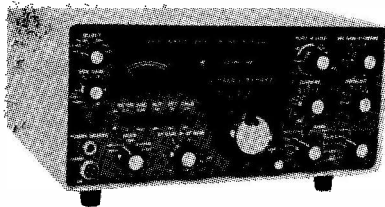
**24 HOUR SECURICOR SERVICE FROM  
FOR FIXED OR MOBILE SSB EQUIPMENTS**

**SMC**

WITH ACTIVE AMATEUR AGENTS. NOW IN SCOTLAND, WALES, NORTH, MIDLANDS AND, OF COURSE, FROM OUR H.Q. IN THE SOUTH TO ANSWER:—Your queries, demonstrate equipment, arrange H.P. facilities if necessary and advise complete systems for antennas, masts, accessories to complete installations.

See these four pages for some of our comprehensive range, write in for FREE Stock/Price List.

**FT201**



Basic 201 £290

The newest of the Yaesu transceiver on offer the FT201. The FT201 features 80–10m. operation and the ability to run from the mains or a 12v. supply. It is constructed using plug-in modules as made famous in the FT-101. Of special interest to those contemplating using the 201 as a prime mover for VHF use, is the use of 9 MHz as the IF frequency and that full AM operation is possible (the optional AM filter being available). For the CW enthusiasts a 600 Hz filter is available with AGC characteristics to suit the mode. Write for full specifications.

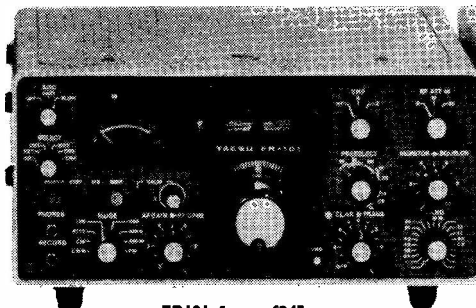
The FT75B is a higher power replacement (120W P.I.P.) of the FT75, the unit which along with the 101 has been responsible for the upsurge in HF mobile operation around the world. On bands 80 through to 10 there are 3 VXO controlled crystal channels as well as provision for external VFO operation. The FT75B is all solid state except the final and driver stages. Included is an excellent noise blanker and squelch circuit for quiet channel monitoring.

Accessories include the FV50C VFO at £35-00, the VC75 microphone compressor and VOX at £18 and the FT75B AC power supply at £35, and the DC75B at £40 illustrated right.



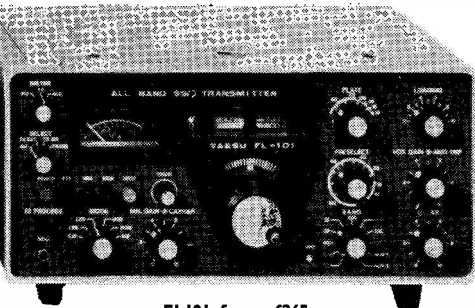
£140 (+ PSU)

- FR10S £245
- FR10SD £310
- FR10D £330
- FR10IDD £430
- FL101 £265
- RFP101 £22



FR101 from £245

The FR-101 is an advanced receiver offering in the de luxe version, coverage from 1.5 MHz including all SW broadcast and HF amateur bands (23 in all) to 144 MHz. AM, FM, SSB CW are catered for, each with a separate crystal filter. Transceiver operation with the FL or FT101.



FL101 from £265

The FL101 is the ideal companion to the FR101 thus forming a superb base station. Operation on 160 through 10m. using SSB, AM, CW or FSK is offered, with the added bonus of an optional inbuilt RF speech processor being available at moderate cost.



PLEASE NOTE THESE PRICES DO NOT INCLUDE VAT (8%)

Terms:—Cash with order or credit card holders just 'phone in for, if possible, same day despatch. Immediate H.P. available for card owners for amounts up to £150-00. Holders of current U.K. callsigns (where references have been provided) can be speedily cleared or normal H.P. at competitive rates is available.



# COMMUNICATIONS LTD.



## YAESU MUSEN UK LARGEST DISTRIBUTOR FOR TWO METRE EQUIPMENTS

**FREE** : Labour, collection and delivery on all warranty work.

**24 HOUR SECURICOR DELIVERY** (remote parts and Scotland 48 hours).

**SERVICE** : By experienced staff, WE AT TOTTON have been supplying, testing and servicing Yaesu since we first started direct imports from Yaesu Musen in 1971.

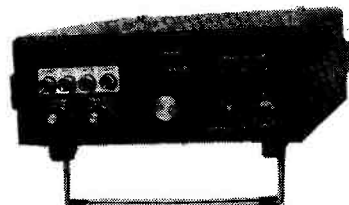
**ORDER 'PHONE SERVICE** : Just quote your Access or Barclaycard number and we will despatch the same day.



The FT224 solid state transceiver is the advanced replacement for the FT-2FB and features 1 or 10W output with a 24 channel flexibility (including a priority channel) all in one small package. Built in tone burst (for repeater actuation) automatic high VSWR and reverse power line protection, centre zero or "S" meter on receive, power output indicator on transmit and of course, squelch. The wireless comes complete with built in speaker, mobile mounting bracket and P.T.T. dynamic microphone.

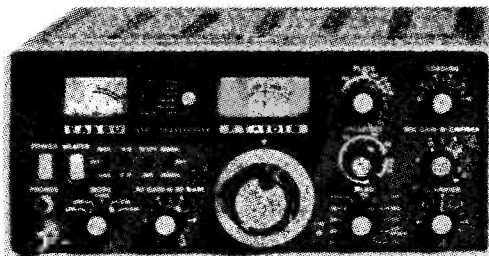
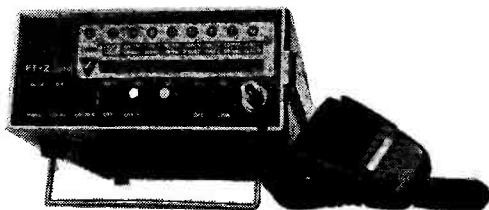
SMC models (as with our new Autos) come fitted with 145-00, 145-5 and 145-55 MHz.

The Sigmasizer series offers either 200 or 80 (10 or 25 kHz increments) channels on two metres, 600 kHz offset on two preset channels (Sig 200) or an offset oscillator (Sig R) give ready access to repeaters when used in conjunction with the built-in tone burst. A further channel may be programmed for instant selection of local Net or RAEN frequencies. Automatic final protection, 10W of R.F. and a generous 2 watts of audio (for mobile use) drawing only 2-2A from 12v. D.C. on transmit. The unit may be run as a base station with the FP2AC regulated power supply (and battery charger).



The FT2AUTO is a unique concept in 2 metres FM transceivers. The "Auto scan" circuit monitors in turn each of the 8 channels every 1/2 second automatically locks upon receipt of a signal. Push buttons, enable elimination of an undesired or occupied channels, on Auto mode, or selection of that frequency on manual mode. A priority circuit may be activated to check your local net or RAEN frequency every two seconds. To transmit on a channel being received a momentary pressing of the P.T.T. locks the transmitter to the receiver.

Separate TX and RX crystals allows duplex operation, switchable tone burst, squelch, built-in mains and 12v. p.s.u. and microphone provided.



FT101B £330

The FT-101B is except for driver and PA, fully solid state using reliable and serviceable "computer type" plug in modules. All that is needed for instant "on the air" operation from 160 through 10m. is either 12v. DC or 234v. AC and, of course, an antenna.



FL2100B £195

The FL2100B features operation 80 through to 10m. using two rugged 572B carbon plate tubes in class "B" grounded grid circuits with individually tuned input coils for each band, and Bifilar wound ferrite filament chokes.

FT101B  
£330

FL2100B  
£195

Ex Stock  
in Totton

SEE OVERLEAF FOR SELECTION OF MASTS, TOWERS, ANTENNAS, Etc.

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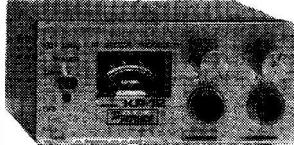
Hours of Business : 9-5.30, 9-12.30 Saturday  
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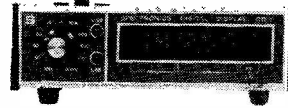
# SOUTH MIDLANDS

## RF SPEECH PROCESSOR KPI2



**£44** Ex Stock  
Audio to audio, via 1007 MHz, mains powered, illuminated meter, FT-101, FT2 plugs suitable all phone modes superb on FM.

## READOUT UNIT FOR FT-101, etc. DDI



**£110** (From May) Digital readout to  $\pm 100$ Hz for FT-101(B), FT401(B), etc. 21 IC's 76 diodes provide a most worthwhile accessory.

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TH3JNR 10-20m. 3 element

TH2 MKIII 10-20m. 3 element  
HY QUAD 10-20m. 2 ele. Quad  
DB10A-15A 15-15m. 3 element  
DB24B 20+40M 3 + 2 elements  
4024B 40m. 2 element  
2048B 20m. 4 element  
203BA 20m. 3 element  
153BA 15m. 3 element

103BA 10m. 3 element  
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All **£3-30** pair, **£1-80** single crystal

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145 (-000, -500, -525, -550, -570, -600)

**Duplex**  
145 (-075/675, -100/700, -125/725, -150/750, -175/775)

**Simplex**  
145 (-500, -525, -550, -575, -600)

**Duplex**  
145 (-075/675, -100/700, -125/725, -150/750, -175/775)

**Inverse**  
145 (-125R, 150R, 175R)

**FT2F** (52 MHz Rx 6 MHz Tx)  
144 (-15, -25, -36R, -40R, -60R, -70R, -80, -96)

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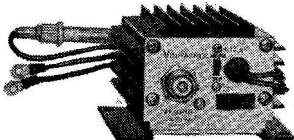
Supplied with 6 channels, SO and S20 and your choice of S21, S22, R5, R6, R7

KP202 ... .. **£75-00**  
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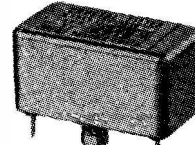
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RF sensing, switchable drop out time SSB, AM, FM, CW, 12v. DC. 10W drive. 801 100W 901 150W



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(P. and P. 37p) Ex Stock  
2.4 kHz, 6 pole, each individually supplied with  $\pm 6$  dB, 25 dB, 60dB bandwidths, ripple factor and insertion loss. Carrier crystals in HC18/U.  
Filter **£11-00**. Crystals **£1-50** ea.

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70 MHz converter ... .. **£15-20**  
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+ L.O. output ... ..  
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144 MHz converter ... .. **£16-30**  
+ L.O. output ... ..

432 MHz converter ... .. **£18-10**  
144 MHz pre amp. ... .. **£9-00**  
Twin outputs ... ..  
1296 MHz converter ... .. **£24-00**  
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Viceroy ... .. **£60-00**

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RC417 USB adaptor  
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Unit costing over £40-00 weight permitting, delivery free of charge (usually by Securicor), Guaranteed 3 months (Labour) VAT extra 8%

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# COMMUNICATIONS LTD.



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**VERSATOWERS** (Carriage paid, England and Wales)  
Tiltable Telescopic post mounted ex-stock. The tilting action allows ease of maintenance and changes of antennas. The relatively low weight eases installation problems. From: **£172.25**

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A/Alloy Telescopic 1.5, 2, 3 metre sections, 6-21 metres from **£11.60** for 6m. to **£38.00** for 21m.

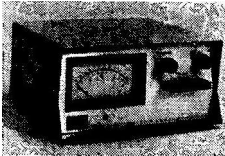
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### K.W. EQUIPMENT (Carriage extra)

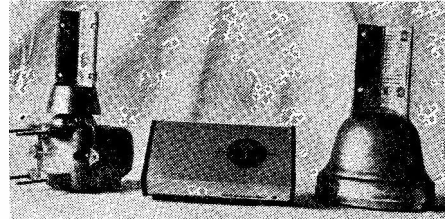
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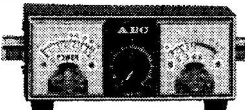
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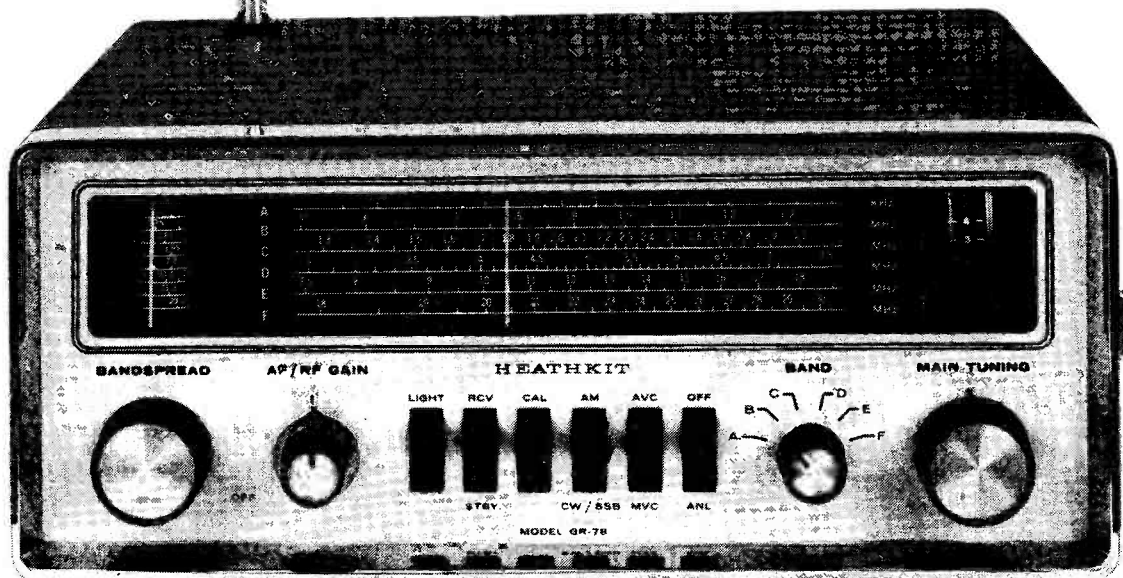
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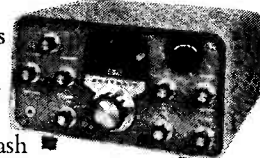
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E D I T O R I A L

***Reflection***

In these days of rapid development in the art of electronics—for it is now an art as well as a science—the field is so vast that no one individual can have much knowledge, and certainly very little experience, outside his own particular range of activity. The cleverest men are those who realise how little they know and how much there is to learn.

As radio amateurs, many of us are not bound by the limitations of the professional radio engineer, who has to keep his mind on the particular aspect of the subject that earns him his living. As free-lance radio men, we can range over the whole field at will—whether it be communication, HF or VHF, CW or phone; UHF experimental work; audio and high-fidelity engineering; recording; transistory in all its many new and developing applications; the enormous field for what are known as “electronic devices,” meaning those used for switching, counting, computing, sampling, checking, heating and even cooling; amateur television transmission; the Oscar theme; remote control by radio—and a great many more lines of development to which electronics can be applied.

All this gives the intelligent amateur a far wider range of interest than the professional and it can be said that many an amateur is, thereby, a more competent practical man than his professional confrère. Of course, this cannot apply in every case or even in the majority, but it is beginning to become evident to an increasing extent.

And it is this fact that enables the amateur to hold his own in the field and to make him a useful, as well as a very important, member of the whole fraternity of radio men.

*Austin Forsyth*  
*G6FO*

# COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

IT is often thought by those who think about these things that the life of a columnist for *SHORT WAVE MAGAZINE* is somewhat of a soft option—nothing to do but sit at the rig and work DX, eat, sleep, and once in a while scratch out a few notes for the feature. Don't let 'em kid you! For a start, there is the matter of earning a crust, at least as far as this old scribe is concerned. Then there is the small matter of Murphy's Law . . . For example: the week before the CQ WW Contest went up aloft and sorted out and tied-up the aerials. Feeling happier, went into the garage (with intent to fit a radio into the family carriage) and was surprised to find a patch of water on the floor, obviously emanating from the radiator in the room above. But no . . . oh, dear, no. It had to be the pipe between floor and ceiling. Ring 24 plumbers, eventually find one interested enough to come and sort us out. This he does, and by the day before the Contest we are back to normal. G3MWF arrives, ready for the fray; we switch on, and notice the shack is cold—pipe is now watertight but owing to draining down, all the crud in the system, after ten years of hard water, has fallen nicely into the pump and stopped it going round. Spend all first day of Contest removing, stripping, lubricating, re-assembling and refitting pump. Went OK on the bench, won't go now, time 9.45 p.m. To blazes with pump and contest, go out to procure pints and more cigarettes. Drink pints, return home, belt pump disconsolately with hammer—it promptly starts and runs perfectly. Give it all best till tomorrow. Comes Sunday, XYL and male offspring got 'flu bug. Spend all next three days nurse-maiding them back to life in between spells of earning a living. By Wednesday evening, judge it safe to go in shack and switch on. Colour TV line timebase noises now plaster all bands up to 14 MHz, obviously a new proud owner somewhere. Look on Top Band—in the line timebase noises and swamping them right out find entire band plastered from end to end with an S9+ version of telephone dialling-tone. Source of noise definitely local, but not yet found to time of writing. Come home ready to start this piece, find heating system boiler now u/s, igniter kaput, and spare one lent to neighbour months ago and never replaced. Lovely hobby, Amateur Radio.

## Sunspots

Very interesting and important things at this time in the eleven-year cycle. Readers of *West Coast DX Bulletin* have, in issue 12-75, seen a graph of Daily Equivalent Sunspot Number plotted against Time, showing us sliding slowly down the slippery slope to a region—now!—when we are at a level of ten or lower. Also an article in *Nature* for August 2, 1974, at pp. 398-399, a reference to some work on defining more accurately the long-term periodicities of the sunspot cycle, and among the conclusions, we note they do not see the present cycle coming to an end in 1975, and indeed there is a strong possibility it may not be till as late as summer 1977. On the other hand, astute readers of *CQ Magazine*, articles by W4UMF, September 1974 issue (and by W3ASK and W4UMF together in March 1975) could make quite a revolution in the thinking of the ordinary DX-chaser in U.S.A. as far as predicting spells of good and bad conditions before they arrive are concerned. From the procedures they outline, one should be able to predict in advance which of the following 28 days will be good, bad or indifferent, to an accuracy of up to 90%. So this old scribe is endeavouring to see whether the principles suggested could be applied to information available quickly and easily in this country, and maybe we will be able in due course to offer a ray of hope.

## Ten Metres

Even if it won't do its stuff properly, at least one can use it to play *Oscar* on the one hand, and for local matters on the other. With the ever-increasing QRM on Top Band, and the mobile telephone-exchanges appearing all over the country on Two, clearly the best spot for any Club local matter is Ten Metres, the more so that few if any amateurs now have a heavy density of Band I TV usage around them.

Nonetheless, even at this bottom of the cycle, Ten still has its moments. On March 30, G3NOF (Yeovil) worked CR6LL, 9J2BO, and 9J2DT, and Don noted one or two other openings on the North-South path.

G4DMN heard nothing on the band, either from school or from home, despite listening round when he could.

Two letters have come in from G3HCU (Peaslake). In the first one, Alan mentions that he, G3BSW and G4CQH all hold regular

QSO's on Tuesdays, Wednesdays and Thursdays, between 1000 and 1200 clock, on 28.550 MHz, and they would like to have others join them. At the same time he makes the suggestion that this could well be used as a Calling Frequency to which people might like to have receivers tuned. In his other letter, G3HCU refers to the Ten-Metre Activity Period organised on March 16—he and the late G6QB (who for so long adorned this space each month) started the idea back in 1964. On the day, G3HCU set up shop at 0847 and carried on through until 1925, during which period he worked sixteen G stations and 9J2DT, who was coming in at S9 plus. Among the G stations, one noted G3RMF in Worcester at 106 miles; G4DHH six hours later from Bromsgrove for a 105-mile haul; G5AQZ in Bristol, 95 miles; G4BMX, 85 miles away in Stroud; G2DFG, Folkestone, 70 miles—and others at quite long distances. The rig for this was a KW-2000B, with a beam atop a crank-up tower.

## Now 21 MHz

There are occasionally weak openings, comments G4DMN, who managed from school to hook CE, OA, CX, ZP, LU, PY and VQ9HCS; from home there were 5L9A (Liberia) and SU1IN.

Again, what he found was along the North-South line, says G3NOF, who heard nothing of North America, but logged Africans from 0900-1900, South Americans from 1100 to 1900, and a few Asians and VKs around 1100. Thus the log reads something like this, all SSB of course: CE3AQW, CQ6LF, CQ7IZ, CR SW, CR7FJ, CW3BH, CV0Z, EA8CR, FH8CY, HK4DF, HZ1KE, LU4DZ/4U (in the Suez Canal Neutral Zone). PT2ZBS, PY2FLG, TR8DG, TU2EB, UF6DZ, VK6RU, VP5B, VQ9P, VU2ABC, VU2BK, XX6OZ, ZD7FT, ZS1DM/M, ZS6ADT, ZS6OS, ZY5YC, ZZ6AM, 4X4MN, 4Z4HF, 5N2AAJ, 7P8AT, 9G1LZ, and 9Y4VU.

G4BKY (Dursley) invested in a MFJ Filter for CW, and finds it a great aid, so much so that his entire entry is CW this time, on all bands! 21 MHz was not overlooked, yielding contacts with PY5AVM, 9H1CG, 9H1CH, K4PYT, W4ANK and K6UI/6.

A call on a dead band, even in these hard times, can be a good thing sometimes, in the view of G2HKU (Sheppey) who tried such a ploy on Fifteen, and got 4Z4HF for his reward, on SSB.

GM3YOR (Kirkcaldy) didn't manage to work any DX except during the *CQ WW Contest*, when Fifteen produced QSO's with CR6SW, CQ6LF, and XX6OZ (all in Angola) OD5IO and PT2ZBS, while FH8CY and 3B8DO were heard.

## Forthcoming—or Not?

One frankly admires the pluck of anyone thinking of DX-peditionary activity with the bands as they are. As if that were not enough, the political situation in S.E. Asia is not exactly helpful. The two factors combined must have been in the mind of Maurice Caplan, V5SMC, in cancelling, at least for the present, the expedition to Spratly (in the South China Sea) which would have included as operators V5SLH, XU2DX and KA8OP, plus Maurice himself.

By the time this comes to be read, one would hope that the Cocos Is. action will have come and gone successfully. The original group led by HB9AQM hit a snag with licensing, but immediately another crew, comprising TI2CF, TI2J, TI2WD, TI2BC, TI2LA and TI2NA set up for business, all bands from 160 metres right through to *Oscars VII/VII*, signing TI2DX or TI2VHF.

The Fernando Po operation of 3CIAGD was a bit of a frost, as it is understood the permit only allowed 24-hour's working, which must have left a lot of frustrated operators.

Any questions of Comoro Is. must be ruled out for the moment, as it is understood there has been an outbreak of cholera, necessitating quarantine regulations!

Ere long, Glorioso Is. may be unearthed by diligent seekers after DX. We understand that FR7AI will be heading in that general direction about the end of May or early June, for around a month or more of concentrated activity. As for FR7AM who used to be here, it is reported that he is living on Reunion Is.—but not interested in QSL'ing! However, work FR7AI and you should be on to a pretty quick QSL—Yoland is known for this from his past expeditions to Tromelin and Europa.

If you hear a TK don't get alarmed; these will be F's in disguise, celebrating the 50th anniversary of REF and the IARU; as an example of the conversion, F2VX will sign TK2VX.

On an entirely different tack, W3DXB writes a homily to all amateurs who run their gear in "temporary" wiring, by multiway



Above, the station of G3YBO, Roger Bains, 11 Dale Crescent, New Tupton, Chesterfield, Derbyshire, with a nice range of modern equipment. At left is the G3YBO QTH, featuring the beam, the car and the XYL.

match-stick connectors stuck in wall outlets, and so on—and who among us is entirely blameless in this respect?—by way of a mention that the absence of the MARS station normally operational in the Pentagon Concourse is due to its being pretty well wiped out by fire.

There is an odd rumour about that Kingman may be the subject of some more activity on the DX front, by one of the round-the-world-by-yacht types; it seems a bit fatuous when we hear that there are thousands of unclaimed QSL's from the last Kingman exercise about to be dumped into the Bureau system; and WA9UCE was able to flog a "certified piece of Kingman Reef" at the San Diego/Orange County DX Meeting, W6JAY being the buyer.

There seems to be just no hope of any further Clipperton Is. activity of any sort in the foreseeable future, which reminds us that the last one was by Danny Weil back in 1960.

A special paragraph needs to be given over to "Fred Phoney" and his activities. He gets around, this bloke, having been noted in such diverse locations as, for example, "KC4AF", claiming to be on Navassa; "HS5ABD" since May 1972 when the real one departed (this bootlegger seems to specialise in working Europeans); and Fred has been known to take a holiday in Albania signing "ZA3PC." Incidentally, it may be recalled that DL7FT managed a *legitimate* ZA operation back in June 1971, for which literally hundreds of stations did not ask for a QSL!

Now some notes of the DX-pedition planned by ZK1BKL for Kermadec. They have equipment organised pretty well, and camping gear, but the present hiccup is the need to hitch a lift actually to get to the island, hiring being a bit pricey, probably as much as anything due to the lack of a safe anchorage in all weathers, resulting in the boat having to shift anchorage with each change of wind. However, the licence is firm, and planning goes on.

#### Twenty Metres

GM3YOR says that he is now working shifts, which gives him a chance to look at the bands during the week instead of fighting his way through the weekend masses; but it didn't seem to make a lot of difference because every time he heard anything really juicy, nearly everyone else on the band heard it too, with the result that GM3YOR gets lost under the QRM! During the CQ WW Contest, Drew worked JY9CR, CG9GCO, VE3AUG, UK9AAA, UK9ADT, UW9AF and W's in call areas 1, 2, 5, 6, 8, and 9. He did *not* connect with

HZ1PA, HS3ABD, VE3CUD/SU, VK1VK, VK6CT, OA4S/4X and XV5AA.

W4WFL/1 (Farmington, Conn.) finds that operating time is at a premium, although he did manage to put in a token appearance in both the CW and Phone legs of the ARRL Contest. The Sunday before his letter, Morgan had a sked with ST2AY, and cranked up on the frequency for the sked only to find himself in the middle of the CQ W/W shindig; nevertheless, there was Roger loud and clear, so they had a nice natter on Phone and CW. Otherwise, on Twenty, W4WFL/1 only managed run-of-the-mill EU stations with the odd African and Caribbean contact; and 3CIAGD, much wanted, managed to escape.

G2HKU next; Ted used SSB to work UA9CBO, UK9ADT, UW9AF, HV3SJ, 4Z4HF. His activity has been somewhat reduced by virtue of the need to grow webbed feet to combat the monsoon season, and to check that the island of Sheppey is still moored where it should be!

G4DMN has a serious problem with the home rig, which generates QRM on the brother's Hi-Fi—going back to school is the only way to suppress it! Nonetheless, from home, ZB2A, W7KSA, PZ1BW, W1's, 9Y4BO, VE7BCM, XK3EUP (in Ontario), UK9AAN, PY7AKQ/8, CP8AB, YS1JWD, ZF1MA, UK9CAE, 6Y5GB, and VP2SV were worked on a dipole at twenty feet; from school there were FY0BHI, UO5AR, UK6FAA and OX3ER.

Now to G4BKY, who seems to have had quite a time on Twenty, working 6Y5AR, UA0BBA, VE7AQL, W7AYO (Washington), W47OMX, KV4AA, CH1QN, SZ4LW, CN2AQ, LU2EN, W0EZV, W7TM (Oregon), WB7ABK (Oregon), a round half-dozen W6's, and about 100 assorted other W/Ve stations, mostly during the Sunday afternoon of the ARRL Contest CW leg.

G3NOF reports no Pacific station heard during the mornings, and VK's and JA's appearing "long-path" for a very short period around 0715; W's have been heard from 1030 to 2300. In the early evenings there have been some Africans up to 2000, followed by Central and South Americans; a few evenings have yielded W7/VE7 openings around 1900. The solitary ZL was heard long-path at 2319. Stations worked were CE2BJ, CR6DL, CR7MI, CY6GQ, EA8IX, EA9AI (Melilla), EA9EY (Ceuta), HI8XKP, HK4DF, JA5HGC, JA9COB, OA4AHA, P0JR, TF3AC, UD6CC, VE3CUD/SU, VE4RP, VE7BCM, VK2FU, VK3AOF, VK3BZ, VK3JY, VK4KS, VK7TR, VP1PKW, VP5B, VP9CB, W7JST, WB4HDZ/6Y5, YS1GMV, ZD7FT, ZD7SD, ZF1MA, ZL4BX, ZS1CTF (Cape Town Festival), ZS1DG, ZS1FJ, ZS4PB, ZS5PU, ZS6BEJ, ZS6BNH, 3D6BE, 4W1AM, 4S7PB, 5H3JL, 5L2FJ, 5Z4OE, 9G1AR, 9G1LZ, 9J2GJ, and 9Y4VU; the gotaway list included XV5DA, heard at 1348, 14222 kHz.

#### Comments

G3NOF takes exception to our comments last time out about the Post Office, Don having done thirty-nine years with them; he feels that in the past, the Post Office has been held down on rates by political decisions for which we are now making up. This may well

be true. All praise indeed to those pockets of the country where standards are kept up and pride in doing a good job is maintained by the staff; and we know from experience that these good areas do exist.

In response, we understand, to the volume of requests, FCC have released a Public Notice indicating the special call-sign principles to be adopted for the American Bi-Centennial Year celebrations, 1976. Simplifying things a little, WA can become AA, WB, AB, W AC, K AD, WD, AE, WR, AF, WN AK; KB6 can use AG2, KC4 AL4, KG6A-H AG6, KH6 AH6, KJ6 AJ7, KL7 AL7, KM6 AH7, KP4AJ4, KP6 AI0, KS4 AH4, KS6 AH3, KV4 AJ3, KW6 AG7, WB6 AG3, WG6 AG5, WH6 AH1, WJ6 AJ1, WL7 AL1, WM6 AH2, WP4 AJ8, WS6 AH5, WV4 AJ2, and WW6 AG1; the calls from WB6 onwards are of course Novices in areas "outside contiguous I.S." (sic). What a confusion it is all going to be!

An interesting little note from 9J2KP mentions that he saw our bit about the previous holder of the call being G3UKP—the present 9J2KP is G3WKP! On a different tack, 9J2KP/G3WKP would be glad, he says, to give. UK. stations a QSO/QSL on 14, 21 or 28 MHz.

Those YL Contests back in January produced a results sheet from Myrtle Cunningham, WA6ISY, from which we notice that G8LY ably upheld the honour of the G's by appearing in the lists for both Phone and CW. The overall winner was HC2YL among the DX stations, with WA8FSX winner for North America.

By the time this comes to be read it may be a little late, but it is understood from GM3YOR that the Glenrothes Club will be operating on the Isle of May, at the mouth of the Firth of Forth, under GB3IOM, over May 9-10 and also for the WAB LF Phone contest on Sunday, May 11. Basically the idea is to carry out some tests on 3 cm., into propagation by way of ducting over a sea path, and the 160-10 metre activity is to provide as it were a fill-in—special QSL's to all contacts, and the gen from GM3YOR, QTHR.

VP2DAI is now back in Hemel Hempstead after his recent trip to U.S.A. He was at a bit of a disadvantage using 200 watts p.e.p. into an end-fed bit of wire in W6-land, home of the Big Beams and kilowatts—but he managed the odd W contact, 6Y5, LA, and the YL Net. Among those heard were ZL1, HA, G4UX, F6CVI, 9G1RA, 9Y4VT, ZFIRD, HI8XKP (who generated a madhouse pile-up), KZ5JM, 6Y5LA, VE7JK, EL2FT, JA8HQI, CG3GCO and TU2DRP. On a side-issue, Dennis went into Henry's Radio Store in Los Angeles, where Ted Henry, W6UOU, was most helpful, prices low, and even a cup of coffee!

Back to those dreary propagation predictions and the lack of sunspots: G4AXQ (Norwood) may have "new" call sign, but he has been around a long time, so long in fact that his last letter to this piece was when G6QB was in charge. Ted had a letter from W3AAZ, who had been talking to W3ANY of the VOA staff. It seems VOA

## Reporting the HF Bands

are now sending their programme material out to the majority of the out-stations by cable (and shortly by satellite) because of the horrible conditions, which they are expecting to last for another 18 months!

For the Fourteenth Boy Scout World Jamboree in the first week of August, at Lillehammer in Norway, with the combined Scouts of Denmark, Finland, Iceland, Norway and Sweden as the hosts, will be putting on LC1J, on all bands, CW/SSB/RTTY/Slow-Scan TV/VHF-FM, and Oscar operation. There will be a special QSL for the operation, and the QSL and station manager, to whom should go all requests for more information or QSL's, is Tom Segalstad, LA4LN, P.O. Box 31, Smestad, Oslo 3, Norway; the latter also has the forms to apply for a reciprocal licence to operate in Norway from LC1J or the Jamboree site.

Now a sad note; the recent death of G2BFN of Bedford, who was 73 years old and had been interested in Amateur Radio since as far back as 1914; he took out his AA licence in 1936, and the full permit straight after Hitler's War, which was current right up to the time of his death.

There are those who have a great interest in Beacons; they will be pleased to hear that ZL2MHF is now operational on 28.170 MHz, using F1 modulation and a callsign about every ten seconds into a vertical aerial, the power input being 90 watts. The location of this beacon is on Mount Climie, Upper Hutt, at a height of 890 metres. Reports are desired and should be sent to: The Secretary, N.Z.A.R.T., Upper Hutt Branch 63, Inc., P.O. Box 40212, Upper Hutt, New Zealand.

### Forty & Eighty

The band to try out a new receiver; if it is all noise from end to end, and no amateur signals, it has probably got a low cross-mod. performance; try an attenuator in front and see if the noise goes down faster than the signals; if it does, then getting a better receiver is as good a cure as any! Seriously, it is quite amazing how a receiver on this band can produce signals from nowhere simply by turning down the RF gain or the RF attenuator up!

The noon-on-Eighty activity of the QRP merchants yielded some interesting QSO's for G2NJ (Peterborough) who managed to rake in G6ZG (Caister-on-Sea) at 800 milliwatts, G3TLX (Edgware), G3WBO of Horsham, and G4DQA up in Sunderland, and several contacts with G3CEL in Hyde, Cheshire, who runs a couple of watts into one of those "magical W3EDP" aeriols so popular in pre-War



Checking through Geoff Watts' well-known weekly news sheet for the latest DX gen are ON5SY (background) and ON5NT, at 4c Lindestr., B-9880 Aalter, Oost-Vlaanderen, Belgium.



days (84ft. of wire through a tuned circuit).

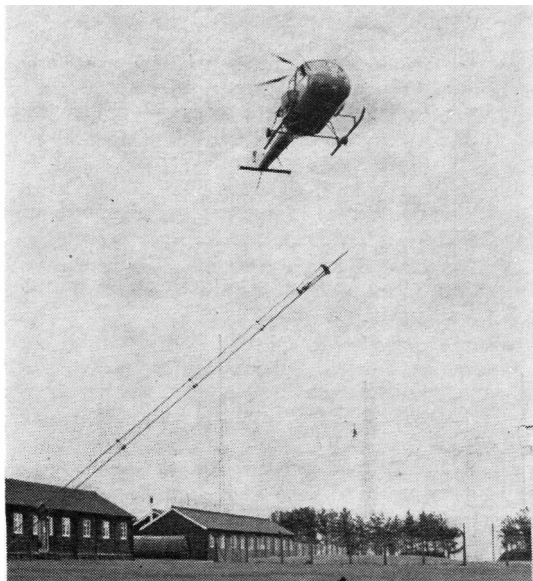
Nice to hear once again from G3UZZ, who now divides his time between St. Mary's in the Scillies and Bishop Rock Lighthouse. Out on the Light, Andy has managed to get up a vertical half-wave on Eighty; this is up the side of the lighthouse, thus having the "shack" on a window-ledge about half-way up the Tower, so that, with the help of a bamboo pole to shove the centre of the aerial away from the sides of the light, the rig sits on the end of about twelve feet of twin feeder—can't get much nearer the eye of the aerial without actually climbing out on the bamboo pole! So far, this set-up has produced, using 90 watts p.e.p. into an HW-32A, contacts with YV5ANS, VE1, VE2, VE3, VO1, W1, W2, W3, W4 (all queuing up to work a lighthouse!) OX3DL, HR6SWA (Swan Is.) and of course the relatively local stuff, with the U.K. stations, as expected (mercifully!), being down in strength due to the aerial configuration. The HW-32A has been fun, but now Andy is looking at the possibilities of a multi-band rig for "out there" while keeping the FT-250 at home.

Still on, primarily, Eighty, but covering 80-10, we must of course mention the QRP Contests sponsored by DL-AGCW. The winter 1975 contest attracted 73 entries in four continents, and we notice G8PG, G3DNF, G3VDW, G4AYS, G5BIU, G3FMW, G3IQF, and G3RJV in the list. A special mention should go to JH1HTK who ran into 66th place, confined to Forty and running an input of as low as fifty milliwatts! Looking onwards, the next contest is July 5-6 with unchanged rules; but it is likely that a change will be made for the winter 1976 effort. For more details, send an s.a.e. to A. D. Taylor, G8PG, QTHR.

Now back to some operating; G4BKY tangled with PA9AEM on Eighty, on a ship carrying iron ore—it looks as though PA9 stations could be the Dutch version of the /MM used by other countries? On Forty, there were WA8SAM, PY7AOW, PY7ADL, UF6FAO, ZB2CJ, VK3VI, VK3AE, both the latter being worked at 2030 GMT. All QSO's on the key.

Eighty for G4DMN has been a sadly neglected band, school work taking priority, but he did manage 3A0FY/M from there, while home rig gave YV4TL, HK5BWX, OA4ANR, YN1FWN, and GC5AUR/P (Jersey). As for 7 MHz, the G4DMN report consists of a cross and an exclamation mark!

Eighty at G2HKU divides into three, namely CW, SSB and QRP contacts. The SSB resulted in EA6BG, PZ1AC and TF3SE, the latter being a new one for the band, while CW gave KV4CI. Down to the QRP level, and here there were F3BF and DM2ADC even though the batteries are down to 9.8 volts! As for Forty, just one SSB contact, with YV40W/P7, but CW with KV4CI PY4BVL and ZL2AKW.



When they wanted to get a 50ft. tower into position for G4RS, Hq. station of the Royal Signals A.R.S. at the School of Signals, Blandford Camp, Dorset, all they had to do was to ask the C.O. of 633 Sqdn., Army Air Corps, for a Scout helicopter to do the job, arranged by Capt. R. A. Webb, G3EKL.

## Top Band Counties

October — September

Callsign	AM	CW	SSB	Total
GM3YOR	30	124	46	200
GD4BEG	15	138	40	193
G2BJY	12	130	36	178
G4CBQ (Home)	56	46	55	157
G4AKY	—	94	24	118
G4CBQ (Univ.)	105	2	—	107
G4BWP	27	70	—	97
G4BOH	9	62	24	95
G4AYS (QRP)	—	70	—	70
G5BHR	3	32	—	35

Each county may be worked once in each mode. AM contacts score three points, CW two points, SSB one point. AM contacts may be changing over to AM from SSB are not allowed, neither are cross-mode contacts saving that AM/SSB contacts will be counted, as two points for the mode the station was using, i.e., the SSB end will claim his two points under the SSB heading and the AM station his two points under the AM heading. New U.K. County designations apply, as listed p. 97, April. Starting date October 1, 1974, closing September 1975.

## Top Band

Not such an enormous clip this month. Your conductor went on the band a couple of times, as already indicated, but it does seem this local QRM is too thick for any but the nearest signals to break through, which is a bit of nuisance—being so wide-band there are not even any little "cracks in the wall" into which one could insert CW or SSB—a real local-QRM problem.

G2HKU used SSB to contact DK5EZ and PA0PN, and CW he was amused to find HB9RM calling CQ with no takers, a situation quickly rectified by G2HKU!

A long and interesting letter from G4CBQ (Derby) who, like several others, records his approval of the decision to allow cross-mode AM-SSB contacts into the Table. Phil reckons to have worked out a good and darn-near infallible filing system for keeping up his table entries with a minimum of work and no error. And, most interesting, Phil finds that the best way to like CW operating is to use it! He thought CW was "for the birds" until he tried it to boost the score in the Table, and now finds it can be fun. The vertical at home has still to be re-erected, the bit above the loading-coil having fallen off, and before this is down, some re-designing of the system is to be undertaken with a view to making a better showing on the band. From Derby the inter-G daytime propagation has been quite good, from I.o.W. up to GM; operation was tried in the Grafton contest—how this has grown in twenty years!—the Chiltern event and the Cray Valley effort. And, just to show it can still be done, that AM was used to work DA2YR/P, HB0AZD, DK5EZ, and DL8TW, this while the SSB rig was out of action with a dud PSU.

G4BOH (Bury) next; Chris had his rig out of action for a couple of weeks which was somewhat annoying, but at the time of his letter he was back on the air, with rig mended, aerial pushed up higher, and "improved earthiness" of the earth.

What a pity, says G4AYS (Molra) who worked his first Trans-Atlantic contact in the form of VO1KE, but was forced to abandon the 600 milliwatts and take to nine watts (*Quelle QRO!*) from an AT5 to do the trick! Another couple of areas are booked in, Cleveland and Grampian, so you can see that 600 milliwatts crystal-controlled on 1844 kHz is a thoroughly practical proposition for inter-G work on Top Band, as the Table shows.

A new country possible on Top Band is Italy; at least by way of DJ6SI/I3, who was at Bozen, 2000 metres up in the Alps, and was worked by, among others, G2NJ, who also reports GC5BLG in Jersey as an outstanding signal.

The QRP bug seems to have bitten G2BJY (Walsall) on the receiving side, he having gone back to a 1-V-2 on Top Band and Eighty just to see how the thing will cope. So far, Geoff has not reported on its usage, but we know he has managed to knock up a few more QSOs, notably with GB3MCG who wanted G2BJY as a multiplier, no doubt for the CQ Contest, and GB3RN.

We must not forget the intercontinental aspect just because summer is coming in; PY1RO writes to remind all of us that throughout June the Summer Trans-Equatorial Tests will take place. Basically, the

scheme is to list, every evening in June from midnight till 0030z, Europeans to use 1825-1830 kHz and South America 1800-1808 kHz. Other DX should be on one or the other segment depending on location, the only exception being ZS, who will be transmitting on 1930-1935 kHz. After calling CQ, check your own frequency for a caller before scanning the "opposite" segment of the band, just in case there is someone calling you; and don't forget those ZS boys sitting in their lonely segment!

As already indicated, several stations mentioned their county hunting had been helped by the contests, and GM3YOR was no exception. On SSB we notice contacts with DJ2ZS, DL8PC and

DA2YR/M, while CW stumped up with DJ6SI/I3, DL7AA, HB9AOD' OE1KJW, OE3GBB, PA0RCH and VE1MX; on the counties side' it was found that the Grafton contests all boosted the relevant county scores.

#### Nothing Further

For this time. For our next, please send reports, news and comment to be received by (or earlier), May 14, addressed CDXN: *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ*. For the months following, closing dates will be June 11 and July 9. With you again on June 27. *73 de E.P.E.*

### MOBILE RALLY SEASON—1975

More than 30% of the 5,000 or so U.K. amateurs licensed mobile are in the Class-B category—which is one reason why there has been something of a proliferation of VHF repeaters in the last couple of years. Of course, repeaters can also be "accessed" (as the saying is) by fixed stations, but most of the commercial VHF/M rigs lend themselves to this inter-station operating process. Even at that, it seems that repeater-working by VHF mobiles is rather more widespread on the Continent than it is in this country.

We would like to hear more about VHF/M results *via* repeaters, with some indication of the distances achieved, through repeater, under strictly mobile conditions.

It is to be hoped that all interested will have noted, from p.84, April, that the proposed A.R.M.S. rally on May 18 has been cancelled. This has left a good weekend date open, but now too late for any other Rally organiser to take advantage of it. Though once again there was good reason for cancellation, it is much to be regretted that for some years now the Amateur Radio Mobile Society has been unable to mount a Rally of its own! However, we gather that they have intentions of arranging "an A.R.M.S. meeting place" at some of the forthcoming events. The hon. secretary, A.R.M.S., is Norman Fitch, G3FPK, *QTHR*.

Seems from the Calendar that the Bank Holiday period, May 25-26, is going to be pretty busy on the Mobile front. It is only to be hoped that we shall have the Wx to justify all the effort going into these affairs.

Where Rally plans fall into the after-May period, they will be covered in the June issue—assuming that we have received the necessary information by about May 14, addressed: "Mobile Scene," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ*.

### MOBILE RALLY CALENDAR

**May 4:** Tulip-Time Rally at Gleed Boys School, Halmer Gardens, Spalding, Lincs. within walking-distance of the 20-acre Springfield Gardens, with flowers and fresh vegetables for sale. All regular attractions, talk-in by G4DSP/A on 1980 kHz and G3MMS/A on 145 MHz, ample free parking, refreshments, bring-and-buy stall (no junk), raffle, prize for longest distance travelled, location maps available on request.—R. Harrison, G3VPR, Spalding & District Amateur Radio Society, 38 Park Avenue, Spalding, Lincs., PE11 1QX.

**May 18:** Amateur Radio Mobile Society Rally is cancelled.

**May 25:** Hull & District A.R.S. Rally at East Riding College of Agriculture, Bishop Burton, Beverley,

Yorkshire, as in previous years.—L. D. Colley, G3AGX, 13 Ferry Road, Wawne, Nr. Hull, Humberside, HU7 5XU.

**May 25:** Maidstone Trade Exhibition and Mobile Rally, Y-Sportscentre, Melrose Close (off Cripple Street, A.229), Loose, Maidstone, with talk-in on 160, 80, 4 and two metres, signing GB3YSC. Trade stand enquiries to A. S. Walters, G3WXL, 4 Oak Farm Gardens, Headcorn, Ashford, Kent. Location maps from P. J. Pickering, G3ORP, *QTHR*.

**May 25:** The Border Rotary Fair in the grounds of Mellerstain House, near Kelso on the A.6089, with many attractions for visitors, including a parachute drop and a vintage car display. Amateur band station on 80, 40 and two metres organised by the Border Amateur Radio Society. The event is in aid of charity. Further details from Ian Robson, GM8IO, *QTHR*.

**June 1st:** Royal Naval Amateur Radio Society Rally at H.M.S. *Mercury*, near Petersfield, Hants.—Fleet/CRS M. J. Matthews, G3JFF, R.N.A.R.S., H.M.S. *Mercury*, East Meon, Petersfield, Hants., GU32, 1HE.

**June 8:** Sixth Mobile Rally at Elvaston Castle Country Park, south of Derby, off the B.5010.—P. Neal, G3WUF, *QTHR*.

**June 29:** The 18th West of England Rally at Longleat House, Warminster, Wilts., probably one of the finest Rally sites in the country—further details later.—B. Croker, G3ULJ, 36 Portland Street, Staple Hill, Bristol, BS16 4PT.

**July 6:** Worcester & District A.R.C. Rally event at Upton-on-Severn, as in previous years.—B. Jones, G8ASO, *QTHR*.

**July 20:** Cornish Radio Amateur Club annual event, at the Technical College, Pool, Redruth, Cornwall. (*Details later.*)

**August 17:** Derby & District Radio Society annual event at Rykneld School, Bedford Street, Derby, as in previous years. Details later. Information from T. Darn, G3FGY, 1 Sandham Lane, Ripley (2972), Derby.

**August 24:** Torbay Amateur Radio Society Rally at Newton Abbot Rugby Club ground, as in previous years.—L. H. Webber, G3GDW, *QTHR*.

**September 28:** Harlow & District A.R.S. event at Netteswell School, Harlow, with bring-and-buy and Trade stands, refreshments, free admission and parking. Details: C. West-Bulford, G8JXU, hon. secretary, Harlow Amateur Radio Society, Mark Hall Barn, Harlow, Essex.

## ABOUT AERIAL FEEDING AND THE SWR

### A THEORETICAL DISCUSSION

E. P. ESSERY (G3KFE)

THERE seems, to judge by statements made over the air and elsewhere, to be some considerable confusion over the question of SWR, cable breakdown due to SWR, loss because of the presence of SWR, and similar factors.

Let us consider first, say, a coax cable of 75 ohms characteristic impedance, Ohm's Law referring. If the SWR is unity, then the feeder *looks* like 75 ohms to the transmitter, and if the PA output is 400 watts CW, then we can say, from Ohm's Law, that the voltage between inner and outer conductor will be 173 volts, near enough and 2.3 amps will be the current—the first being due to the relationship  $E = \sqrt{P_0 Z_0}$  derived directly from Ohm's Law, where P is the power output and Z the characteristic impedance of the line. Likewise, the value for current can be directly derived from Ohm's Law, as  $I = \sqrt{P/Z}$ .

Now, consider a mismatched line: For a VSWR of 2:1 the range of impedances seen at the termination to the transmitter could be anywhere between 37.5 and 150 ohms, neglecting for the moment the reactance factor.

Thus, a little figuring will show that the maximum voltage on the line will be, in this case, *twice* the value previously found, and the same applies to the current. Thus, we may say that the maximum voltage appearing on the line equals SWR *times* the voltage found in the matched condition for the power being run. Likewise, maximum current is going to be SWR *times* the matched current.

Consider, then, a 10:1 VSWR, and the same feeder. Our first answers, namely 173 volts and 2.3 amps, is certainly not going to worry ordinary TV-type coax cable. However when the SWR goes up to ten-to-one (maybe because the aerial fell off before you noticed!) the peak voltage rises to 1730 volts and current to 23 amps. Still the *voltage* won't be enough to worry most 75-ohm feeders, but the current of 23 amps will almost certainly heat up the polythene enough to melt it and so your cable will go down. If you open it out to find out why, you will find sections of melted insulation at regular intervals of a half-wave length at the Tx frequency, provided you calculate this distance making allowance for the velocity factor of your bit of cable, which will probably be 0.66. Incidentally, you may also see signs of voltage breakdown at the same point—but this will be the *result* of the insulation softening, not the cause.

### SWR Losses

Now, what about the losses due to the SWR. In practice, this is complicated. Let us try to clarify a little. No cable is perfect, and the cable-maker will tell us our cable has so many dB loss per 100 feet at so-and-so frequency—if it is connected to have unity VSWR.

Now, the losses due purely to the VSWR will tend to interact with the losses due to the line being less than "perfect." The losses due to line imperfections may be

generalised into (1) The loss due to the resistance of the conductors and, (2) The loss due to radiation of RF from the line—this last is more or less negligible with good-quality coax such as UR70, particularly if it is used with an unbalanced aerial or is connected to a dipole or similar balanced aerial by means of a balun. (If you've ever cured a case of TVI just by putting a balun on the Tx dipole, or the TV aerial, you will accept that the absence of the balun does allow some slight radiation from a coax feeder!) And for our third cause of losses, we must allow that the insulation itself is a bit lossy.

Now, if the line were perfect, but looking into a mismatch at the aerial end, clearly some power delivered to the aerial will be reflected back down the line to the transmitter; if the Tx is tuned to the *feedline* impedance it sees, then that power is not "lost" but sent back on its way and in the end all the power produced is radiated. Thus, a VSWR *of itself* (given that the transmitter is capable of coping with the reactance it is presented with by the feeder) represents no loss. This condition is closely approximated by open-wire line such as Zepp-type feeders. So why all the *hou-ha* about SWR causing losses?

### Why The Hou-Ha?

Well, of course, there has to be reason—no smoke without fire. However, the reason seems to have got a bit confused in the minds of many people.

We have already agreed that a practical line has losses, measurable as so many decibels per unit length at unity VSWR. What happens, basically, is that the effect of the higher-than-unity VSWR compounds the losses in a practical cable. This is because power reflected to the transmitter undergoes loss due to the loss of the cable, first on the way up to the aerial, and then again on the return trip—added to which the higher currents appearing at points along the line will also tend to increase the wattage losses at those points.

As an example, consider the case of a 50-ohm feeder terminated in an unknown impedance, such that a VSWR of 2:1 is observed at the load end. The line is 2.84 wave-lengths long at the frequency under consideration, and has 1 dB loss. Let us say that a voltage maximum exists at a point 0.175 wavelength from the load and 2.665 wavelengths from the input. If we take a Smith Chart and plot thereon what we know, we find, first, the load impedance, which turns out to be 30 ohms plus  $j18.0$  ohms. Similarly we can find the input impedance to the line "seen" by the transmitter as being  $35 - j17.5$  ohms. This means the output stage of the transmitter must have an impedance of  $35 + j17.5$  to "tune out" the reactance, as we say, and transfer maximum power into the line.

What now about the line losses? Recall we specified the nominal line loss as being 1 dB. The increased loss due to the standing waves can be found on the Smith Chart from the figures already obtained; the "loss co-efficient" is found to be 1.25 at the aerial end and 1.14 at the generator (Tx) end. The extra loss due to the SWR is the *difference* between the readings on the "reflection loss" scale at generator and load,  $0.51 - 0.31 = 0.2$  dB. What a loss to worry about! You would be hard put to it to read a professional instrument

to better than  $\frac{1}{2}$  dB, and as far as we amateurs are concerned, it just doesn't exist!

### Increasing Line Loss

However, let us raise the frequency to a point where the line loss rises from one dB to four dB in the matched condition, and repeat the exercise; this time our answer will come out considerably more than four dB, in fact it will be nearer a total of eight dB. Thus, in the case of our "good" bit of line at an SWR of 2, we lost a negligible amount of power, but when the matched line loss became as high as four dB we lost another four dB—which is a different kettle of fish altogether!

What does this mean in practice? Below 30 MHz, it is unlikely that the matched line loss of the feeder is as high as 1 dB unless it has a long run of say 100 feet. So at the time of installation we have a near-perfect situation—but as coaxial cables cannot be expected to remain good for more than a couple of years, we may expect that our power radiated may fall quite rapidly as the cable ages and its matched line-loss rises. (At VHF the situation is worse, insofar as the line matched loss will usually be higher, and feeder runs longer). In either case, we may say that because of the rising line losses, the SWR as seen by a reflectometer at the station end will steadily get *better* as the line deteriorates!

In fact, the best way to test a bit of coax line is to

haul it up to its final position minus the aerial connections—for example, with a 14-AVQ take the cable right to the top but don't mate the UHF plug into the aerial. Go back down below, put a whiff of power up and measure the SWR of the open-circuited feeder on its own. This should be higher than 10 : 1. Make a note of it, and connect the aerial. Now, every time you check over the aerial system—which should be at least annually!—just repeat the VSWR measurement on the open-circuit feeder as just explained, and if it is any worse either scrap it straight away, or decide that it will be past praying for and put in a new feeder.

### Conclusions

If you have a high VSWR on a coax feeder, it won't necessarily cause high losses—but it *may* wreck the coax by melting. High VSWR doesn't, *of itself*, cause high losses; but if the cable is already lousy above about 1 dB, then a high SWR may make the total line loss higher to an unacceptably great extent. Thus, it is not true to say simply that high VSWR means losses—you must, as it were, itemise your losses!

And of course, the corollary to the proposition is that there is no need to worry if your SWR is over 2 : 1. So long as the cable is good and the ATU can match it to the load, it doesn't really matter a cuss, at least on transmit.

## DESIGN OF POWER SUPPLIES

### FOR LOW-VOLTAGE CIRCUITS

I. D. POOLE, B.Sc. (G3YWX)

**N**OW that transistors are being used far more extensively the need for power supplies to give outputs in the region of 6 to 15 volts is increasing. Using semi-conductors, sophisticated supplies can be made in the minimum of space. Previously, when using valves, any talk of a stabilised supply using more than the proverbial VR150 or OA2 was a fairly major project involved a large chassis to accommodate the valves needed. It is now possible to construct a stabilised supply using only a few components, which can give quite satisfactory results for all but the most demanding situations.

#### The Rectifier

The first requirement for any AC-mains power supply is a rectifier. The simplest and most obvious circuit is that of the half-wave rectifier (Fig. 1A), which will give an output of  $\sqrt{2} E$  with no load, and falling to approximately  $E$  at full load. Only one half of the waveform is rectified, leading to a greater difficulty in hum rejection than in other circuits which will be described later. Additionally, during the non-conducting half-cycle the peak inverse voltage is the sum of the voltage of the AC waveform

plus the voltage on the capacitor. This value can be as high at  $2\sqrt{2}E$ .

The next circuit is that of the full-wave rectifier (Fig. 1B). This configuration requires a centre-tapped transformer, but it has the advantage of utilising both halves of the incoming AC waveform. When one diode is conducting, the voltage in the other leg of the transformer is such that the second diode is contra-biased, and then during the other half the situation reverses. Again the no-load output is  $\sqrt{2} E$ , but as the load increases it falls to about  $1.2E$  at full load. Full-wave rectification has the advantage that, using both halves of the cycle, it is easier to smooth. It should be noted that the ripple on the DC output will be twice that of the AC input frequency, hence the hum. Again the peak inverse voltage is  $2\sqrt{2}E$ .

To avoid using a centre-tapped transformer whilst still retaining the advantages of the full-wave rectifier, a bridge rectifier can be used. The disadvantage of this circuit is that it employs four diodes, but these will only have a peak inverse voltage across them of  $\sqrt{2} E$ .

#### Smoothing Circuits

Usually, with transistor stabilisers, a capacitor only is used to give the required smoothing. However, for the sake of completeness and for those still using valves a mention of RC and LC networks will be made (Fig. 2).

Basically, the circuits employed are low-pass filters, cut-off frequencies of which are below the mains input frequency, and therefore should filter out the AC component leaving only DC. When designing the smoothing

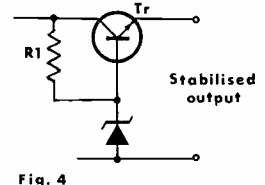
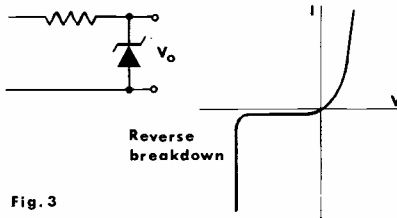
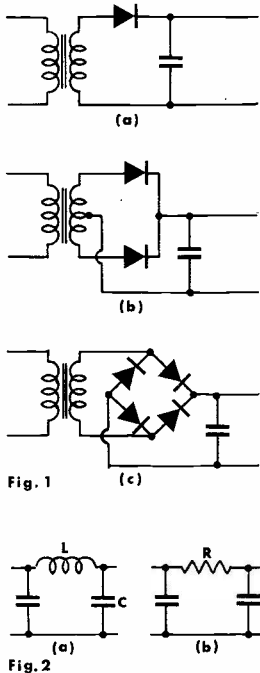


Fig. 3

Fig. 4

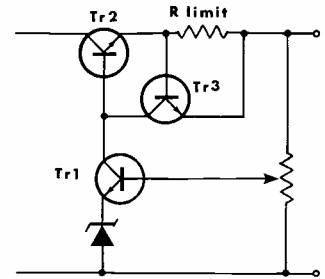
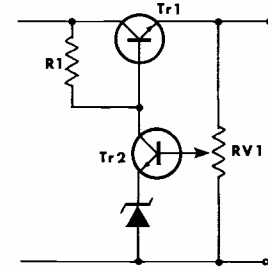


Fig. 5

Fig. 7

P 142

circuit for a valve rectifier the value of the capacitor nearest to the rectifier must not be made too large, otherwise the cathode of the valve will be stripped, due to the current surges. Semiconductors are more robust in this respect and will take surge currents, well in excess of their mean rating.

The LC circuit (Fig. 2A) gives the better smoothing. The RC network has the disadvantage of introducing a series-voltage drop.

**Stabilisation**

Whilst the RC and LC networks shown in the circuitry herewith are quite effective in reducing hum, they do suffer the disadvantage that the output voltage falls with increased load.

Depending on the degree of stabilisation required, various circuits can be employed. The simplest of these is the semi-conductor equivalent of the old VR-150 series stabiliser, using a zener diode (Fig. 3). The diode is reverse-biased so that break-down occurs. Generally, for diodes whose breakdown is below about 5 volts zener breakdown predominates, but above this avalanche breakdown is predominant. Regardless of the type of breakdown, the voltage across the diode is almost constant over a wide range of current. The value of the series resistor should be calculated to give the correct voltage drop for the current which is the sum of that flowing through the load and that through the zener. To achieve good regulation the zener current should be greater than the load current, and a minimum of 2 mA to 3 mA to maintain the reverse breakdown.

It is probably of interest to note that light-emitting diodes have an almost constant forward voltage after the

initial turn-on. They are in fact as good as, if not better than, zeners provided that the voltage required is a multiple of the forward voltage of about 1.6 volts.

This type of regulation has serious limitations owing to the amount of current through the zener in comparison with that through the load. To improve this the zener can be used to control a series element (Fig. 4). The resistor R1 is used to drive the zener into reverse breakdown, and the transistor acts as an emitter-follower. The output voltage at the emitter of the transistor differs from the base voltage by the base-emitter voltage, which is about 0.2 volts for a germanium transistor and 0.6 for silicon. To give good stabilisation the collector-emitter voltage should be designed not to fall below about 3 volts.

If still more stabilisation is required a form of feedback can be incorporated (Fig. 5). In this case the diode is used as a reference, and R1 supplies the collector current for Tr1 which acts as a differential amplifier. Any variation on the output is amplified by Tr1 and feed back to the base of the series-regulating transistor Tr2, with the resulting tendency to change the initial variation. This circuit has the advantage that the output voltage can be preset by the use of RV1. In general, the zener diode voltage is about half the required stabilised output voltage.

Fig. 6 shows a typical stabilised power supply using pieces to be found in most junk boxes, and capable of giving about 300 mA.

**Current Limiting**

Whenever a power supply is used for experimental circuits there is a high probability that at one time or



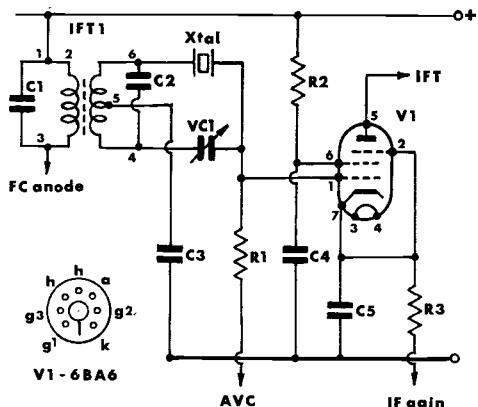


Fig.1 Circuit of Crystal filter IF Amplifier

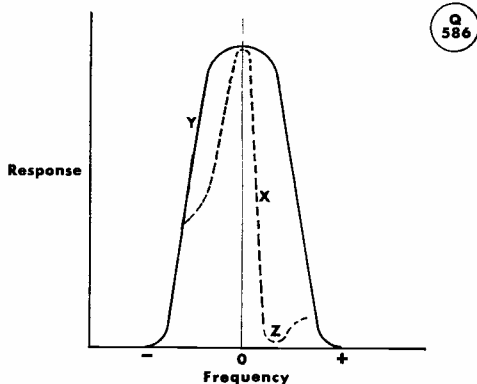


Fig.2 Illustration of response curves obtained

Table of Values

Fig. 1. Crystel Filter Stage

C1, C2 = As fitted in Rx	R2 = 47,000 ohms
C3 = IFT	R3 = 82 ohms
C4 = 0.05 μF	V1 = 6BA6
C5 = 0.05 μF	Xtal = Approx. 465 kHz
VC1 = 25 μμF miniature variable	IFT1 = Denco IFT11/465/CT.
R1 = 100,000 ohms	

be reduced and will be displaced one way or the other from Y. With the signal generator giving an unmodulated carrier, X may be found as an abrupt response peak a little higher or lower than the flatter peak Y. Tune to the crystal X, and slightly adjust all the IFT cores, a little at a time, to bring about the best S-meter reading. When this has been done, only one peak will be found—sharp with the crystal in, but at the same spot as with it out.

It is then possible to adjust VC1 to obtain a symmetrical response, and to set all the IFT cores exactly to the crystal resonant frequency in this condition. It should then be found that the generator can be off-set, and almost or completely eliminated by phasing VC1 to put it in the notch Z.

Adjustments cannot be completed readily with a modulated signal, as it will be possible to tune in the sidebands separately.

BOOK REVIEW

“WORLD RADIO/TV HANDBOOK — 1975”

The 29th Edn. of this 430-page annual is as remarkable as ever—essentially for those interested in broadcasting world-wide, it is the only publication of its kind available in print. It is also about the only one of our titles having nothing to do with Amateur Radio, and is for the SWL who wishes to identify and QSL with BC stations.

World Radio/TV Handbook lists details of the broadcasting systems of every country in the world (including China and the USSR) giving station addresses, operating frequencies and power, domestic and (where applicable) overseas transmitting schedules, languages used, the interval or identification signal—in short, all the information the searcher over the S/W broadcast bands could possibly want to find and identify transmissions. It would need an exceptional receiver, a complex aerial system and weeks of patience to find and identify a tenth of the BC stations nowadays available for the keen DX listener on the broadcast bands.

But World Radio/TV Handbook gives all the guidance required for the search. For instance, opening the book at random, we find on p.130 that the Republic of Burundi (ever heard of it!) transmits in French, Swahili and two other South African native languages on 3300 and 6140 kHz, running 25 kW, announces in French, and that the interval signal is a sound produced by an ox tendon stretched over a calabash bowl and stroked with a bow. The station address is Boite Postale 60, Bujumbura, Burundi and reports by SWL card are acknowledged. And if that's what you find about Burundi, just imagine

unless reception is by one sideband only.

For “single-signal” CW reception, maximum or near maximum selectivity is used, though Z may be moved about to reject a carrier. With ordinary CW reception, assuming a response like Y, and the BFO set for the wanted pitch, slight adjustment of receiver tuning will provide reception at two points. Pitch will fall to zero, then the signal will come up again as tuning progresses. Single-signal reception is obtained by setting tuning, phasing, and pitch so that this second response is almost totally inaudible. The wanted CW can then be tuned in at only one point, not two. At the same time a lot of background noise goes.

Filter Adjustment

A signal general will help, as otherwise it is necessary to spend time tuning across stable signals while fiddling with the core and other adjustments.

If receiver and crystal frequencies match, the IFT response Y and crystal response X will agree. The tuning position for maximum S-meter reading will then be the same, for IFT's and crystal.

Where these frequencies do not quite agree, X will

the details given about any other of the broadcasting systems of the world!

The general coverage is long, medium, short wave, VHF/FM, also television services (channels and frequencies, where applicable). Except for maps, time charts and various articles of purely SWL interest, there is no technical material.

Over the years, *World Radio/TV Handbook* has become a standard text for all, official or otherwise, who monitor the world's broadcasting transmissions. As such, it is a reference used and recommended by, among

others, the ITU Geneva, the BBC, the U.S. "Voice of America" and the Russian "State Committee for Broadcasting and Television." And over the years, tens of thousands of copies have been sold to those who want to keep up with what is happening in the field of broadcasting.

In the U.K., we have been handling it since its inception, nearly 30 years ago. *World Radio/TV Handbook*, costs £3.74 post paid, delivery from stock (at the moment), from the Publications Dept. Short Wave Magazine, Ltd., 55 Victoria Street, London, SW1H 0HF.

## TWO-METRE RF AMPLIFIERS

### PRACTICAL CIRCUITS

S. G. PHILLIPS (G8HQA/DA4BM)

SOME short while ago the author decided to go medium-power sideband on Two. The acquisition of a QQVO6-40A linear solved the problem only to create a new one. The author discovered with the aid of several friends that he was being called by people who could hear him but that he could not hear them. This became to say the least embarrassing so the problem was looked at and the solution decided on. A pre-amplifier was needed. An old and much-used AF186 provided the first step towards improving the receive side. However, a new and very nasty problem soon raised its ugly head, noise. Nothing was done for some time with the exception of looking at every RF amplifier circuit available—that is, until the long suffering AF186 finally gave up and "died." Then as always an opening came up and the G8HQA preamp. Mk. I came into being.

#### The Mark I

This first circuit ("Mk. I") was built in a tin can with more holes in it than tin, however it functioned first time (to the author's amazement) and gave the impression that it was working fairly well. The noise level low and the gain reasonable.

As can be seen from the circuit, Fig. 1, the design is very simple. No originality is claimed as it is a mixture of about five different circuits from both sides of the Atlantic. Component values are not at all critical and the same holds true for the method of construction. A p.c.b. will give the smallest and neatest arrangement but the author finally settled for the most convenient container at hand—a tobacco tin. The tolerance in the components could be up to 40% in either direction and the design will still work. The circuit needs little or no explanation; a 40673 mosfet is the "prime mover," supply voltage being in the range 5-15 volts. The current drain is approx 5 mA. Unfortunately with no well calibrated test gear available the noise level and gain can only be estimated. On the author's Telford TC7 and AEV converter there is no increase in noise noticeable while the gain gives an increase of 2-3 S-points by the meter. The AEV converter is quoted by Telford Communications to have a typical noise figure of 3dB. At

6dB to the S-point the gain of the preamp is 12-18 dB which compares favourably with commercial models. Surprisingly, cross-modulation performance was not affected to any noticeable degree so the preamp stays in all the time.

Having got the single stage model to work it was decided that as the bits were to hand the idea could be pursued one step forward. So along came the G8HQA pre-amp Mk. II.

#### The Mark II

This is as Fig. 2. At first it was assumed that the noise level of a two-stage mosfet preamp. would be very high but nevertheless the work continued. As can be seen from the circuit diagram the Mk. II is two Mk. I's connected end-to-end. The idea basically is that the signal amplified by the first is then further enlarged by the second. This works well in practice despite problems that numerous people said would plague the project.

Once again 40673's were used, the reason being that they were to hand and secondly it is one of the more reasonably priced gate-protected mosfets available. Once again the circuit is straight forward, the output of the first going to the input of the other. At first the two coils were both the same but on completion it was found that the second coil would not resonate, consequently two turns were removed which enabled a peak in the

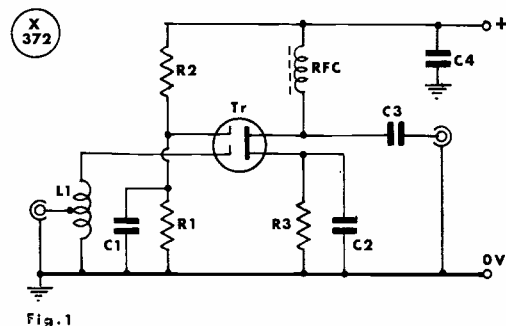


Fig. 1

Fig. 1. The "Mk. I" version of his preamp., as suggested by G8HQA. C1, C2, C4 are .001  $\mu$ F ceramic; C3, 470 pF ceramic; R1, R2, 100K; R3, 270 ohms; Tr1, 40673; L1, 8 turns on 3/16th-in. former with ferrite slug, tapped at 4th turn; and RFC1 is 20 turns of 28g. on 120K resistor body. R1, R2, R3 are rated quarter-watt.



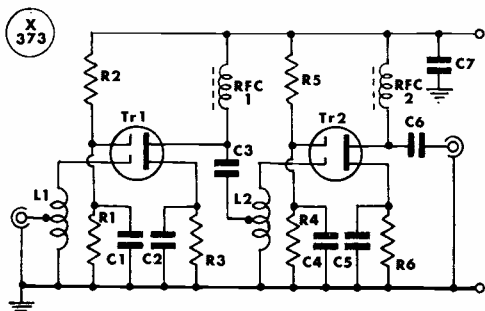


Fig. 2

Fig. 2. The "Mk.II" two-stage version of Fig. 1. Values can be: C1, C2, C4, C5, C7, .001  $\mu$ F ceramic; C3, C6, 470 pF, ceramic; R1, R2, R4, R5, 100K; R3, R6, 270 ohms; L1, as Fig. 1; also L2, but six turns tapped at 3rd turn; Tr1, Tr2, 40673; and RFC1, RFC2, as RFC1, Fig. 1.

tuning to be obtained. Once again the values of the components can be altered by up to  $\pm 40\%$  before the circuit will refuse to work. The supply voltage required is the same as for the Mk. I, current drain being 10 mA on the prototype. Figures for noise and gain can only be estimates. The sharsh is now at a level that one can notice by ear or by the S-meter but the noise itself is not very great, and would be about 4 dB. This is not very good compared to the Mk. I but when in use the effects of the noise are very small indeed, making no substantial difference to the reception of weak signals.

The gain has to be heard to be believed. By the S-meter the increase is almost five S-points. However, the meter is slightly optimistic so the author feels that four S-points is more likely, *i.e.* 24 dB gain. This more than pays back the higher noise level. No problems have been encountered with the preamp taking off—that is to say, providing the amplifier has a load on both ends, *i.e.* antenna and converter. No inter-stage screening was found necessary and in operation the preamp just sits on the bench quite quietly. Cross-modulation is somewhat increased by the preamp but not to any large degree.

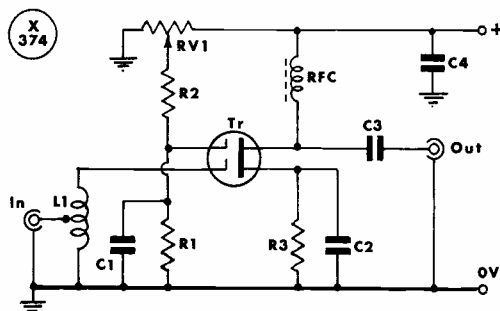


Fig. 3

Fig. 3. Gain control circuitry—see text.

### Controlling the Gain

Almost all operators on VHF will have an AGC line in their tunable IF, but very few ever bother to couple the converter RF amplifier to it. The two preamps in this article may be so connected. In simple terms all that is required to limit the gain of a mosfet is to control the DC level of gate 2, this being achieved by connecting the supply for gate 2 to the slider of a potentiometer connected across the supply—see Fig. 3. This will give a manual control on the gain while by connecting this point to the AGC line the control becomes automatic. This has the advantage that when the receiver gets blocked by a strong signal the gain of the front end automatically calls and prevents any cross-modulation arising.

### Conclusion

It is hoped that this article will inspire people to experiment with new ideas for converters and preamps. The suggested circuits are fairly straightforward and easy to get working, and the advice the writer has to give is: It is possible to make good performance high-gain RF amplifiers quite simply. Some say that the RF amplifier should only have sufficient gain to overcome mixer losses. This has yet to be proved to the author's satisfaction!

**"Short Wave Magazine" covers the whole field of Amateur Radio and should be obtainable to order through any newsagent.**

# • • • SWL • • •

## SHORT WAVE LISTENER FEATURE

By Justin Cooper

SAFETY FACTOR WITH MAINS RECEIVERS — MORE  
ABOUT EARTHING — READER CHAT, NEWS AND COMMENT  
—TABULAR MATTER UP-TO-DATE

ONCE again the time comes round for old J.C. to pick up and scrutinise his mail, which normally comes to him in a great wodge just after the reader deadline. As always, there is much that cannot be commented on if we are to avoid over-running our space—comments for and against this-and-that, often laced with real gems of wit—between them all they make a pleasure of the chore of sitting down at a typewriter and composing a column.

One point that should always be at the forefront of our mind where radio is concerned is the factor of personal safety. Receivers should always be checked to make quite sure that they are isolated from the live and neutral of the mains, for example; to do this, all that is necessary is to disconnect the receiver at the power point and give time for the electrolytics in the power supply to discharge. Then set the shack testmeter on its highest "Ohms" range, and test between each leg of the mains plug and chassis, while the receiver switch is set "On"—and then repeat the test between each leg of the mains plug (live and neutral) to the aerial input terminal or centre pin of a coaxial aerial input socket. Finally, check that the earth pin of the plug has zero resistance to chassis, using for this last test the lowest ohms range. And, once in a while, all the mains power-point earth pins should be checked with the low ohms range for continuity between each other and to the earth connection to the house input, probably the cold water rising main. The SWL receiver can then be reckoned to be fairly safe from incident, as can the domestic appliances, provided these latter are checked in a similar way once in a while. However, TV sets are invariably suspect, as they almost all use partly AC/DC techniques, so the only thing with these if one wishes to feel really safe is to disconnect them by pulling out the mains plug at the wall whenever they are not in use. Colour TV sets are far the worst offenders when it comes to catching fire, for some reason.

As for aeriels, whenever you are going up aloft to operate on them for any reason, disconnect them from the receiver or ATU first, and then, make sure, if you use an extension ladder, that the darned thing is the *right way up!*

### Newcomers

It is quite surprising how many station aerial details and other such points are now being quoted metrically—all the propaganda on this seems to be getting home. *M. Law (Chesterfield)* is one such, his set-up being a Trio 9R-59DS coupled to 65 metres of wire at 10 metres high which so far in 1975 has yielded a total of 233 prefixes.

*G. Ridgeway (Kettering)* also has a Trio 9R-59DS as main receiver but backed up by a R.107 and a 52 Set, plus 144 MHz coverage with a converter having 4-6 MHz as the tunable IF and a Lowe receiver for monitoring the repeaters. Then for 70 MHz there is an HR-55N crystal-controlled for the moment on the beacon signal. Up aloft there is a Jyostick plus dipoles for 14-21-28 MHz, and a five-element beam for Two at thirty feet, rotated by an AR-40. All the shack gear is housed in a console eight feet long covered finished in natural wood grain.

*A. Wilson (Dollar)* and runs a Trio 9R-59DE, fed by a thirty-foot whip aerial through an ATU, with which a first 53 prefixes have been heard towards the 200 required to enter the bottom of the 1975 Table. An odd one was a station signing "SBABBU" on Eighty on January 11, repeating the call sign several times in response to its being queried by an LA station—that LA obviously could not find the same aroma of stinking fish which we also notice about an SB call!

It is nice to receive a new entry to the HPX CW ladder once in a while, this one coming from *J. D. Porter (Baslow)* at 240 prefixes plus three weirdies of which two are surely manifestations of "G9BF" and the other could be a legitimate Norwegian.

"A strange piece of wire" is the description of the 150-foot tri-angular aerial at 25 feet operated by *M. Burton (Market Deeping)* into an HA-600 which has had some modifications; an ATU is to be incorporated, hopefully, in the near future. The favourite band is Eighty, for its reasonable amount of evening DX. As to his questionable ones, all are genuine enough.

### Technicalia

First-off we must contrabulate *B. J. McCartney (Finchampstead)* on passing both R.A.E. and Morse, albeit the latter nearly went west thanks to an attack of "glass elbow" on the sending after happily covering the receiving side! A most annoying affliction, this, and the only cure is to practice slow steady, sending for gradually increased periods until a limit is reached long enough to enable a QSO-over to be completed. On the technical side, *Brendan* raises the question of how to zero-beat a calibrator on to a standard frequency transmission. Well now, for a quick running check it is acceptable just to go zero-beat with the calibrator; however this is far from accurate because the lack of LF response in the receiver. The *accurate* way to do it is to do this first, and then to switch off the BFO, and gently adjust the calibrator until the signal can be seen beating the S-meter up and down, at which time you are within about 50 Hz; and the final very gentle touch should get the S-meter swinging up and down at no more than one cycle a second. With some receivers the calibrator signal may be too strong and it may be impossible to see the oscillation without doing something to equalise the two signals in the receiver front-end; the latter is easier with a separate calibrator or a BC-221, as coupling may be nicely adjusted to give the right balance of signal levels.

A very firm approval of our stressing the importance of good RF earthing is given by *D. Sharred (Birmingham)* as a result of his own experiences with neighbouring colour TV QRM. Merely a single spike made an improvement and they have now progressed to seven spikes plus many radials, to the great benefit of, especially, their LF operations, with as many as 35 countries logged up on Top Band.

*K. Kyezor* has now settled in his new abode at *Irchester*, and comments that he will have more time for listening and comparing aeriels and his new and old locations; for the moment there is a Jyostick in the loft just to keep things rolling, and a marker using a 1 MHz crystal and a couple of IC's has been knocked up.

It's a long time since we had such a long screed from *E. Parker (Hove)*. Ernie starts by having a go at the people who use clippers with SSB rigs and then overdrive the transmitter in addition—the normal result of using *any* method of speech clipping other than the full-blown RF arrangement advocated by G3LLL or Datong. Basically, the squaring-off of an audio waveform results in, from theoretical considerations, a vastly different shape of RF envelope, and so the only way to do things is either to up-convert to RF, SSB, and then to clip the SSB waveform, pass through another SSB filter to remove the out-of-band *spurii* generated by the clipping, and then

## ANNUAL HPX LADDER

(Starting date January 1, 1974)—Final Listing

SWL	PREFIXES	SWL	PREFIXES
K. Salter (Newton Abbot)	457	S. H. Bandy (Luton)	345
J. D. Porter (Baslow)	453	D. J. Porter (Doncaster)	336
S. Lawrence (		C. Davies (Norwich)	311
Market Harborough)	423	W. McFaul (Londonderry)	289
S. Sharred (Birmingham)	413	J. Aspinall (Leeds)	277
J. Hesman (Birmingham)	390	R. Elliott (Brentwood)	273
A. J. Gullis		G. George (Woodmancote)	270
(Ogbourne St. George)	385	B. Russell (Runcorn)	264
S. McHugh (Pontefract)	345	R. J. Rennard (Redditch)	254

Starting score 200, in accordance with HPX Rules. All prefixes in this list heard in 1974. This is the Final Listing for the year 1974. The new Table starts in this issue for 1975.

feed this clipped SSB waveform into an appropriate point in the transmitter—or, as Datong does, translate to RF, clip the SSB signal, remove the out-of-band spurs by a phasing technique (this equates to a second sideband filter in the previous method) and then to down-convert back to audio, so that the resultant box-of-tricks can be used with any transmitter, whether SSB, AM or FM. The purely audio boxes on the market (or home-brewed) not only generate spurious signals in the audio itself, resulting in loss of clarity to a greater or lesser extent, but in addition will cause a fully-loaded transmitter to generate splatter on adjacent channels, as can easily be demonstrated with a spectrum analyser.

Ernie's second point is the result of listening to G8/3's on Two, and old-timers on Eighty decrying the said G8/3's. Here old J.C. departs to some extent from the Parker point of view, as he feels that any amateur who does not bother with CW is thus deliberately cutting off an interesting chunk of the hobby from his activity; and it has to be admitted that some of the G8/3 operating on Two is pretty punk when compared with say, a chap who did his time as an SWL on the lower bands and knows that it is all about—but that doesn't excuse some of the old-timers on Eighty and their quite immoderate condemnation and language about the B-Licenses.

General Chat

Back in January we mentioned that J. W. Sanderson (Ferryhill) wanted to make contact with his local amateur and SWL neighbours—he now has been contacted by three of the licensed types and one SWL! Just goes to show that somebody must read this piece! Another bit of news is that SWL Sanderson received a two-metre halo and a Trio JR-599 receiver from his wife on his birthday, and in May he is down for the R.A.E.—it's all happening, as the youngsters say.

K. A. Whiteley (Castleford) refers to that EL4/MM station queried in the March piece; he personally, having heard the chap on the air, is of the opinion the call is genuine. SWL Whiteley now has 200 countries confirmed and is going hell-for-leather to make it 300.

Those remarks we made about earths last time rang a bell with I. Meiklejohn (Dartmouth). Ian found during his recent trip to Southern Portugal that when he wanted to listen to home news on his Barlow-Wadley receiver there was never time to rig anything more effective than the whip—but an earth counterpoise, even if just draped round the floor of the hotel room always made an improvement; cold water taps were not so effective, probably because they were connected to plastic pipes. At home, Ian has had time to try just about everything in the book in the way of earthing, he being in a flat thirty feet above river level with 400 foot hills either side—the most effective is not mentioned in any of the texts and turns out to be the outer braid of the TV relay distribution coaxial cable!

On to R. Carter (Blackburn) who managed to pick up some new ones on every band except 160 metres, including three prize phoneys which have to come out. Ben reckons that keeping a dog is one way to improve the score—when the dog wants to go out in the middle of the night, Ben switches on the receiver and hooks a few new ones!

A. Roberts (Shepshead) sends in a long list of QSL addresses for possible use by G3KFE in his piece, and ends his letter by suggesting that the "KG4FZ" heard by J. Dougherty and reported last time was quite likely a miscopying of KV4FZ, a well-known and very active station on the Virgin Is.

A Darragh (Cowthorpe) is studying hard for the R.A.E. as well as putting in time on the receiver to rake in 119 more prefixes for the ladder; he heard, and wondered about, CG3LSS, who is quite O.K. and a special-activity effort with several of them around.

Like many another, N. Henbrey (Northiam) wonders where the Tables got to last time out—have no fear for them, Norman, they were all made shortly after the script had been sent off, time having been so tight for your conductor that he could not include both the piece and the Tables; and they are all brought up-to-date and included as part of the piece this time. Norman is well up the Table now having been making steady progress for years and so his crop in the current listing is almost entirely special-activity stations of one and another sort, all of them genuine.

\* \* \*

Another old-timer to "SWL" is H. M. Graham (Harefield) who listens very carefully and sends in an analytic band report which is always much appreciated. This time Maurice is able to report two new countries all-time in the shape of TR8VE and XV5AB on Twenty, which also yielded among others VE8DC who said the temperature there was at -42°C.—Brrrr! Fifteen was noticeable North-South in its results although quite interesting nonetheless. As for Eighty, Forty and Ten, they were investigated as usual but not much of startling interest was gleaned.

HPX LADDER  
(All-Time Post War)

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
W. Bingham		B. Cushing (Hove)	701
	(Carrickfergus) 1565	D. Sharred (Birmingham)	696
R. Shilcock (Kingswinford)	1456	A. Buckman (Jamaica, N.Y.)	678
S. Foster (Lincoln)	1423	B. J. McCartney	
T. Rootsey (Ilford)	1405		(Wokingham) 676
K. Kyezor (Irchester)	1398	G. F. Gullis	
J. Fitzgerald			(Ogbourne St. George) 654
	(Gt. Missenden) 1241	M. Pier (Liverpool)	627
R. Carter (Blackburn)	1216	M. F. Parry (Bomere Heath)	612
A. W. Nielson (Glasgow)	1142	M. Rodgers (Harwood)	610
M. J. Quintin		G. Lucas (Kennoway)	609
	(Wotton-u-Edge) 1120	M. Eccles (Lancaster)	596
B. Hughes (Worcester)	1088	J. R. Cowan (Rochford)	592
P. C. Jane (East Looe)	1064	J. Dougherty (Sunderland)	589
J. H. Sparkes (Trowbridge)	1005	W. H. Symth (Hartlepool)	556
G. W. Raven		M. Smith	
	(London S.E.13) 978		(Matamata, New Zealand) 554
A. West (Herne Hill)	961	M. Kitchener (Hitchin)	551
R. H. McVey		P. Rooney (Liverpool)	536
	(Weston-super-Mare) 936	A. C. Roberts (Shepshead)	526
N. Henbrey (Northiam)	931	N. N. Graham (Gosforth)	524
K. A. Whiteley (Castleford)	931	J. Bell (Hampstead)	521
M. Cuckoo (Herne Bay)	924	M. Rivers (Whytefafe)	512
N. Askew (Coventry)	865	R. C. Woolley (Ashbourne)	508
A. R. Holland (Malvern)	857	M. L. Peters (Newbury)	500
Mrs. J. B. Jane (East Looe)	855		CW ONLY
H. M. Graham (Harefield)	841	A. Glass (Plymouth)	1095
H. A. Londeborough		T. Rootsey (Ilford)	723
	(Swanland) 835	H. A. Londeborough	
E. W. Robinson			(Swanland) 672
	(Bury St. Edmunds) 825	N. A. Phelps (Devizes)	445
E. Parker (Hove)	795	G. Richards (Aberdeen)	439
S. Eldridge (Crawley)	769	A. F. Roberts	
P. Barker (Sunderland)	762		(Kidderminster) 382
C. K. Verstage (Old Basing)	759	J. D. Porter (Baslow)	240
L. Craven (Alvechurch)	707		

Starting score, 500 for Phone, 200 for CW. Listings include only recent claims.

Up in Larbert, A. R. Murray has been pretty well QRT as far as HPX goes, between the R.A.E. studying on the one hand and business matters on the other; but Alastair managed to make up his 1975 HPX list and to forward it for inclusion in the Table before the deadline.

Little listening has been done, reports W. Bingham (Carrickfergus) mainly because of homework on the one hand and R.A.E. study on the other, nevertheless five new ones are added. Studying Morse has helped the score on a bit as far as Top Band countries are concerned, as KZ5 and KP4 were both logged on CW. By the time this piece comes to be read, the Bingham's will have got their two-metre beam back up again, it having come down in January's gales.

J. Dougherty (Sunderland) reckons it is time a change of aeriels was made, and he hopes to get a triband beam. After some twenty years of listening, John now intends to go for the Radio Amateur's Exam. in May. Incidentally, and of considerable interest, John is professionally a Remedial Teacher, and finds that one way of persuading youngsters to learn to read is to send the Code to them and let them write down and read out messages—only four w.p.m., it is true, but it helps. And, in conclusion, he wants to know whether all the UK2 variations which indicate different countries are countable for HPX. No John, we already have a rule covering this and mentioning such as the old MP4B., and MP4Q.. As the letter after the number is part of the suffix rather than the prefix as we have defined it, only UK2 can be taken into the list as a prefix.

R.A.E. Points

This is the time of year for the big trek to the examination centres, whether for R.A.E. or for any other exam. To all who are entering, our best wishes go out, and in particular to the R.A.E. class students, for every success.

Some hints are worth repeating here. Make quite sure that you have collected together those things (pens, pencils, ink, and so on) which you should take with you to ensure you can complete the exam. on the one hand and on the other not be caught bending if

pen runs dry, ball-point stops flowing or pencil breaks. Don't forget a watch or other such time-piece. Give time first to filling in the heading to the answer book with your name and details as may be required—if they can't read that bit, you'll never even know you failed! When the paper is handed round and the signal given for you to start reading it, be sure to go through it carefully, and are certain you know what each question means you to do. Pick out those which look easiest, and make a start on one. From now on you must allow the correct time for each question to enable you to do the correct number and be finished five minutes or so before time to give time for a re-read and a dotting of i's and crossing of t's. At the moment you start the first question you will for sure be in a flat spin, but take a deep breath, compose yourself and press on, working to your timetable. If you finish a question in less than the required time, go on to the next one and only allow the normal time for it—this "keeping gained time in hand" to the end means that any advantage gained stays with you to the end; and when you read through your complete paper with plenty of time in hand, you can then, and only then, decide either to return to one you are not happy about, or scrub one you have done and try another. Above all avoid scribbling and watch your English, not so much to write perfect prose but to make sure what you write and what you mean are the same! If you do these things and avoid panicking, you are most of the way to a pass, because you will deploy what you do know to the best advantage in gaining marks.

Good luck to you all!

#### Other Letters

M. F. Wilson, of One Stanhurst Way, West Bromwich, West Midlands, would like to be advised as to a suitable receiver for TV DX'ing—not quite in our line, and any suggestions should go to him direct. The probability is that almost any good TV receiver with channel tuning would fill the bill, the aerial system being the important

## ANNUAL HPX LADDER

(Starting date January 1, 1975)

SWL	PREFIXES	SWL	PREFIXES
A. Darragh (Wetherby)	381	M. Burton (Market Deeping)	290
L. Gibson		G. Ridgeway (Kettering)	255
	(Barrow-in-Furness)	M. Law (Chesterfield)	233
R. A. Elliott (Brentwood)	320		

Starting Score 200, in accordance with HPX Rules—see p.492, November 1974 issue. All prefixes in this list to have been heard in 1975. When a score of 500 is reached, transfer to the All-Time Table will follow, at which time prefixes heard outside the period of this Table may be added to the score.

factor.

The rest of the clip is the list of those who just entered scores, duly be taken into the Tables. These include: Mr. & Mrs. Janes, East Looe; M. J. Quintin, Wotton-under-Edge; E. W. Robinson, Bury St. Edmunds; M. Cuckoo, Herne Bay; P. Barker, Sunderland; J. H. Sparkes, Trowbridge; N. N. Graham, Newcastle-on-Tyne; L. Gibson, Barrow-in-Furness; M. Eccles, Lancaster; A. F. Roberts, Kidderminster; N. Askew, Coventry; G. W. Raven, London, S.E.13; R. A. Elliott, Brentwood; B. F. Hughes, Worcester.

#### Deadline

Will as usual be 36 days before the publication date, making it into first post arrival on May 22, addressed as always to "SWL", SHORT WAVE MAGAZINE, BUCKINGHAM, MK18-1RQ. Don't be late—GL for the R.A.E.—and 73 de J.C.

The high navigational accuracy now obtainable by ships world-wide is well exemplified by the new Redifon RSN2 satellite navigating instrument. It will give a fix to within 20 feet, and displays Lat./Long./GMT on an illuminated front-panel read-out. The operation is entirely automatic, a built-in computer doing the work from information transmitted by six orbiting satellites. But all navigating officers, even with such aids, keep a dead reckoning plot, just to be on the safe side!



For this month's Reader Small Advertisements, see pp. 172-178

# VHF BANDS

A. H. DORMER (G3DAH)

## Contests

THE December, 1974 144 MHz Fixed Station event was won by G3VLG, the Hinckley, Leicester Society, the runner-up being the Surrey Group operating as G4DGA. Although, as we reported at the time, conditions were pretty variable, some good DX contacts were made, notably that between G4DGA and GM8FFX at 630 km and those between G3VLG/DC9KT and GM4DMZ/G4DNL, both of which were over 550 km.

The January two-metre CW event was won by G3POI followed by G3WSN. The poor propagation conditions were probably responsible for both the small entry and the few contacts over 400 km. The proximity of the 4m. CW contest (on the following day) may also have had some effect upon numbers. This contest was won by G3NHE with a comfortable lead over G3OHH, but poor conditions, once again, limited the DX with no score over 400 km being reported.

The February 432 MHz Open was just that bit too early to catch the best of the list which ended on February 9, or thereabouts. However, GW3UCB/P, who won, and GW8AWM/P who came second, both worked LX1DT for a choice piece of DX (743 km for 'UCB!) and the GD2HDX/ONSFF QSO at 640 km is also worthy of mention.

Reports: In view of the generally poor propagation during March, it is probably just as well that no contest had been arranged after the 2m. affair at the start of the month, and so the first report we have this time is on the 4m. Open over the weekend of April 5/6. First thing to be said is that 24 hours is far too long for a four-metre contest as far as most operators were concerned. By midnight, most people had worked all they could hear and many of the portables had packed up for the night because of lack of contacts and the dreadful cold in some of the more exposed locations. Sunday morning produced a new flock of call signs and activity perked up accordingly. One would not fail to be reminded of the days of the early 2m. SSB contests, which were also too long for the numbers involved, and which meant that many operators were frequently twiddling their thumbs for boringly extended periods. Conditions were nothing to write home about, in some areas they were described as very poor, although GD2HDX and GD4BEG were both audible in the South, albeit at very low signal strength. No GM contacts were reported from the South, although it is known that both GM3ZBE and GM4CXP were active. Operating was good, as it should be, on this band, with the exception

of the AM station types who would sit on 70.2 MHz. It is appreciated that there is no band plan for 4m., but custom and usage have resulted in 70.2 MHz being a calling channel for SSB working.

In view of the oodles of space on this, and other VHF/UHF bands, it is odd that some operators prefer to congregate in a tight little bunch on or around the nominated calling channels and so QRM each other, rather than spread out a little and work the DX more easily and allow others to do so as well.

Without knowing the points per km it is difficult to predict a winner, but G3FEC/P who worked over 95, G4KF/A with 88 and G4BWG with 81 points must be in with a chance. This event highlighted the significant increase in SSB operation on 4m. and emphasised the fact that, without SSB, it is becoming difficult, if not impossible, to win an Open contest on this, or any other VHF/UHF band (with the exception of 23 cm. and above 70).

Forthcoming Events: April 27 sees the 1296 MHz Open (0900—1700z), May 4 for the 432 MHz Open and SWL (0900—1700z) and May 31/June 1 for the 144 MHz Portable (1600—1600z).

The RSGB Region 1 VHF Contest is organised this year again by Norman Horrocks, G2CUZ, QTHR, from whom copies of the rules may be obtained. The affair is slated for June 22. Innovations are that there is a multiplier for 4m. and a separate, but concurrent, 23 cm. section. Operators outside the Region are invited to participate.

## VHFCC Awards

The single Award this month goes to Arthur Grisley, G4DNJ (ex-G8HQQ) of Stevenage, who gains Certificate No. 238 for two metres. He opened up on the band in August, 1973 with a home-built, 10 watt Tx and a Trio 9R-59DS, a Microwave Modules converter and a 6-ele. at 15ft. Subsequently, a TC9 Mk. II and EC-10 were brought into service followed by a Pye Base station and an FR50. The present equipment consists of the Liner with a 10-ele. beam at 22ft. a.s.l.

## Beacons

It is reported that the power of the Sussex 4m. beacon was increased from 7 watts to 15 watts on March 10. The antenna is as yet unchanged from the ground plane to the halo, which is to be installed when the local Wx improves. There is still some doubt about the nominal frequency of this transmitter. Although published officially both as 70.699 MHz and 70.685 MHz, it was measured on April 7 as 70.677 MHz. It seems a pity that this beacon (and others) apparently cannot be operated on the published frequencies since, apart from their application in the assessment of propagation conditions, they are extensively used as frequency standards—for lining up converters, for example. If they cannot be so operated, then it would be useful to know on which frequencies they do operate. Anyway, the changes at GB3SX have certainly improved the signal strength north of Luton, which at one time was about the limit of reception under normal conditions and the installation of the halo antenna will reduce the effect of the current cross-polarisation loss. Reception reports, particularly from the North, would be appreciated by the beacon keeper, G3FET, QTHR.

We deeply regret having to report the sudden death on March 4 of Norman Guy, G2DN, who was so closely associated with the rejuvenation of GB3SX.

G3VPS (Hailsham, Sussex) is able to copy the Sheffield beacon at 5.4/3.9 most of the time since it has been resited. Tony Whitaker, G3RKL, QTHR, is the beacon keeper, and he would welcome reports of reception.

Jim Bruzon, ZB3BL, hopes to have ZB2VHF on 144 MHz during this month. G8EXX is building, and will deliver to Gibraltar, the Tx which will supplement the existing 4m. beacon there.

It appears that the French 2m. beacon, F3THF, which ceased operation some months ago because of QRM to other services, may be re-installed further to the West in the Monts d'Arrees area. (QRA Locator Square X1). F7THF continues to function as before.

F8SH, who is the VHF Sporadic-E coordinator for IARU Region 1, is prospecting for 50 MHz beacon sites which would be of use for observation of cross-Atlantic E's and considered Northern Britain and Gibraltar as a couple of useful areas. That in the North would also be an excellent indicator of auroral activity. He is still collating information on the splendid E's opening on July 9 last year, and would welcome more information from British operators. From reports to hand it seems that the intense E's area was very limited in extent and that propagation took place via many in-line clouds. The sector of maximum ionisation was, therefore, very narrow and it was the slow drift to the North of the layer which permitted contacts to be made from the U.K.

New frequencies of the Norwegian, 2m. beacons are as follows: LA1VHF, 144-860 MHz; LA2VHF, 144-870 MHz; LA3VHF, 144-880 MHz and LA4VHF, 144-890 MHz. The F9FP beacon in QRA CH56g is now up with 100 watts e.r.p. on 432.0 MHz, accurate to within 1 Hz. DL0PR, located at the Max Planck Institute at Garding, QRA Locator E054c, now radiates on 144-144 MHz with an operating cycle which beams it South for five minutes and North for 25 minutes each half-hour. Just in case there is another big Es opening (quite possible if we have a hot summer) you might like to note that YU3VHF in QRA HG76a is now on 145-450 MHz.

Our thanks to those readers who wrote in with comments on the proposal to shift some 2m. beacons in the IARU Region I area to just below 145.0 MHz. There weren't too many of you—possibly because of the short notice—but, on balance, it looks as if the move would be acceptable.

## Repeaters

G8FNF and G3TJA of the U.K. FM Group (London) have prepared a useful information sheet entitled *GB3LO Without Tears* which should be of great help to those contemplating operation through the repeater. A large s.a.e. to G3TJA, QTHR, with 5p in stamps, will get you a copy.

Listening to the repeater, which now appears to be functioning as designed, it seems that many operators are still unaware of the requirements for access and operation and that this is the cause of much "phantom bleeping" and abortive QSO's. Without wishing to steal any thunder from the authors of the above-mentioned information sheet, it might be a good thing all round if

short extracts were given here;

- (1) "Time Out" is 55 seconds, which cuts down long overs.
- (2) Listen for the "K" beep before transmitting.
- (3) Set the toneburst generator for a 400 millisecond burst of 1750 Hz and hold the carrier on. (You cannot just beep and listen through as is possible with GB3PI).
- (4) Speech deviation should be held to below  $\pm 6$  kHz or the audio will be inhibited in the repeater. Tone burst deviation should be 1.75 kHz, a modulation index of 1.
- (5) If the input frequency is high or low of the input channel, the letter "H" or "L" as appropriate will be sent in lieu of the "K" beep.

The Essex Repeater Group are pressing on with the gear for the 70 cm. device which they hope to site near Danbury. It has a designed output power of 5 watts into a co-linear array, access tone of 1750 Hz and will embody the "H" and "L" indications as used with GB3LO.

Has any reader used the Dutch linear repeater yet? Input on 432.55 MHz and output on 145.45 MHz. Callsign is PI3UHF and QRA Locator in CL09b.

#### DX-Peditions

Bad weather forced the postponement of the trip organised by GM8FVC *et al* to high peaks in GM, G and GW which we noticed last month, such bad weather in fact, that the Mountain Rescue Authorities virtually vetoed the project after two fatal accidents in the Ben Nevis and Snaefell areas. However, the expedition has been re-scheduled for July 5 with the same timings as previously announced, so the team is hoping for better weather conditions then—though the congested traffic conditions may hold them up somewhat.

Also for cancellation is the proposed Andorra attempt by G4DOJ and partners, as noted on p.96 last time. This is yet another in the long series, for one reason or another, of "Andorra failures," the organisers not realising that before they organise the event! Operation from Andorra, on any band, is a pretty tough assignment, and really needs a preliminary survey of the ground by somebody who goes out there to settle the local problems—of which licensing is one of the least. But even at that, with local licensing for Andorra under the French administration and 70 MHz not being a band open even to French amateurs, what chance is there for a visiting group—(Editor).

G8GGP and G8CIU have got themselves organised for a trip to the Channel Islands as follows: June 17/24, Jersey; June 24/27, Guernsey; June 27/28, Sark, and June 29 only, Alderney. They will have SSB and FM on 2m. and SSB only on 70 cm. All contacts will be confirmed by QSL, but no skeds are being arranged. Here's a quick way to score four counties and two countries on both bands!

Jersey is also to be activated by a group from the Southgate Radio Club, May 30 to June 13. They will have equipment for Two and 70 cm. Callsign will GC3SFG (the Club call) and/or GC3ZVV, GC4AEZ, GC4BDY and GC4BPR.

Finally, Peter Lennard is off on his travels again, combining Amateur Radio with his other interest, cycling. He is following, by car, the "Milk Race" circuit round

Britain, organised by the Milk Marketing Board. He will be operating as G3VPS/P, 2000-2330 BST on 70-165 MHz with CW/AM as follows: May 26, Dorset; May 27, Gwent; May 28, Mid-Glamorgan; May 29, Hereford and Worcester; May 30, Salop; May 31, Merseyside; June 2, Lincs.; June 3, N. Yorks.; June 4, Humberside; and June 5, Cleveland. Well, that's the intention!

#### Notes from Scotland

The Scottish VHF Convention is to be held at the Treetops Hotel, Aberdeen on September 13 and is being organised by the local Amateur Radio Society. More gen near the time.

GM3BQA and GM8BOW are both preparing for 70 cm. operation, the latter with a Braun varactor tripler and an eye to

### THREE BAND ANNUAL VHF TABLE

January to December 1975

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL Points
	Counties	Countries	Counties	Countries	Counties	Countries	
G3DAH	31	3	45	7	27	7	120
GD2HDZ	19	2	46	10	21	5	103
G4BWG	30	3	52	10	—	—	95
G3ZMD	19	1	43	8	17	3	91
GM8FFX	—	—	71	14	1	1	87
G3FIJ	32	2	36	8	2	2	82
G3BHW	—	—	38	9	19	7	73
G3BW	—	—	48	10	10	3	71
G4BYP	20	3	40	8	—	—	71
G4CZP	—	—	53	13	—	—	66
G4AJE	—	—	35	8	15	3	61
GM4CXP	6	2	38	10	1	1	58
G8FMK	—	—	26	2	25	4	57
G8EOP	—	—	34	11	8	3	56
G8BKR	—	—	45	6	3	2	56
G8ABH	—	—	29	4	17	5	55
GW3KGD	—	—	46	8	—	—	54
G4DNJ	—	—	44	8	—	—	52
G8GHZ	—	—	42	6	3	1	52
G5DF	29	3	—	—	17	3	52
G8FWB	—	—	41	6	—	—	47
G4AEZ	2	1	9	7	14	4	37
G8GII/P	—	—	30	2	—	—	32
G8IAT	—	—	19	9	—	—	28
G4AIR	23	3	—	—	—	—	26
GW8HVP	—	—	19	4	—	—	23
GI3JLA	—	—	16	5	—	—	21
GW8GLG	—	—	13	2	—	—	15
G3EKP	3	1	6	3	—	—	13
G4BKY	—	—	8	2	—	—	10
G4AGE	—	—	—	—	3	1	4

#### Notes

- (1) Claims should be on the basis of the new county organisation shown on page 97 of the April, 1975 issue of *SHORT WAVE MAGAZINE*.
- (2) The Table shows claims to date from January 1, 1975 and will close on December 31, 1975.
- (3) All claims should be sent to:—"VHF Bands," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ as soon as possible after the start of a new month.

portable operations in the Angus Hills and the former with a view to contacts via Oscar VII. It was good to see a claim for contacts on 432 MHz from GM8FFX this month. If he can radiate a signal on 70 cm. comparable with his 2m. rock-crusher, we in the South can look forward with confidence to contacts with Kincardineshire on the higher frequency.

Newcomers to the 2m. SSB scene are GM4DWW with an FT-101 and a Europa transverter and GM3OXX, of 3 cm. fame, who has taken time off from the higher frequencies to build himself a 750 mW SSB rig with which he has worked into Aberdeen from his home QTH in Edinburgh and into Yorkshire from the Pentland Hills. GM8BPL has also joined the ranks with a Lincor. He took part in the recent propagation investigation over a 2m. path from Caithness to N. Berwick, and put a 5 & 6 signal into GM3BQA, working GM8FFX and GM8BOW on the way!

GM4CXP (Roxburgh) now has the full 50 watts of CW on 70.26 MHz and 70.32 MHz using a QQVO6-40A PA and is to be found on the band most Sunday mornings. GM4AOR is also there on 4m. from Edinburgh. GM4CXP reports two aurorae during March, the first on the 17th, when he worked SM6EYH on 2m. and logged GB3SU at 52A on 4m., and the second on March 27 when GM3ZBE was worked at 59A on 4m. (GB3SU was then 42A) and SM, OZ, PA, GW, GI and G on 2m., with UR2RD at 54A as a gotaway. An unusual feature of this aurora was that DL0PR, the 2m. beacon, was peaking at 59A from the north-west while all other signals were from the more usual N/NE/N direction. Duration is not known, but GW3KGD (Haverfordwest) who was in on it, reports it to have been "a rather short-lived affair."

#### Radio Teletype

G3LEQ (Knutsford, Cheshire) comes up with some information on RTTY working in the north-west which may, or may not, clarify the non-standardisation situation. Their regular net now uses 170 Hz shift, FSK at 50 bauds on Sundays at 3 p.m. on 144.6 MHz, and at 8 p.m. on 145.3 MHz. On Thursdays, 8.30 p.m. they are on 144.6 MHz. The former 145.3 MHz is used mainly for AFSK with 2125 MHz as the Mark-tone and 2295 Hz for "Space." A variable-shift frequency has its advantages since LEQ was able to use 510 Hz in QSO with G8DVR on Oscar VII and G8DVR and G3MWI had a two-way QSO through Oscar VI using a 170 Hz FSK shift and 45.45 bauds, which may be a "First" for narrow-shift, through satellites. G3LEQ reinforces the plea made here for operators using modes other than RTTY to avoid both 144.60 and 145.30 MHz which have been allotted in past and present band plans for RTTY use.

G8FYO also draws attention to the undesirability of standardisation in many aspects of Amateur Radio, but not, he suggests, in the RTTY field if it means following American practice, because they are the largest users, and accepting an inferior because slower, system. There is an argument here for the co-existence of both systems in the same way that there was a good argument for not following America in the adoption of the NTSC television system, which is inferior to the PAL system in use in Europe. It looks, then, as if a duality of standard is required at the cost of com-

plexity, and that the HF man will use 45 bauds and the VHF man 50 bauds, except where the two worlds meet, i.e., through satellites or if they both want the best of both HF and VHF worlds. At least, if this principle were adopted, there would be some useful uniformity such as exists in the choice of upper or lower sidebands, depending upon the operating frequencies, so why should it not succeed equally well in this respect?

It is understood that the Warsaw IARU Region 1 Conference next month is to consider a proposal that the "Space" tone should be standardised at 1275 Hz and the "Mark" at 2125 Hz (850 Hz shift) and 1445 Hz (170 Hz shift) and, if adopted, this will go some way to help.

#### News Items

Four Metres: Stuart Jesson, G4CNY, of Hereford, is now on this band with a Magnum-4 transverter and an FT-505. He would be pleased to hear from anyone who wants Hereford & Worcester on Four. G3MCS (Aylesbury) and G2AXI (Basingstoke), the latter with a new and very sophisticated home-built set-up, are newly active on 4m. with SSB.

If you heard G3VPS/P operating on Sunday, March 24 he was in Honiton, Devon and worked *inter alia* G4AIR in Macclesfield and GD2HDZ for some nice DX.

Wednesday is still "activity night" for 4m., although the numbers involved vary considerably. April 2 saw G3MOT, G4CNY, G3OHH, G3MCS, G4AEZ, G3LVP, G4AIR, G3WBN, G3RWM, G3ONP and G3DAH all around 70.2 MHz, which gives a pretty fair selection of counties. How about joining in? It might be interesting to try a link from the South right up into GM and back again. GM3ZBE and GM4CXP would certainly welcome the activity!

Two Metres: Dave Thomas, GW8GLG in Ammonford, Dyfed, now has SSB available if you are looking for that county. He runs an FT-200, Europa transverter and Planet 808 speech compressor and finds that this set-up has produced more DX in one month than the Lincor barefoot did in six months—this in spite of the rather forbidding 1,300ft. hills surrounding the 75ft. a.s.l. QTH. Just another indication that good speech compression always pays! He has a sked on 144.225 MHz each evening at 7 p.m. with G4AZV which anyone interested is welcome to join.

If you think it unlucky to catch a cold and be at home for a week, perhaps you time it badly. G3CZP (Carforth, Lancs.) timed his rather well during February 2-9 and caught the best opening of the year as well as his cold. He was able to work French stations right down into the Paris area, and his log included such goodies as 36 DK, 46 PA0, seven F, 12 ON, and one each OZ, DM and GC, which is nice going by any standard and almost any state of health!

A refugee from 2m. is Ian Dredge, G4DIE, who has moved to Saudi Arabia for 2½ years. He hopes to get a callsign there (perhaps Ken Ellis, HZ1KE can help?) to add to the VS6AD, VS6GA and G8ATV calls which he has already activated in his time. It's a long haul on Two!

Seventy: A word of warning: If you contemplate building the 70 cm. transverter

#### TWENTY-THREE CENTIMETRES

##### ALL-TIME TABLE

Station	Counties	Countries	Total
G4BEL	28	7	35
G3DAH	23	3	26
G3JVL	20	4	24
G8ARM	20	2	22
G4BYV	16	6	22
G3COJ	15	3	18
G3JXN	17	1	18
G4ALN	15	3	18
G3NHE	15	3	18
G8AOD	11	2	13
G5DF	11	1	12
G8FMK	11	1	12
G8FJG	7	1	8
G8ABH	7	1	8
G8AII	5	2	7
G8EOP	2	1	3

described in the last two issues of *SHORT WAVE MAGAZINE*, please follow the circuit diagram of the 12v. supply as shown and do not stick 1000 µF or so across the output of the stabiliser as it could discharge back through the gear with catastrophic results. The supply is very adequately smoothed as it stands.

G4AJE (Kettering, Northants.) will shortly have SSB to supplement his 100 watts FM Tx which is now VFO controlled. Twenty-Three: Reacers may recall that we announced some time ago that the 1296—1298 MHz amateur allocation has been withdrawn from use for French operators and that portions of the 70 cm. band were also under attack. Since then, we have learned of tests at Orly airport which showed that, given suitable filters, QRM to radar receivers could be eliminated. Representations are now being made to the appropriate authorities to try to get the French 23 cm. allocation re-instated fully. A further loss for the French amateur has been the reduction in the compass of the 70 cm. band, and it is now learned that three balloon-borne repeaters are to be launched in September operating on 439 MHz for the benefit of certain large oil companies, and this will certainly curtail any A/TV activities.

If you hear the prefix "TK" during the month of May it will be in use by a French amateur, to commemorate the 50th Anniversary of the foundation of the REF, their national Amateur Radio Society.

#### Deadline

Reader deadline for the next issue is May 11 so there will be rather more time than usual for your claims, news and views to arrive. They should be addressed as usual to:—"VHF Bands," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ. Cheers for now and vy 73 de G3DAH.

## THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for June issue: May 8)

**B**ECAUSE of the combined effects of a tight reader deadline, resulting in most of the mail arriving at the last moment, in combination with an evilly-constructed and totally misbegotten germ of the type "influenza" which elected to assault your innocent scribe precisely at the moment when he should have drawn forth his typewriter, the Club picture to be drawn this time will be taken and run through straight down the clip with few or no diversions on the way. This being completed, "Club Secretary" will then proceed to concentrate on showing that germ who's boss in this shack!

Bishop Stortford have Hq. at the British Legion Club, Windhill, where, for the April meeting they were honoured by the presence of Plessey Semiconductors chaps, G4CLF/G3ZVC, who came to talk in some depth about the Plessey SL series of communications integrated circuits; all the way from Swindon to such a small local group is all the more praiseworthy. However, as a result, a certain amount of "playing ducks and drakes" now goes on to determine the precise activity to be tried on May 19, which may be either a preliminary talk setting the scene, as it were, for a forthcoming visit to Stansted Airport, or an "Any Questions" session, or something else again, depending on how the speakers can arrange things.

Hereford seem to have had a well attended AGM, which is a good sign. As to their get-togethers, they are at the County Control, Civil Defence Headquarters, Gaoil Street, the May dates being 2nd and 16th; the first is set aside for a session on those Regulations covering the use of an Amateur Licence, this being, of course, directly for the benefit of the R.A.E. candidates in the group.

On to Chiltern who announce that there will be no formal session of the Club in May, although they will still be foregoing on the usual dates, namely the second Tuesday of each month and the Wednesday fifteen days later. Hq. of the club is at the Ernest Turner Works, Totteridge Avenue, High Wycombe. It is understood that some unusual activity has been thought up to replace the formal—and a little bird tells us that G3VYV, if you ring him on High Wycombe 39662 of an evening, might just be persuaded to spill the beans!

May 2 is the revised date for the Solihull social evening at the "Glover's Needle" which we mentioned last time round. As for the main meeting, it will be an Open Forum for the SWL's, on May 20, at the Manor House, High Street.

### New Home for Warrington

This is a group that seems, as the saying has it, to have "landed on their feet" with a new headquarters at Grappenhall Community Centre, Bellhouse Farm, Grappenhall, where they have a new club-room, about ten acres of land to cover with aerials, workshop facilities in the electrical test and metalworking areas, and their membership includes full membership of the CA. The lads can be found on any Tuesday evening, the start being at 7.45; among the future activities lined up are NFD, of course, talks on Transverters, VHF equipments, Aerials, fault-finding, and Lord only knows what. Sounds good!

Preparations for NFD are the concern at Verulam, but with their usual anxiety to ensure filling their evenings to the brim, they have also called on the talents of G3TDR—May 21, at the Market Hall, St. Albans. On the informal side, now that "summer" is back with us for a while (what, with snow on the shack window at this very moment?) the first Wednesday of each month, starting on May 7 will see them congregating at Salisbury Hall, London Colney, and putting G3VER on the air.

With Bedford we have a problem—their letter refers us to an enclosure which someone forgot to put in the envelope! Never mind, as luck would have it we know that they are in session every Thursday evening, at the United Services Club, The Broadway, where they have a rig on two metres, and are hoping to attack the HF bands also, in addition to their normal weekly programme of activities.

There always seems plenty of activity of one sort and another at Dunstable Downs, where G3XWS writes on behalf of the secretary, unable to carry on due to outside pressures. May 2 is down for a Natter Nite, and on the 9th they will hear G8BOY talking about a Modern Communications System. Basically, this means a routine of

meeting every Friday evening, at Chews House, High Street, Dunstable and they want yet more members to join them there.

Maidenhead are keen enough about wanting to have visitors and new members to have appointed the vice-chairman to the duty of making sure any newcomer is made to feel at ease—a good idea, this. On May 1 they will have a session on "Your Questions Answered—Trouble-shooting" on May 20 it will be an evening devoted to NFD preparations. Venue, as always, the British Red Cross Hall, The Crescent, Maidenhead.

Northwards now, up to Wirral who have May 7 for a meeting which may be a Surplus Sale or may be a Lecture; a DX-pedition over May 10-11; and on the 21st the final NFD session, all of course at the Sportscentre, Grange Road West, Birkenhead.

All members of the North Kent group should be aware that the Hq. address has recently been changed, and is now St. Mary's Institute, 2 North Cray Road, Bexley, where the lads foregather on the second and fourth Thursdays of each month.

It looks like May 1 as the date for the Cornish main meeting, at the SWEB Clubroom, Pool, Camborne, although we have no firm detail as to what is fixed up as entertainment, as our copy of the *Cornish Link* does not go far enough ahead—but we can't blame the *Link*, when the AGM is only just over and the new committee have yet to finalise their programme. Let it suffice that there is always something of interest to fill the time.

A.R.M.S. have, as has already been announced, cancelled their Mobile Rally on May 18. Their international nets have been shifted down from 21 MHz to a new frequency of 14320 kHz, Saturdays at 1330, which, it is hoped, will enable more of the overseas chaps to call in to the net. G4AMS is the Net Control.

Another group with accommodation problems is the Star, up in Leeds; their Bramley Town Street place, the New Inn, is in a demolition area, so they are looking round for somewhere in Leeds Town Centre. This being the case, anyone thinking of paying them a visit would be well advised first to contact G4BUU—see Panel.

Cray Valley get together at Eltham United Reformed Church Hall, 1 Court Road, London S.E.19. As for the dates, we have to extrapolate them a little, but we make them at May 1 and 15th.

York seem to have had their fair quota of entertainment by the visit of G2DQU who was starting at the Theatre Royal. On a different tack they are to show the flag on two forthcoming occasions—first at Tollerton on August 16, while the second, all being well, will be for the opening of the new National Railway Museum on September 27. You can find the lads on any Thursday evening at the British Legion Club, 61 Micklegate, York.

\* \* \*

May 8 is down for the AGM for the Yeovil chaps, at the Youth Centre, 31 The Park; and we note that on May 22 they are going to play the G3JOR tape talk on "DX Working, the Station and the Operator."

It seems an awfully long time since last we heard from Redditch, but the same secretary (who started as a "temporary" years ago!) still continues in office. They can be found on the second and fourth Thursdays at the Old People's Centre, Park Road, Redditch, at which Hq. they are hoping soon to establish a permanent station.

For Wigan the weekly meetings are split in two ways: The first and third Wednesdays are basically social dates while the second and fourth Tuesdays are occupied by more serious activities, such as film shows or talks. Incidentally, we note with some pleasure that while there are four members going up for R.A.E. in May, there are five in for the Morse Test.

No messing about with Derby when G2CVV sends the dope in himself: Meet every Wednesday at Room 4, 119 Green Lane, at 7.30 p.m., he says, the details being: May 7, a Surplus Sale; May 14 a Film Show; a D/F Practice on 21st; and a session of Technical Topics on the 28th to round it out. Not a wasted word and nothing we need to know missing—Thanks!

Cheltenham (RSGB) have an interesting little *Newsletter*, and this time it is largely used to give a push to the QRP movement, with some

### PLEASE NOTE!

Closing dates for this feature for the next few months will be: May 8, June 5 and July 3. These are final dates after which material cannot be taken in but will be held over for the month following.



At the recent AGM of the Edgware & District Radio Society, the Club trophies were presented to (left to right); SWL Wheeler, Enthusiasts' cup; G3GC, Constructors' trophy; and SWL Ling, D/F shield. The presentations were made by Phil Thorogood, G4KD (right) who for many years was the proprietor and organiser of the very successful annual Amateur Radio exhibitions held in London at the Seymour and Royal Agricultural Halls.



considerable detail on the recent *QST* article detailing front-end mods. to the Heath HW-7. Another handy little piece is the one about a combination transistor and crystal-activity checker, which can cope with overtone-ground rocks as well. Meet them on the first Thursday in every month, at the Royal Crescent Hotel, Clarence Street, Cheltenham.

Tuesday evenings at Torbay continue to be a success, with an average of around 34 members present, and they also have a monthly Saturday evening session. They have agreed as a Club to try and help any RAIBC members in the area—so will any within the Torbay Club district who need help, no matter what, please get in touch with G3UIQ—see Panel. The Hq. is at Bath Lane, rear of 94 Belgrave Road, Torquay.

The Nottingham secretary has decided not to continue, says contact-man G4AFJ, and so at the AGM some-one new will be elected to keep us in touch. The lads can be met on any Thursday evening at Hq., Sherwood Community Centre, Mansfield Road, Nottingham, starting at 7.30—saving that for May 1 they have a visit to the East Midlands Airport, Castle Donington, fixed up.

Although Thursdays are the days for the meeting proper, at Barking, there are also facilities on other evenings, as for instance, Mondays for constructional work, Tuesdays the Morse class, and Wednesdays operating the Club station. The Hq. for this volume of activity is Westbury Recreation Centre, Westbury School, Ripple Road, Barking.

Another very active group is that centred on South Manchester; here the VHF and D/F elements flogather at the Club shack each Monday (the address is Greeba, Shady Lane, Manchester 23) while everyone, regardless of their special interest makes a date for Friday evening at Sale Moor Community Centre, Norris Road, Sale, for the talks and other things. For May we see, on the 2nd, a home-brew equipment contest, and a Mini D/F practice on the 9th. May 16 is important as it is the AGM, and then on the 23rd there is a Natter Nite. May 30 reflects the ever-increasing interest in QRP, and G3FNM delivers himself of some thoughts on the subject.

On the Maidstone YMCA, at their Hq. at the Sport-centre, Melrose Close, who have their AGM on May 2. The R.A.E./Morse class occupies May 9 and 23, and a lecture on Aviation Communications and Electronics fills out on May 16; this last is to both start and finish 30 minutes later than usual. And, of course, we mustn't forget May 25, for the Maidstone Rally.

Dartford Heath D/F is probably the only group in the country to have D/F as its main reason for existence; but that is not to say they don't take an interest in other things—they do. May 2 is down for their AGM, at the Scout House, Broomhill Road, Dartford, but for other dates and details we suggest you get in touch direct with G4BWV, as Panel p.160.

If you are in the area of Harrogate & Knaresborough on a Monday evening, why not pop in to the Christchurch Further Education Centre, Harrogate, and meet the local group. They have a rig and the station

can be put on any band from 1.8 to 29.7 MHz.

The QRP Club, under its secretary G3RJV is really booming and in the process generating an enormous amount of interest, both transmitter and listener, in the art of low-power operating on the air. There is the Club *Newsletter*, with information of interest from all sorts of places, and of course their service of reprints of articles useful to the QRP enthusiast.

The compilers of the Southgate *Newsletter* have us really fooled this time, as they sent us a copy with two "page threes" and no "page four," on which presumably there would have been all the latest gen. Thus, although we know the May meeting is down for a Natter session, and that it is at the Scout Hut, Wilson Street, Winchmore Hill Green, for the rest, we refer you to the Secretary—see Panel.

At Mid-Sussex they say that May 8 is to be a talk on Repeaters and May 22 at Constructional Contest—provisionally, that is, for there may have to be some shuffling of dates. The venue is Marle Place Further Education Centre, Leylands Road, Burgess Hill, where they also have the Club shack complete with its sixty-foot aerial tower and beams—and very nice, too.

Our next stop is with the City of Bristol Group, who get together at the Becket Hall, St. Thomas Street, near Bristol Bridge on a monthly basis. For May 19, they have Prof. W. Gosling of Bath University, taking as his subject "SSB on VHF."

\* \* \*

Every Wednesday evening the Glenrothes chaps can be found in their Clubroom, Douglas Road, Leslie; we notice a slight variation in that on May 14, they are going out, to visit the factory of Andrew Antenna Systems.

It is sad to hear of a Club going through a bad patch, but on the brighter side it often means that the group recovers to be better than of yore. Winchester recently had an AGM at which there were fewer members but a lot more enthusiasm. Now, they are in occupation in the Hq. at Antrim House, St. Cross Road, on the first and third Fridays in each month; all the "first Fridays" will be organised, with various talks, films and whatever, while the other meeting each month will be down for a natter.

G3MFG writes in simply to ask for his name to appear in the lists of Club Secretaries held by us for the benefit of those who are looking for a contact with the locals. He represents the Stamford club—for more details, get in touch with him at the address in the Panel.

Almost within hours of the completed material leaving your conductor, we received a retraction from G3FZL of Crystal Palace who was unlucky enough to get his dates and details mixed. For both of us, apologies to anyone who was misled. For May, he says it is Saturday, May 17 which tallies with our own calendar as a Saturday; and it will, as always be at Emmanuel Church Hall, Barry Road, London S.E.22.

Although we can tell you that they get together monthly at the Library, Cheam, we cannot give you the May details or date, which

will have to be obtained by a contact with G4BOX, as Panel. The Club—Sutton & Cheam, of course.

One thing about the Association of Amateur Radio Clubs of Sheffield is that all the gen come on one bit of paper. From this we find that on Monday, May 5 there is the "common" meeting, this time at Room 3106, Sheffield Polytechnic, starting at 7.30. Sheffield ARC have May 19, at the Sheaf House Hotel, Bramall Lane, for which they ask that all old-timers make an effort to attend. Then there is Worksop, who have a Junk Sale on May 29 at North Notts College of Further Education, Blyth Road Entrance, Worksop. As for Sheffield University, the contact man there is Andy Marvin, c/o the Department of Electrical Engineering.

"SSB Transmitters" will be dealt with by G3RZP for the Reigate gang on May 27, at St. Mark's Church Hall, Alma Road, for the formal meeting of the Reigate group. There is also an informal, earlier in the month at May 6, which is taken at the Marquis of Granby, Hookey Lane, Redhill.

Acton, Brentford & Chiswick are regulars to this piece, this time to announce that on May 20, G3CCD will tackle Part 2 of his saga on the Digital Frequency Meter he has designed. Venue, as always, the Chiswick Trades and Social Club, 66 High Road, Chiswick, London W.4.

Midland wanted us to make sure we got their dates right, so with the *Newsletter* came a sheet of headed notepaper carrying, in large letters, the monthly dates through to August—but, please, dear scribes, all of you, please take note that we can't carry months of dated in our files, which are grossly over-weight as it is! So, let us have your dates and details for the current period each month. For Midland, this means May 13, at the Midland Institute, Margaret Street, Birmingham 3.

A new hand signs the letter from Crawley; it tells us that they have

May 9 set aside for the annual dinner and dance at the George Hotel, Crawley, with GW8NP as guest of honour. The meeting on Wednesday, May 28 is a "members" evening, at the United Reformed Church Hall, Ifield, consisting of a series of short talks on various topics, all given by members.

R.A.I.B.C. have a sad task this time, namely to announce the recent death of their member Tom Dugdale, G3KQK; and the obituary carried in *Radial* was written by Frances Woolley, G3LWY. If you know anyone interested in Amateur Radio, as SWL or licensed, or even just aspiring, who is also either blind or handicapped, you should put them in touch with RAIBC; and you could do a lot worse than to join yourself as a Supporter. And, at the AGM of your Club, why not propose a donation to RAIBC from the funds? For all the details, just give G3HXN a ring, or write to him at the address in the Panel.

Silverthorn members certainly have a fine *Newsletter* to read each month, but it doesn't tell us the dates of the weekly sessions in the shack or lecture room at Friday Hill House, Simmons Lane, Chingford. Fire on you Mister Editor, sir! No matter though, it will be noted that the Secretary's address adorns the Panel, so for the gen, either write or ring.

Our next one concerns the Amateur Radio New Service who have sent on their *Bulletin*; quite an interesting one with pieces culled from many newsletters and magazines mostly of U.S. origin. For more details, why not contact G3FPK, address as Panel?

#### Next Time

Once more we have reached the bottom of the pile, and it is time for us to mention the next deadline: Send your news and views, and details of your June programmes, posted to arrive with us by May 8. The address is the same as usual, namely "Club Secretary," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18-1RQ*.

### Names and addresses of Club Secretaries reporting in this issue :

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 YORK: K. R. Cass, G3WVO, 4 Heworth Village, York.

# STEPHENS-JAMES

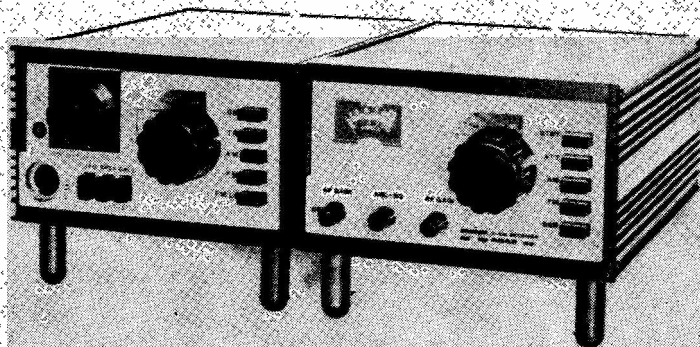
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Shure 201 Hand Microphone ... .. £7.50	1200 Linear Amplifier ... .. £189.00	
Shure 444 Desk Microphone ... .. £16.00	MB80A Transceiver ... .. £184.40	
Shure 444T Desk Microphone ... .. £16.50	SS-200A Transceiver ... .. £538.00	
Electro Voice 729SR Desk Microphone ... .. £13.50	TB-4HA 4 Element Beam ... .. £135.00	
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- SBF-2BX boxed ssb audio filter ... £14.58 (25p)
- CWF-2 unboxed cw filter ... £9.00 (25p)
- CWF-3 unboxed cw filter ... £5.00 (25p)
- 100BX 100/50/25 kHz boxed calib. ... £11.50 (25p)
- MFJ-100 calibrator unboxed ... £9.35 (25p)
- MFJ-100 calibrator less xtal ... £11.50 (35p)
- CMOS Electronic Keyer with monitor ... £21.06 (25p)

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- B24 2 element yagi 10-15-20m. £42.12 (£1.50)
- RK3 reflector element for B24 £27.00 (£1.50)
- C4 vertical dipole 10-15-20m. £24.30 (£1.30)

### HY-GAIN ANTENNAS

- 12AVQ 10-20m. self supporting £20.00 (£1.50)
- 14AVQ 10-40m. self supporting £30.00 (£1.50)
- 18AVT/WB 10-80m. self supporting ... £44.00 (£2.00)

### BELCOM

- Liner 2 2m. SSB tcvr. 10w. pep o/p ... £156.00

### TRIO

- QR666 receiver 160-10m. plus general coverage 230v./12v. £140.00 (n/c)
- Matching 'xtal calibrator ... £9.50 (25p)

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- 2m. FM 6 ch. monitor receiver £19.95 (50p)
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- Dual 1700 & 1750 Hz o/p ... £3.95 (15p)

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- AR30 ... £32.00 (75p)
- AR40 ... £64.80 (£1.00)
- CDE 44 ... £33.48 (75p)
- STOLLE ... £37.80 (75p)
- 2010 ... £33.48 (75p)
- 2030 ... £37.80 (75p)

### CABLE

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- 5 core flat ... yd. 15p (1p)

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- 50 ohm RG8U/UR67 ... yd. 36p (2p)
- 75 ohm standard ... yd. 10p (1p)
- 75 ohm UHF low loss ... yd. 14p (1p)
- 300 ohm feeder ... yd. 8p (1p)

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- PL259 coax plugs ... 42p (5p)
- Reducers ... 15p (1p)
- Belling male coax plug ... 12p (1p)
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### MICROWAVE MODULES

- NEW! 70cm. transverter 28/70cm. ... £67.00 (50p)
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- 4m. converter 28-28-7 ... £16.42 (25p)
- 70cm. converters 28-30/144-146 ... £19.55 (25p)
- 2m. pre amp ... £9.72 (25p)
- 1296 MHz converter 28-30 ... £25.92 (25p)
- 2m. converter 28-30/116 osc. o/p ... £17.60 (25p)

### SOLID STATE MODULES

- 2m. or 4m. Europa B ... £88.00 (£1.00)
- As above less valves ... £74.00 (£1.00)
- Matching power supply ... £34.00 (£1.00)
- 2m. converter 2-4/4-6/28-30 ... £16.20 (25p)

- 70cm. converter 144-146 ... £16.20 (25p)
- 2m. pre amp ... £7.36 (25p)
- PA3 pre amp ... £5.94 (25p)
- 70cm. pre amp ... £9.72 (25p)

### TESTED TRADE-INS

- FT501 plus psu, 6 months old, mint ... £359.00 (n/c)
- Eddystone 830/7, 8 months old, mint ... £395.00 (n/c)
- Heath RAJ + calib. + spkr. + Burns FM det. ... £45.00 (cost)
- Drake SPR4 receiver brand new ... £279.00 (cost)
- Europa 2m. transverter with valves ... £65.00 (£1.00)
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- Shure 444 ... £13.95 (45p)
- Yaesu YD844 ... £16.12 (30p)

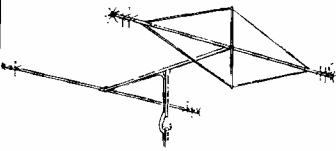
### YAESU EQUIPMENT (ex VAT)

- FT101B 160-10m. tcvr. 240v./12v. ... £330.00 (n/c)
- FR101D 160-2m. rx. 240v./12v. £330.00 (n/c)
- SP101 matching speaker ... £13.00 (£1.00)
- FP101 remote vfo ... £48.00 (£1.00)
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- SP401 matching speaker ... (£1.00)
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- FP200 matching spkr./AC supply ... £45.00 (£1.00)
- FT220 2m. SSB/FM tcvr. 240v./12v. ... £264.00 (n/c)
- FT224 2m. FM tcvr. 24 ch. toneburst ... £130.00 (n/c)
- FP2 matching AC/charger supply ... £38.00 (£1.00)
- YC355 200 MHz counter 240v./12v. ... £125.00 (n/c)
- YO100 monitor scope (superb ii) ... £93.00 (£1.00)

### SWAN EQUIPMENT (ex. VAT)

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- Remote vfo unit ... £99.00 (n/c)
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144 MHz Converters 28-30 MHz IF (50p)	£16-20
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5 over 5 2m. crossed beam	£8-55
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Low loss 52 Ω coax ... per yd. (70p) 46p

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Twin Feed 300 Ω ... per yd. (40p) 4p

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ML2-200lb. line (approx. 140 yds.) (30p) £1-50

ML4-400lb. line ... (30p) per yd. 4p



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**STORNO CQM13C HIGH BAND FM TX/RX** for 2 metre conversion, with circuit ... £14-00 + £2 c. & p.

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**STORNO CQM13C** aligned and tested on 2 metres ... £25-00 + £2 c. & p.

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**CRYSTALS SUITABLE FOR STORNO EQUIPMENT** £2 each

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HIGH BAND FM. Mobiles 10, 25 and 50 watt base stations.

HIGH, MID and AIR BAND AM. Mobiles and Base stations.

HF AM and CW. 10, 50 and 100 watt mobiles, KW base stations.

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**VHF TX/RX AND DIGITAL CRYSTAL UNIT, TYPE LRE35**

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**SRI4/15 STC PAIR OF RECEIVERS**, double superhets with control box and junction unit. Cover 75 MHz, 118-108 MHz, 329-335 MHz. 5 x 7 x 13" ... £9-00 + £2 c. & p.

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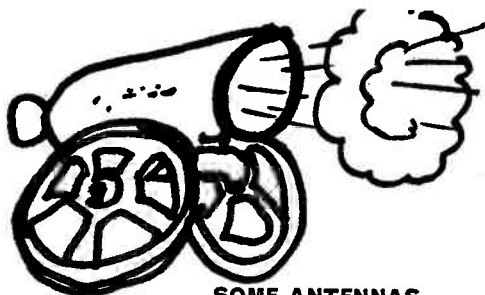
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MCQ-20	20 metre Quad ... ..	£60.00

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2 metres, 4 metres, 70cm, Satellite Band (136-138 MHz), Marine Band from stock. Other frequencies to order.

### SENTINEL DUAL GATE MOSFET 2 METRE OR 4 METRE CONVERTERS

- \* N.F. 2 dB. Gain 30 dB.
- \* Dual gate MOSFETS in RF and MIXER stages.
- \* No oscillator frequency multiplication.
- \* 2 metre IF's: 28-30 MHz, 2-4 MHz, 4-6 MHz.
- 4 metre IF: 28-28.7 MHz.
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- \* Price only £16.20. Ex. Stock.

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A deluxe version of our Sentinel converter, containing a mains power supply or external battery operation. It has front panel R.F. gain control. Technical data is the same as the Sentinel. Size:  $5'' \times 1\frac{1}{2}''$  front panel, 4" deep. Stock IF's: 2-4 MHz, 4-6 MHz, 28-30 MHz. Price: £21.06. Ex stock.

### THE SENTINEL 2 METRE CONVERTER KIT, 28-30 MHz

Ex stock  
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### THE SENTINEL MF DUAL GATE MOSFET 2 METRE TO MEDIUM WAVE CONVERTER

Receives 2 metres on a conventional MW BC receiver, very good used with a car radio. I.F. output of 0.5 MHz-1.5 MHz for 144-5 and 145-6 MHz in two switched bands. Size:  $5'' \times 1\frac{1}{2}''$  front panel, 4" deep. Price: £20.25.

### SM 70 FET CONVERTER

- \* IF output 144-146 MHz. Noise figure 3-5 dB. Gain 30 dB.
- \* Size:  $2\frac{1}{2}'' \times 3'' \times 1\frac{1}{2}''$ .
- \* By using the SM70 with your 2 metre receiver you get excellent 70 cms. receiving performance for only £16.20. Ex stock.

### EUROPA 70 CM FET RECEIVER CONVERTER

- Can be used as a receive converter on its own or in conjunction with our Europa transmit converter for transmit operation as well.
- \* U.F. output 28-30 MHz. Noise figure 3-5 dB. Gain 30 dB.
  - \* Two FET RF amplifiers and FET mixer.
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- If you want the ultimate in 2 metre sensitivity and selectivity:
- \* Built in a box which matches our converters.
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  - \* High selectivity tuned circuits.
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- \* Small (about one cubic inch) printed circuit board pre-amplifier developed to fit inside transceivers where it can be wired into the receiver aerial lead after the c/o relay.
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- A selected 2 stage FET pre-amplifier.
- \* Noise figure 3-5 dB. Gain 18 dB.
  - \* Size:  $2\frac{1}{2}'' \times 4'' \times 1\frac{1}{2}''$ . Price: £9.72.

See our advert on page 138



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**TAA 611B 1 Watt AMPLIFIER I.C.** with data at 65p.

**50 SILICON PLASTIC TRANSISTORS** NPN and PNP. Mixed 85%. Good at 50p.

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**COMMUNICATION SERIES OF I.C.'s** consisting of 1xR.F., 3xI.F., 2xAGC, 2xVOGAD, 1xMike Amp, 2xDoubled Balanced Modulator, 1xMixer. The 12 Untested with data for £3. Separate I.C.'s 27p each.

**BY 103 1300 PIV 1 Amp SILICON DIODES** at 15p each.

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**MULLARD C280 CONDENSERS.** .1uf 400v.w., 20p doz, .22uf 400v.w., .47uf 400v.w. 6 for 15p.

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**IN 4000 MANUFACTURERS FALL-OUTS.** 50 for 50p.

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£45 + VAT

See August Rad. Comm. for a review of this equipment

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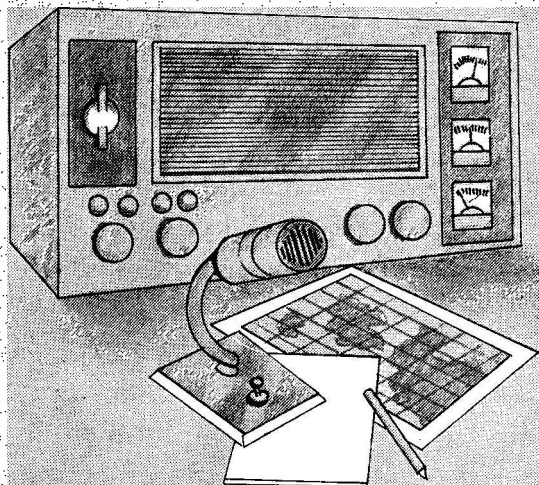
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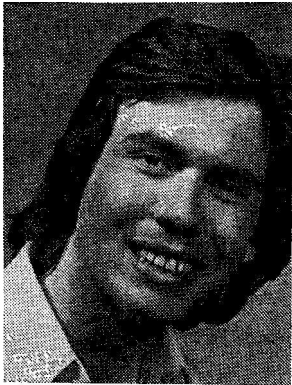
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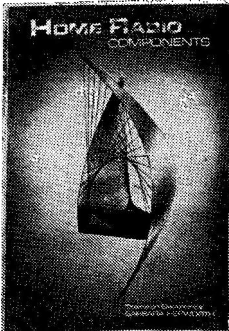
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Modes : CW, SSB, AM and FM.

Input Drive : Typically  $\frac{1}{2}$  Watt RMS.

Output Power : Minimum of 50% efficiency.

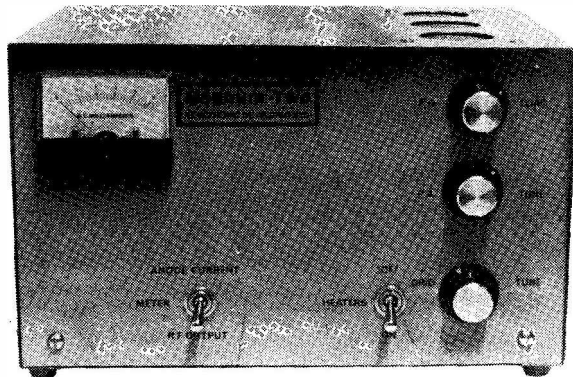
Typically when used with FT 200, 90-100 Watts SSB output.

## SIZE

10" x 6" x 7".

No special cooling required.

Our transverters are constructed for good mechanical stability, while providing adequate ventilation.



## PRICE

£95.00

Including all valves, relays and power lead to transceiver. If you already have an M.M. converter in good condition we are prepared to give a generous allowance and use it in the Transverter.

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This unit is entirely self-contained, operating off AC mains and provides a stabilised low voltage supply to operate the transceiver.

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Up to 100 Watts SSB output.  
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## READERS

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**For Sale:** Eddystone EA-12 receiver, slight mark on case otherwise perfect; also plinth speaker. Joymatch 111A and Hamgear PM-II aerial tuners. Best offer secures.—Maunder, 69 Mill Close, Settle, Yorks. (Callers after 6 p.m.).

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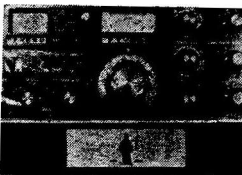
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