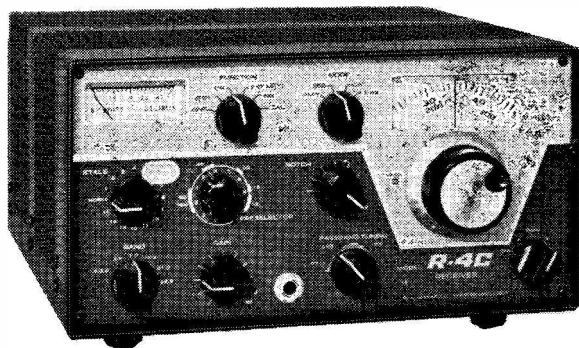


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COMPARE QUALITY AND PRICE WITH ANY OTHER EQUIPMENT AND CONFIDENTLY BUY DRAKE  
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#### RECEIVERS AND ACCESSORIES

R-4C Receiver, SSB, AM, SW, RTTY	... £279.72
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MS-4 Matching Speaker for R-4C	... £12.96
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SPR-4 Receiver. General purpose	... £291.60
Amateur Bands crystal kit for SPR-4	... £14.53
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SCC-4 100 kHz calibrator for SPR-4	... £11.34
TA-4 Transceiver adaptor for SPR-4	... £20.52
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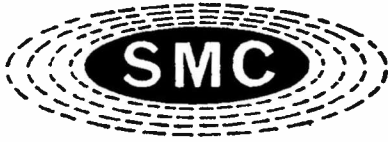
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**24 HOUR SERVICE** BARCLAY CARD OR ACCESS. Just phone in quoting your number, we despatch the same day if humanly possible by whatever means you wish including Securicor free for most Yaesu/second-hand equipment and at cost for other items if they are under 5ft. long (maximum weight 45 lbs.).

*WHY we think you should buy YAESU from S.M.C.*

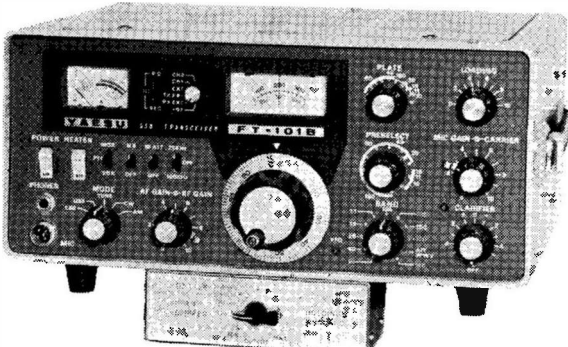
**SERVICE** Free labour on all warranty claims in our comprehensively equipped workshops under the personal supervision of Chris Webster, in our opinion the best and most experienced Yaesu servicing engineer in the U.K.

**SPARES** We carry a comprehensive range of spares in fact thousands of pounds worth.

**DELIVERY** Is fast by Securicor for all Yaesu items over £40 and free by post for items over £5.

**COLLECTION** In the unlikely event of you having a fault then we will collect free of charge any work under warranty by Securicor.

## DE LUXE MOBILE/BASE STATION THE YAESU FT101B



FT101B/330 RF CLIPPER, £45

This de-luxe wireless is the descendant of the world famous FT-101 transceiver. Except for the drive and final amplifier stage, the FT-101B features all Solid State circuitry built on reliable and serviceable "computer type" plug in modules. The 101B is contained in a compact 30lb. package designed to go anywhere. All that is needed for instant "on the air" operation from 160 through to 10m. is either 12v. DC or 100-234v. AC and of course an antenna.

### "LLL" RF CLIPPER (for the legal 6dB boost)

The advantages of RF clipping are too well documented to require discussion here and we are pleased to present this famous RF Clipper that can offer up to 4 times the effective transmitter output whilst improving the receiver performance by use of cascade filters. Further data on request. (Unit available for FT-101 mark I, mark II and B).

**ALL YAESU ITEMS SHOWN ARE EX-STOCK IN TOTTON**

The YO1000 the multi purpose monitor scope offers you the facilities of monitoring the transmitted signal, through line, 1-8 to 50 MHz on power levels from 10 to 500 watts. The IF of the receiver or transceiver can be monitored (3-18 MHz standard, 455 kHz or 9 MHz options). AF and RF trapezoidal patterns can be displayed, the unit facilitates RTTY tuning and has built in 1-5 to 1-9 kHz oscillators suitable for Post Office two tone output measurements.

### MONITOR SCOPE YO100



£93

SEND S.A.E. OR PHONE FOR NEW PRICE/STOCK LIST

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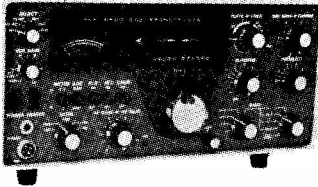
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## YAESU MUSEN UK MAIN DISTRIBUTOR

FT201

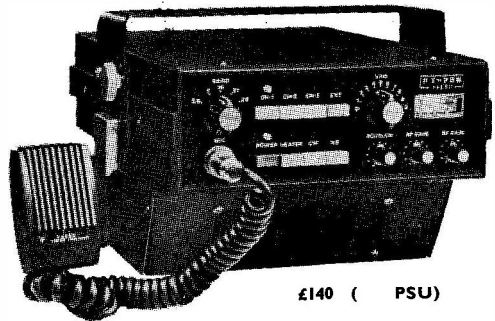


The newest of the Yaesu transceiver on offer the FT201. The FT201 features 80-10m. operation and the ability to run from the mains or a 12v. supply. It is constructed using plug-in modules as made famous in the FT-101. Of special interest to those contemplating using the 201 as a prime mover for VHF 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.

£290 BASIC

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 and includes an excellent noise blanker and a 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 BC75B at £40 illustrated right.

FT75b



£140 ( PSU)

### (The VHF man's perfect exciter!)

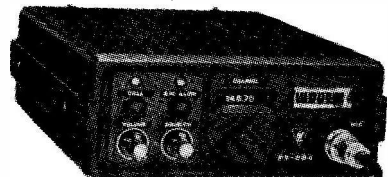
A compact unit featuring full 1 kHz resolution VFO coverage across 50-54 MHz in 8 ranges, SSB (selectable) AM or CW (build your own FM modulator) 4 crystal controlled channels in each band segment, receiver offset clarifier, noise blanker, built in AC and 12v. DC power supplies, mic supplied, optional AM filter and crystal calibrator, £175.00 or £180.00. The exceedingly low level of spurious emissions and the 50 MHz output makes this unit highly suitable for use as a drive source transverting to 4, 2 or 70 cms. and/or parametrically up converting to 70 or 23. For use on 70 cms. we are pleased to announce the Microwave Modules transverter is now available for use with a 50 MHz I.F., £62.00.



FT620

The FT224 is an advanced Solid State transceiver featuring 10 watts output with a 23 channel flexibility (including priority channel) all in one complete package. The FT224 includes a built in tone burst for repeater actuation. Automatic high VSWR protection of the final transistor and reverse power line polarity protection are included. The wireless comes complete with built-in speaker, mobile mounting brackets and dynamic microphone. S.M.C. models come fitted with 145.00, 145.50 and 145.55 MHz as standard.

FT224



£130

SEE OVERLEAF FOR A SELECTION OF MAST ANTENNAS AND ACCESSORIES

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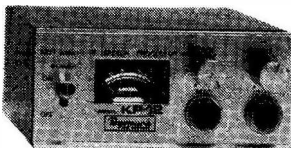
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# SOUTH MIDLANDS

TO COMPLEMENT THE YAESU RANGE WE PRESENT  
ALL HY GAIN PRODUCTS AND SOME NEW LINES FOR '75

## RF SPEECH PROCESSOR KPI2

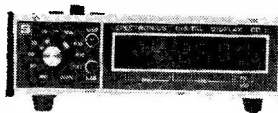


(Prov.) £44

AVAILABLE EARLY MARCH

Audio to audio, via 107 MHz, mains powered, illuminated meter, FT-101, FT2 plugs suitable all phone modes superb on FM.

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

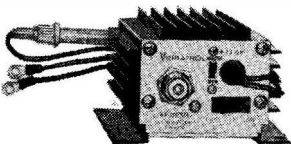


(Provisional) £110

AVAILABLE MID MARCH

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

## 144 MHz LINEARS RFL

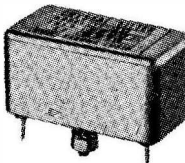


£50, £70, £90

RF sensing, switchable drop out time SSB, AM, FM, CW, 12v DC, 10W drive, 701-75W out, 801 100W out, 901 150W out.

FROM APRIL

## 9 MHz SSB FILTERS YF90/F/S



£12.50 USB only £11.50.

EX-STOCK at new low introductory price. 2.4 kHz, 6 pole, each individually supplied with  $\pm 6$  dB, 25 dB, 60dB bandwidths, ripple factor and insertion loss. With two crystals.

## CRYSTALS NEW LOW PRICE (ALL POST PAID)

### FT 2 FB (14 MHz Rx 18 MHz Tx)

144 (-15, -20, -30, -36, -48, -50, -60, -80)

145 (-05, -09, -20, -32, -40, -44, -51, -80, -84, -90)

All £3.30 pair, £1.80 single

Simplex 145 (-00, -500, -525, -550, -575, -600)

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

All £3.50 pair, £2.00 single

### FT 2 F (52 MHz Rx 6 MHz Tx)

144 (-15, -25, -36, -40, -48, -60, -70, -80, -96)

145 (-08, -09, -10, -20, -36, -40, -68, -80)

All £3.30 pair, £1.80 single crystal

Simplex 145 (-00, -500, -525, -550, -575, -600)

Duplex 145 (-100/700, -125/735, -150/750, -175/775)

All £3.50 pair, £2.00 single

### STANDARD C826 and 146

145 (-500, -525, -550, -575, -600, -15/75)

All £3.30 pair no singles

### SPECIALS

100 kHz £2.50  
1 MHz £4.50

CRYSTALS TO ORDER—6/8 weeks delivery

Phone 04216 4930 for best prices.

### MICROWAVE MODULES (All 28-30 MHz IF others to order) (P. and P. 30p)

70 MHz Converter ... £15.20 432 MHz Converter ... £18.10 144 Pre Amp 2 outputs ... £9.00  
144 MHz Converter ... £15.20 1296 MHz Converter ... £24.00 144 MHz Converter with LO out. £16.30

### SHURE (P. and P. 30p)

444—Desk Mic. ... £15.30 444T—444 with Amp ... £17.20 401B—Hand-Low Z ... £7.20 201—Hand Hi Z £6.00

## SECOND-HAND LIST TELEPHONE 04216 4930 FOR LATEST

### EDDYSTONE

SB70A ... £30.00  
680X ... £75.00  
770R ... £105.00  
EPI4 ... £75.00

### HEATHKIT

SB102 ... £225.00  
OS2 ... £30.00  
SW717 ... £25.00

### TRIO

TS520 ... £265.00  
QR666 ... £100.00

### YAESU

FT501 ... £340.00  
FT401 etc. ... £275.00

### BENDIX

BC221 RC £6.00

### TELFORD

TC5 ... £25.00

### NATIONAL

HRO (M) £30.00  
NCX5 £165.00

### INOUE

IC21 etc. £135.00

### KW

Viceroy £60.00

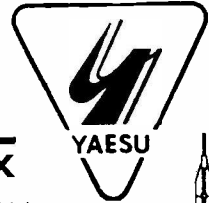
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## ANTENNAS, TOWERS, MASTS, ROTATORS, COAX

### HAM TOWERS (Carriage extra)

Galvanised steel telescopic 10ft. sections 30ft. high with climbing steps on one face. From **£90.50**

### TELOMASTS (Carriage England and Wales £1.50)

Galvanised steel telescopic 10ft. sections with or without rigging.  
 30ft. **£15.00** 40ft. **£20.00** 50ft. **£25.00**  
 30ft. **£29.00** 50ft. **£39.00** 50ft. **£49.00**

### HY-GAIN (Carriage paid)

Hy-Gain 18AVT/WB the great wide band self supporting vertical (for 10-80m.). Take the wide band omnidirectional performance of the famous 14AVQ increase the band width, add 80m. use extra heavy duty construction and you have the 18AVT/WB. True 1/2 wave resonance on all bands 52 ohm feed, band edge SWR of 2:1 or better, handles 1kW (AM), ultra low angle radiation and may be roof or ground mounted. Illustrated far left.

Hy Tower, 10-80m., self supporting tower ... **£132.00**  
 18V, 10-80m. Vertical self supporting **£15.50**  
 12AVQ, 10-20m. Vertical self supporting ... **£20.00**  
 14AVQ, 10-40m. Vertical self supporting ... **£29.50**  
 LC80Q Loading coil for AVQ, 80m. **£9.30**  
 18AVT/WB 10-80m. Vertical ... **£42.50**  
 TH6DXX 10-20m. 6 element beam **£117.00**

TH3 MK3 10-20m. 3 element beam **£90.50**  
 TH2 Mk. 3 10-20m. 3 element 600W **£62.00**  
 Hy Quad 10-20m. 2 element 40m. **£90.00**  
 DB10-15A 10 and 15m. 3 element beam ... **£69.00**  
 DB24B, 3 element 20m. 2 element 40m. ... **£129.00**  
 40ZBA 40m. 2 element ... **£110.00**  
 204BA 20m. 4 element beam ... **£96.00**  
 203BA 20m. 3 element beam ... **£87.00**

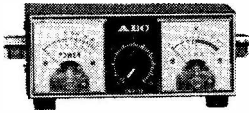
### ALIMASTS (Carriage paid England and Wales)

Alloy telescopic 1.5, 2 or 3m. sections 6-21m. from **£11.60** for 6m. to **£38.00** for 21m.

### VERSATOWERS (Carriage paid England and Wales)

Tiltover, telescopic, post mounted ex stock. The tilting actions allows ease of maintenance and changes of antennas. The relatively low weight eases installation problems illustrated right. From **£172.25**

153BA 15m. 3 element beam ... **£44.00**  
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 LA 1 Lightning arrestor ... **£17.50**  
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 12RMQ Roof mounting kit ... **£11.00**  
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### NEW LOW PRICE SWR / POWER METER

SWR10 Reflectometer 50 ohm ± 5% quoted  
 SWR50 Power meter ± 15% calibrated for 50 and 75 line. Reflectometer — 5%  
 SWR10 **£6.30** SWR50 **£11.20**

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HQ/ZM Halo head only —3dB 60 ohm **£1.85**  
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 5XY/ZM 5 element crossed 7-8dB 60 ohm **£8.20**  
 8XY/ZM 8 element crossed 10dB 60 ohm **£10.20**  
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AY4M 4 element 7dB 60 ohm **£6.80**  
 BEARING RZ100 Alignment bearing **£7.60**

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5Y/ZM 5 element Yagi 7-8dB 60 ohm **£4.03**  
 8Y/ZM 8 element Yagi 10dB 60 ohm **£5.60**  
 10Y/ZM 10 element long Yagi 13dB 50 or 75 ohm **£11.00**  
 14Y/ZM 14 element long Yagi 14-5dB 50 or 75 ohm **£14.00**

#### SLOT-FED

D5/ZM 5 over 5 10-3dB 50 or 75 ohm **£7.92**  
 D8/ZM 8 over 8 12-6dB 50 or 75 ohm **£10.50**

#### PARABEAM

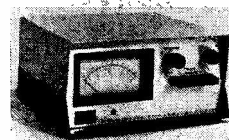
PBM14/2M 14 element parabeam 15-2dB 50 or 75 ohm **£16.90**

#### 70 CENTIMETRES

D8/70 8 over 8 12-6dB 50 ohm **£9.00**  
 PBM18/70 18 ele parabeam 16-5dB 50 ohm **£10.90**  
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## ROTATORS: EX-STOCK

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Carriage (B.R.S.) Free. Securicor delivery 60p Ex.  
 AR30 for Stereo FM and small VHF beams **£25.00**  
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 CD44 Arrays up to 2½ sq. ft. of wind area ... **£60.00**  
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 Control Cable 5 core (AR30/40) ... per metre **18p**  
 Control Cable 8 core (CD44/H11) ... per metre **26p**

### THE NEW CONTROL UNIT FOR THE CD44 AND HAM 2

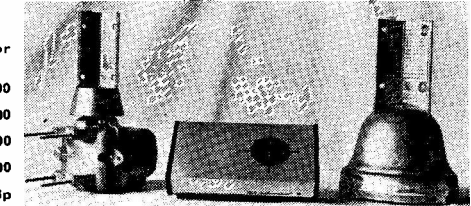
MOSLEY TRI BAND (10-15-20m.) BEAMS (Carriage £1.75)  
 TA33 Jr. E3 ele. 200W TA32 Jr. E2 ele. 300W  
 RMS ... **£45.00** AM ... **£32.00**

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Tribander—15, 15, 20 **£12.30** LF40m. LF80m. or LF160m. **£4.10**  
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BANTEX Fibreglass/Stainless Steel VHF/UHF Mobile Antennas (Carriage 75p)  
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 BGA 1/2 Wave 144 MHz **£6.00** 70 7/8 Wave 70 MHz **£3.00**

K.W. EQUIPMENT (Carriage extra)  
 KW103 SWR/PWR meter ... **£16.00**  
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 R.F. CABLES (Carriage up to 20m, 40p, over 50p less for lighter cables)  
 50 ohm RGBU/UR67 **33p/m** 75 ohm UR39 ... **25p/m**  
 75 ohm UR57 ... **33p/m** 75 ohm Economy ... **10p/m**



### THE NEW SILENT CONTROL WITH AN AR30 and AR40

Mustang 3 ele. 2kW PIP **£60.00** Mustang 2 ele. KW AM **£48.00**

Flexiwhip, 10m. with base mounts ... **£9.50** **£1.85**

F15, F20, F40, F80 or F160m. ... **£4.25**

Telescopic Whips for Coils ... **£1.10**

Note deduct 50p from price of aerial if standard base not required.

Dummy Load 75/50 ohm **£12.00**

Antenna switch 3-way **£6.00**

KW160 Topband ATU **£18.00**

KW EZ match 10/80m. **£22.00**

75 ohm Flat twin ... T.O.S. **75 ohm BICC 2378 ... 22p/m**

300 ohm. Ribbon ... 6p/m **50 ohm UR43/UR76 ... 15p/m**

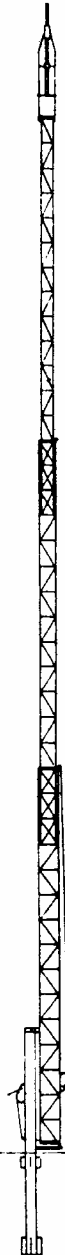
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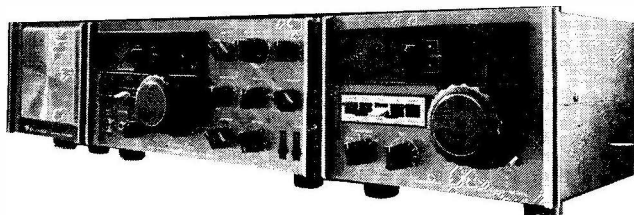
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## TRIO FOR HF



### TS900

Top of the line. 300W p.e.p. 0.1  $\mu$ V sensitivity. All modes including RTTY. Vox, max, PTT. The rig with everything.

£480 (VAT exc.)

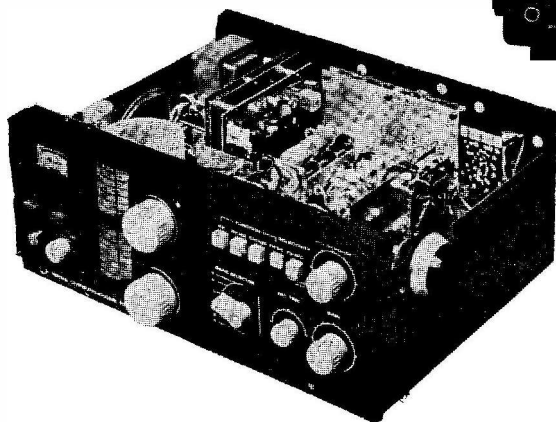
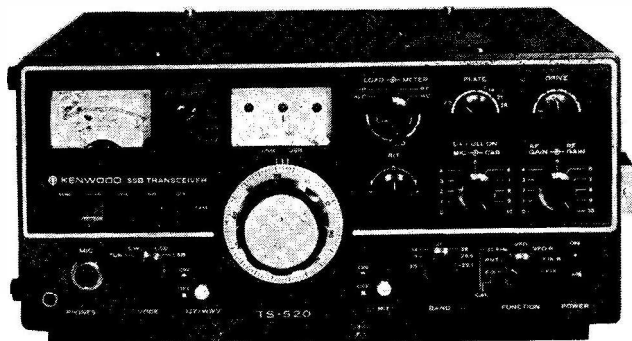
Optional remote VFO 900 available.

### TS520

The go-anywhere rig. AC mains or 12v. operation built-in. Speech compression built-in. Marker built-in. Vox built-in. Superb RX performance and unbeatable transmit voice quality.

£290 (VAT exc.)

Optional remote VFO 520 and speaker SP 520 available.



### QR666

New general coverage receiver. 3 way power supply. AC mains, 12v. external supply or built-in batteries. 170 kHz-30 MHz coverage. Product detector. 2 position selectivity.

£130 (VAT exc.)

Optional broadcast FM unit and marker unit available.

### LOWE 2 METRE MONITOR RECEIVER REC-1420C

Here is a simple, low cost F.M. monitor receiver which monitors up to six channels and has an excellent performance/price ratio. Ideal for mobile use and when fitted with popular F.M. frequencies along with a repeater or two ensures that it is in the midst of any F.M. activity.

No necessity for a bulky and costly tunable I.F.—no fiddling around when driving—just scan the channels and if there is much F.M. activity you are sure of hearing it. Being F.M., ignition etc. suppression is not essential, and thus makes it the ideal mode for mobile. It's diminutive size (4ins. W x 2½ins. H x 8ins. D) and weight (2½lbs) make it a snip for portable. In fact it is the one receiver that is cheap enough for everyone to carry around anywhere.

**R.F. STAGE** ● **REQUIRES 12 to 15v. D.C.** ●  
**6 CHANNEL CAPABILITY** ● **4 I.F. STAGES**  
**DOUBLE CONVERSION** ●  
**EXCELLENT SQUELCH**

**PRICE** (Less crystals) £19.95 plus VAT

**CRYSTALS** 145-000 Popular 145-725  
 145-500 calling 145-750 Repeaters  
 145-525 channels 145-775  
 145-550  
 £1.50 each plus VAT

**ALL IN PRICE, FITTED SIX CHANNELS, £31.26 INC. VAT & POSTAGE**

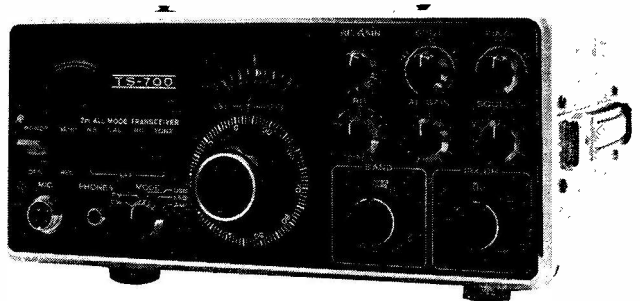
# LOWE ELECTRONICS



## TRIO FOR VHF

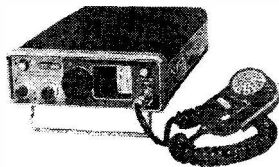
### TS700 Specification

FREQUENCY RANGE	144-146 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 sb, am, cw, single Conversion 10.7 MHz and 455 kHz for fm, double Conversion
SENSITIVITY	0.5µV for 10dB S+N/N
IMAGE REJECTION	Greater than 60dB
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.)

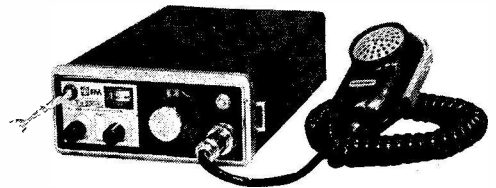


### TR2200G 2m Mobile Transceiver

22 Switch selected transmitting and receiving frequencies in the 2m. FM band between 144MHz 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.)

REMEMBER **IC210** STILL AVAILABLE AT £200 (VAT EXC.)

2 METRE FULLY TUNABLE

PHASE LOCK VFO

AC/12v. OPERATION

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119 Cavendish Road, Matlock, Derbyshire. Tel. 2817 or 2430 (9 a.m.-9 p.m.)  
Telex 377482 (any time)

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AGENTS

Alan GW3YSA, 35 Pen-Y-Waun, Efail Isaf, Nr. Pontypridd. Tel. Newton Llantwit 3809  
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

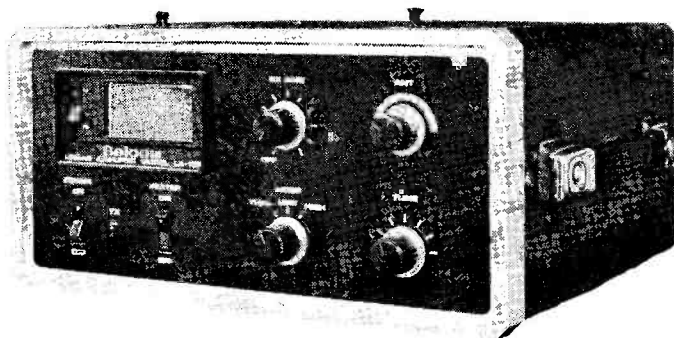
73 from BILL G3UBO/VE8DP, ALAN G3MME, JOHN G3PCY/5N2AAC, IAN G3ZCY

# LOWE ELECTRONICS

## BELCOM LA106 2m Linear Amplifier

A reasonably priced, compact, high performance linear for 2m. SSB/FMCW operation. 10W of drive for more than 200W input gives your signal the extra kick to get it out of the noise. Built-in receive preamplifier with adjustable rf gain and using helical filters for extra selectivity and reduced intermod. from out of band signals. Built-in regulated 13v. 2.5A power supply for Liner 2 or any similar drive unit.

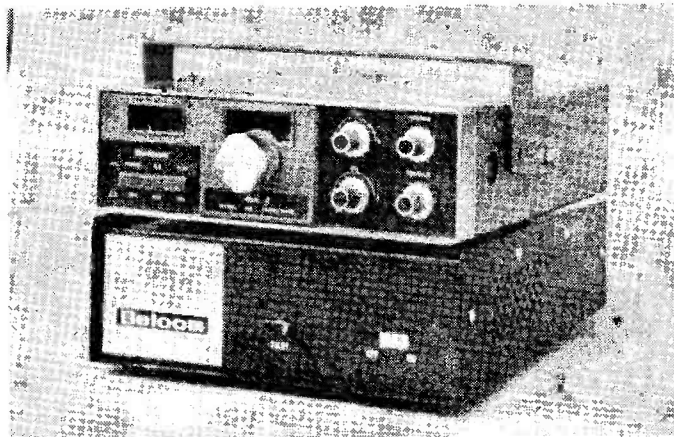
MADE SPECIALLY BY NIHON DENGYO  
FOR THEIR LINER 2



Frequency range : 144-146 MHz  
 Modes : SSB, FM, CW  
 Input power : 200W p.e.p.  
 Drive power : 10W  
 Receiver preamplifier adjustable gain up to 10 dB  
 Accessory supply : 13vA 2.5 regulated  
 Power supply : 240v 50 Hz  
 Dimensions (mms) 315 x 148 x 280  
 Weight : 12 kgs  
 Price : £165 plus v.a.t.

## SSB 144MHz MOBILE TRANSCEIVER

### *Liner 2*



The brilliantly conceived and designed Liner 2 has revolutionised 2m. sideband and is responsible for the enormous increase in activity. It combines the advantages of switched channels with direct frequency readout (e.g. Channel 20 is 145.20 MHz) with the ability to tune between channels with the VXO. In addition the provision of R.I.T. which enables the Rx to be tuned to a kHz or two either side of the Tx frequency is a useful feature. The VXO gives, as one would expect, crystal stability which, coupled with an extremely effective noise blanker makes mobile operation a delight without detracting from its use (with an AC p.s.u.) as a base station.

Most important is the surprisingly low level of spurious emissions which sets a new standard. This low level is achieved by very careful design and alignment and owners are most strongly urged not to attempt alignment without a laboratory spectrum analyser.

For the first time, here is a completely solid state, fully tunable 2m. SSB rig which an electronically protected PA at a reasonable price which truly performs with the utmost reliability.

Price : Including microphone and bracket, spare DC power lead, mobile amount, spare dial lamp and fuse, £145 plus VAT.



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SEND 20p FOR OUR COMPREHENSIVE CATALOGUE

## PRICE LIST—FEBRUARY 1975

	Carriage Paid	Callers Only
Weir 2m. Mosfet Converter, 28 MHz I.F. ...	£15-20	£15-00

### MICROWAVE MODULES EQUIPMENT

MMCI44/28 LO ...	£17-93	£17-80
MMC70/28 ...	£16-72	£16-60
MMC432/28 ...	£19-91	£19-80
MMC432/144 ...	£19-91	£19-80
MMCI296/28 ...	£26-40	£26-25
MMCI296/144 ...	£26-40	£26-25
MMV432 ...	£19-25	£19-10
MMVI296 ...	£27-50	£27-35

### ROTATORS

CDR AR 22 Light duty for VHF Beams ...	£30-78	£29-70
AR 40 Solid State Control Box ...	£33-48	£32-40
TR 44 Heavier Duty Rotator ...	£55-20	£54-12
CD 44 Improved version of TR 44 ...	£65-88	£64-80
Ham-2 Improved version of rugged Ham-M ...	£98-28	£97-20

### VALVES

For the very common valves, it pays to shop at one of the large London importers who buy in such enormous quantities that they can sell retail at a lower price than we can buy wholesale. We do, however, maintain stocks of the more unusual valves which are used in the equipment we sell, and which you may find some difficulty in obtaining.

	Carriage Paid	Callers Only
6AH6, 6BZ6, 6CB6A, 6CL6, 6UBA, 6EW6, 6EH7, 6BM8, 12BY7A ...	...	...
6GK6 ...	£1-35	£1-30
6JS6C, 6KD6 matched pairs ...	£4-50	£4-30
6146B, S2001 each ...	£3-35	£3-25
6LQ6 matched pairs ...	£5-50	£5-25

### CRYSTALS

Popular channels for Yaesu, Inoue, FDK, Trio and many other FM transceivers.

Simplex channels S20, S21, S22, S23 and S24.

Repeater channels R3, R4, R5, R6, R7 plus other channels as they come into use.

A 'phone call will confirm current stock position.

Price £2-50 per crystal, £4-50 per pair.

THE ABOVE PRICES INCLUDE VAT.

TERMS: CASH OR CHEQUE WITH ORDER (Hire purchase a pleasure).

In the event that we are temporarily out of stock of any item, your money will be refunded in full immediately.

**FULL MONEY BACK GUARANTEE ON UNSATISFACTORY ITEMS.**

### ANTENNAS

	Carriage Paid	Callers Only
2m. "J" BEAMS 50 ohms only.		
5/2M 5 element Yagi with 1" boom ...	£6-84	£4-64
8Y/2M 8 element Yagi with 1" boom ...	£8-25	£6-05
10Y/2M 10 element Yagi with 1½" boom ...	£14-08	£11-88
PBM14/2M 14 element parabeam with 1½" boom ...	£20-46	£18-26
5XY/2M 5 ele. crossed Yagi with 1½" boom ...	£11-06	£8-86
8XY/2M 8 ele. crossed Yagi with 1½" boom ...	£13-22	£11-02
10XY/2M 10 ele. crossed Yagi with 1½" boom ...	£17-43	£15-23
D5/2M 5 over 5 slot fed Yagi with 1" boom ...	£10-75	£8-55

	Carriage Paid	Callers Only
D8/2M 8 over 8 slot fed Yagi with 1" boom ...	£13-65	£11-35
PMH/2C* 2 way phasing harness for circular polarisation* ...	£3-62*	£3-08
SVMK/2M* Mounting kit for vertical polarisation for 2 slot fed Yagis* ...	£2-70*	£2-20
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UGP/2M Unipole and ground plane ...	£6-68	£4-48
PHM2/2M* 2 way phasing harness for 2 aerials* ...	£4-78	£4-27
PMH4/2M* 4 way phasing harness for 4 aerials* ...	£10-52	£9-88
70cms. "J" BEAMS		
D8/70 8 over 8 slot fed Yagi with ¾" boom ...	£11-92	£9-72
MBM46/70 46 element multibeam ...	£15-27	£13-07
2M MOBILE WHIPS		
"J" BEAM 5/8 vertical swivel mount ...	£8-64	£6-48
G-WHIPS		
Tri-bander 20, 15, and 10m. ...	£15-44	£13-28
Multimobile 20, 15, and 10m. ...	£17-60	£15-45
160, 80, or 40m. coils for the above, each* ...	£4-75*	£4-43
Top whip section for the above* ...	£1-45*	£1-19
Base mount for all G-Whips* ...	£2-00*	£1-78
H.F. BEAMS		
Hy-Gain TH3 jnr. 20, 15 and 10m. 3 element ...	£67-20	£65-04
Hy-Gain TH3 Mk. 3 20, 15 and 10m. 3 element ...	£97-75	£95-59
Hy-Gain TH6 20, 15 and 10m. 6 element ...	£126-36	£124-20

### VERTICALS

Hy-Gain 12AVQ 20, 15 and 10m. ...	£22-00	£20-00
Hy-Gain 14AVQ 40, 20, 15, and 10m. ...	£32-00	£30-00
Hy-Gain 18AVT/WB 80, 40, 20, 15 and 10m. ...	£46-00	£44-00
ASHI Echo 8G 40, 20, 15, and 10m. ...	£22-00	£20-00

### ANTENNA ACCESSORIES

Please note that the carriage paid price assumes parcel post.		
Coaxial cable 50 ohms type UR43 per metre ...	£16	£15
Coaxial cable 50 ohms type UR67 per metre ...	£40	£38
Coaxial cable 50 ohms type RG-8/U per metre ...	£45	£43
Twin feeder either 300 or 75 ohms per metre ...	£06	£05
Rotator cable 8 core for TR44 or Ham-M per metre ...	£35	£33
Rotator cable 5 core for AR40 per metre ...	£20	£19
Rotator cable 4 core heavy duty per metre ...	£22	£20
Rotator cable 12 core heavy duty per metre ...	£49	£47
PL259 plugs ...	£40	£38
SO239 matching sockets ...	£40	£38
Reducer to screw into PL259 plugs ...	£15	£14
S.W.R. meter Ashahi ME-11B twin meter ...	£11-00	£10-80
S.W.R. meter Hansen SWR3 single meter ...	£7-70	£7-50
Hy-Gain dipole centre insulator CI coax feed ...	£3-70	£3-25
Morse Keys ...	£5-25	£4-95
Katsumi Keyers EK105D (DC) ...	£15-70	£15-40
Katsumi Keyers EK108D (DC) ...	£30-00	£29-60
Katsumi Keyers EK108A (AC) ...	£33-40	£33-00
C.W. Practice Oscillators ...	£2-95	£2-75
Low Impedance Padded Headsets ...	£3-50	£3-30
Teisco DM501 Hand Mike with P.T.T. ...	£6-00	£5-80
Trio Dual Impedance Table Mike ...	£19-44	£19-10

### FILTERS

9.0 MHz Crystal filters complete with both carrier crystals.		
S.E.I. QC1246AX S.S.B. filter ...	£20-40	£20-25
SEIWA YF90F S.S.B. filter ...	£16-50	£16-30

MARCH

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THIRTY PENCE

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No. 1

THE  
**SHORT  
WAVE**  
MAGAZINE

**WORLD WIDE  
COMMUNICATION**

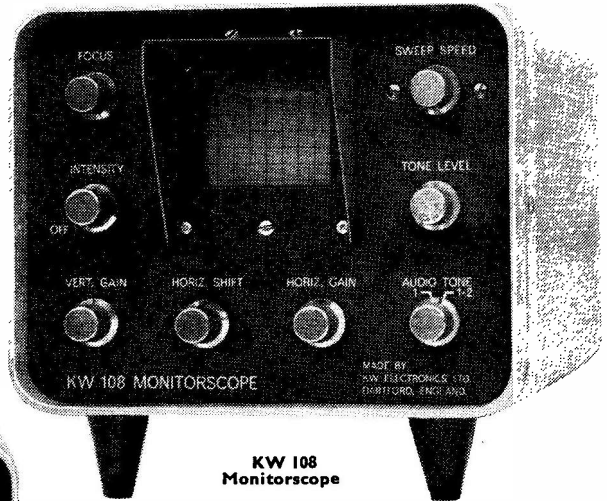
**FOR THE RADIO AMATEUR AND AMATEUR RADIO**

# STOP mistreating your rig

Match your antenna system to the PA stage with a KW 107—observe your TX "Waveform" with a KW 108.

## KW 108 Monitorscope

- Monitor your transmitted "Waveform" 10-160 metres.
- Can be left permanently in antenna feed.
- Two-tone generator incorporated to ensure optimum linearity for SSB.
- Displays SSB, AM and CW "Waveform."
- A further safeguard for your PA tubes.



**KW 108  
Monitorscope**



**KW 107  
Antenna Tuning System**

## KW 107 ANTENNA TUNING SYSTEM

The KW range of aerial matching units will ensure optimum power transfer from the PA stage to the antenna system.

- Longer life for your PA tubes.
- KW 107, suitable for most transceivers and transmitters (250 watt rating).
- The KW 109 is for use with linear amplifiers.
- Antenna selection.
- RF power and SWR measurement.
- Dummy load incorporated.
- Observation of SWR with and without antenna tuner.
- Attractive "G" line case.

The antenna tuner in the above unit can be purchased separately if you already have the KW 101/103, dummy load and antenna switch. This unit is known as the KW E-Z match.

Write or 'phone for catalogue to:

# KW Communications Products

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Easy terms on Equipment available over 12, 18 or 24 months.

**Other KW Favourites:** KW 2000E Transceiver 10-160; KW 204 Transmitter; KW 1000 Linear Amplifier; KW 202 Receiver; KW 160 ATU; KW 103 SWR/RF Power meter; KW Dummy Load; KW Traps (the original and best); KW Trap Dipoles; KW Low Pass Filter; KW Balun; KW Antenna Switch

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**FL-101 Transmitter\***

● **Solid State 160 thru 10 Metre Transceiver**

Here is the ideal companion designed to compliment the FR-101S and offer total base station performance and versatility. The latest, solid-state techniques and circuitry are utilised throughout this advanced transmitter. The FL-101 features a new, patented, variable temperature compensated VFO to give unmatched stability with better than 1 kHz readout and zero dial backlash on all bands.

**FEATURES**

- \* 160 thru 10 Metre coverage with 2 auxiliary bands
- \* All mode operation : SSB, CW, AM and FSK
- \* 240 Watts PEP
- \* Reliable, plug-in circuit boards for service simplicity
- \* Built-in final cooling fan

This flexible transmitter operates on all modes and may be operated in conjunction with the FR-101S in split or transceive operation. An optional RF speech processor may be added for that extra "talk power" needed on today's crowded bands. Match up the FL-101 with the FR-101S and a complete line of compatible accessories, for the ultimate in base station operation and performance.

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★ **FULLY TRANCEIVES WITH THE FR-101**

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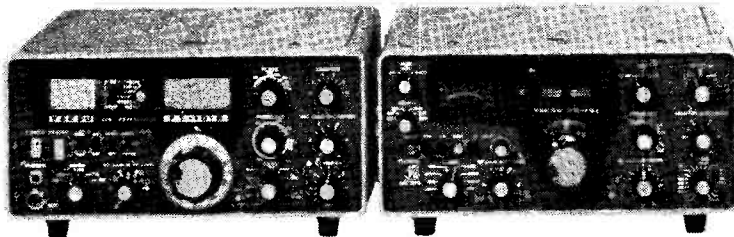
## FR-101 Receiver

**THREE MODELS AVAILABLE**

FR101S	STANDARD
FR101DL	DE LUXE
FR101SD	STANDARD WITH DIGITAL DISPLAY

- Solid State Receiver with Total Spectrum Coverage 160 thru 2 Metre plus provision for Major Short Wave Broadcast Bands

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ALSO GIVES SUPERB  
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## ... UNLESS YOU WANT THE BEST IN MOSFET CONVERTERS!

### 144MHz Mosfet Converters

#### UPDATED SPECIFICATION

The overwhelming response to the introduction of our 144 MHz SSB receive converter has indicated the requirement for a tightly specified converter for use with modern highly accurate 28-30 MHz receivers. To this end 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.

**MMCI44/28** Price £16.42 inc. VAT  
**MMCI44/28 LO** (with 116 MHz output) Price £17.60 inc. VAT

#### SPECIFICATION

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

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

### 144 MHz DOUBLE CONVERSION MOSFET CONVERTER

I.F. 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 overcoming the usual problems associated with low-I.F. single conversion converters.

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### 70 MHz MOSFET CONVERTER

I.F. available : 4-4.7, 14-14.7, 18-18.7, 28-28.7 MHz  
 Price £16.42 inc. VAT

### 432 MHz MOSFET CONVERTER

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

### 432 MHz VARACTOR TRIPLER

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

### 144 MHz DUAL OUTPUT PREAMPLIFIER

Gain 18 dB, N.F. 2.8 dB. Ex-stock Price £9.72 inc. VAT

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\*This will be refunded on orders of £25 (less VAT) or more received by us before March 31st, 1975.

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£290 + VAT (ex-stock)



#### FEATURES :

- ★ Built-in ac/dc psu
- ★ 260W p.e.p.
- ★ 1 kHz readout
- ★ Effective noise blanker
- ★ Break-in cw keying with sidetone
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- ★ Fast/slow/AGC
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- ★ Complete line of compatible accessories

Full details in our "Communications Equipment" catalogue, 20p.

YAESU now brings you the newest addition to its growing family of solid state transceivers, the FT201. Performance and portability are among the key features of this economical transceiver along with YAESU innovated modules to simplify servicing. The FT201 has features which you would expect to find only in units costing much more.

#### USED EQUIPMENT

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Drake R4B/T4XB, superb £370.00	KW Viceroy 4, good ... £79.00	Murphy, 2m, 40w, linear £30.00	Trio JR-500, good ... £49.00
FDK, Multi 2000, excellent £239.00	KW 2000B, good ... £169.00	Standard, CB26MB, excellent £89.00	Trio TS-510, very good ... £155.00
Heath SB-303, New, assembled ... £	KW 2000B, superb ... £229.00	Standard, CV100 VFO, excellent... .. £19.00	Yaesu, FT-2F, fine ... £65.00

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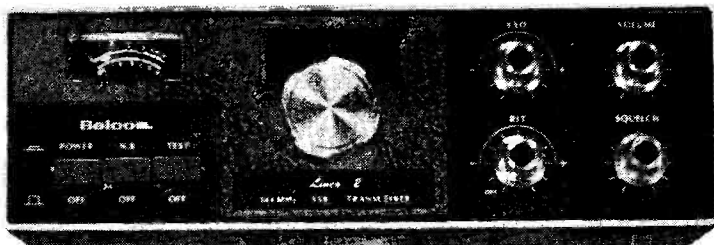
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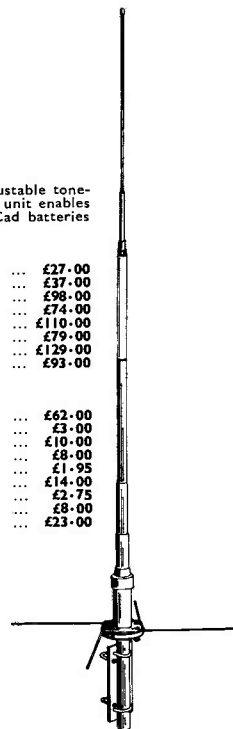
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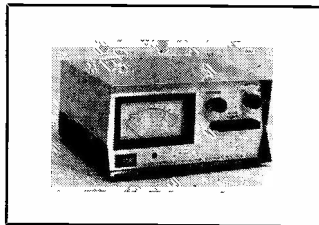
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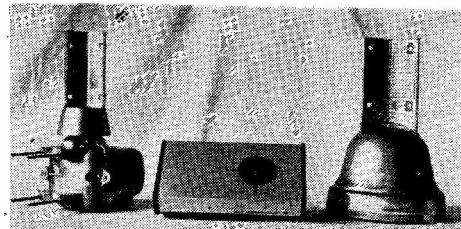
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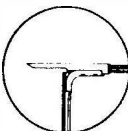
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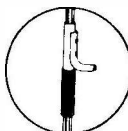
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(GB3SWM)

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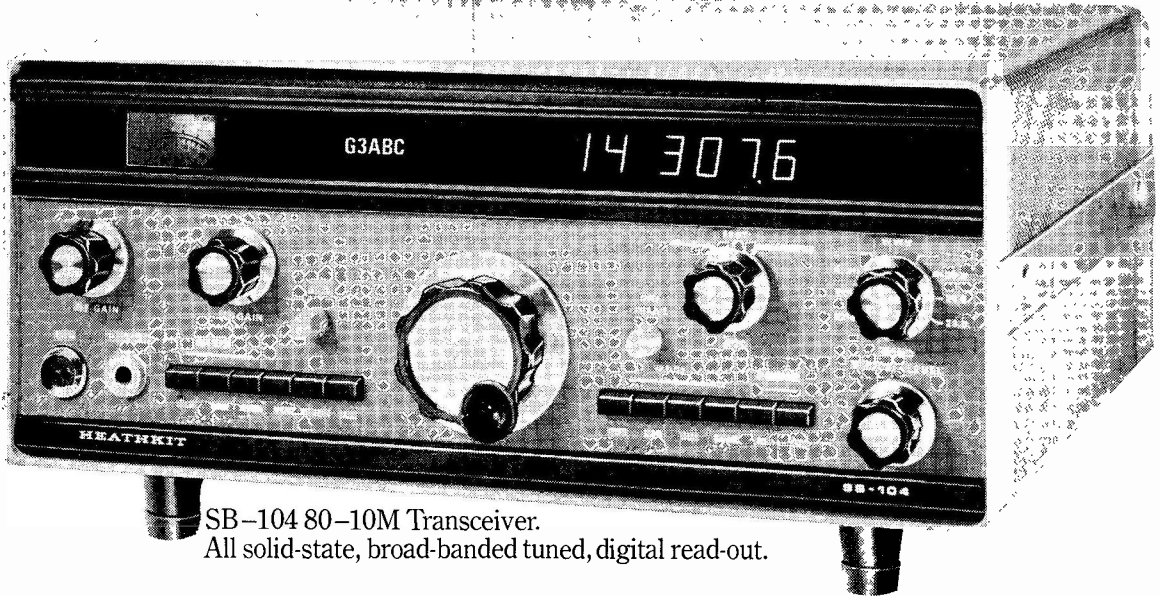
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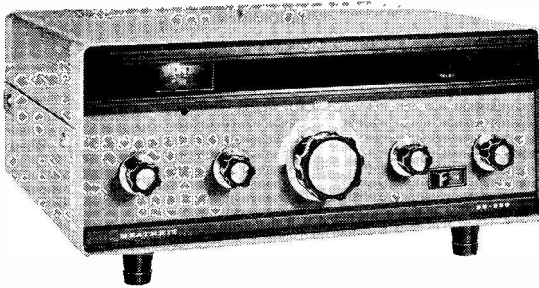
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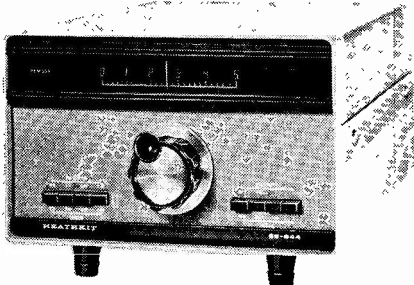
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# The SHORT-WAVE Magazine

## EDITORIAL

### ***Simplicity***

It can hardly be gainsaid that the art and practice of Amateur Radio is becoming ever more sophisticated and harder to understand in its detail, particularly for beginners. Relatively few radio amateurs nowadays really know what goes on in their black boxes, even though they may operate them very competently.

On the other hand, it is also true to say that there is still ample scope for the simpler approach, and in the D-I-Y sense—as the present re-emergence of the QRP interest shows. Low-power working with simple equipment is no new thing. All through the years, there has been a periodical resurgence, such as we are witnessing now, in the art and practice of QRP in the Amateur Radio context.

While transmitters are relatively easy to build, receivers are rather a different matter. One cannot do much these days (except listen to the locals) with the old “1-V-1” type of Rx, if only because of the QRM factor. But a one-watt single-valve crystal-oscillator Tx is quite capable of very satisfying results in the hands of a competent CW operator, if he provides it with a good aerial.

Furthermore, it really matters very little how the RF is actually generated—valve or transistor, simple circuit or multi-stage—and because there are still literally millions of small and highly-efficient valves available at almost give-away prices, there need be no qualms about using them. What matters is how the RF is controlled and used.

In fact, there is no reason why, in the interests of simplicity and the use of QRP, we should not look more at low-power CW transmitters, while using a more modern type of receiver to cope with today's band conditions.

And it would be fun refinding the data!

\* \* \* \*

### ***Index***

Each copy of this issue (which starts a new volume) should contain, as free loose supplements, an Index to both Vols. XXXI and XXXII, the years March-February 1973-'74 and 1974-'75. We were not able to produce an Index to Vol. XXXI this time last year because of the industrial situation and general dislocation then prevailing.

We hope that those who have enquired, or who missed the Index last year, will feel that the omission has now been rectified.

*Austin Forsyth  
G6FO*

# COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

FOR very good reasons which do not concern us here, old 'KFE has not, to his regret, had much chance to play with his wireless set, so his own personal views on the bands will not appear to distort the true picture as seen by the faithful and reported in their letters.

However, an observation is maybe worth making at this time, which is that while MUF's are so low, minor disturbances in the system can have a marked effect on the LUF; the implication is that if Twenty sounds a bit deader than a doornail in the middle of the day, it might be a worthwhile exercise to dredge through the DX portions of Eighty and Forty to see what lies under the upper layer of tarnish.

## Top Band

It is almost axiomatic that Top Band should be at its best when the sunspots are more evident in the textbooks than on the sun, and the DX season so far seems to have run true enough to form.

At the time he wrote, WIBB found himself comparing this season against the previous one, at the same date. This year, so far he was at 46 countries up, as against the previous year's 37 countries; he now sits at a total of 121 countries confirmed, with KV4FZ his nearest contender at 95 countries confirmed, as far as he can tell. The latter, incidentally, rang up what must surely be the quickest WAC on Top Band by doing the trick in just eight hours during the ARRL Test on December 6, the stations involved being 9L1JT, HH2WF, 4X4NJ, GD4BEG, FY0BHI and KH6CHC.

Your scribe has always considered the ultimate in DX on 160 metres to be the "impossible" JA contact, but at least one European has achieved it, namely DL1FF. On a different tack, VO1KE was a little shattered when he logged G3UTC and G3BFP in QSO, the time here being 1423—mid afternoon! At the same time DHJ was audible.

Looking at the Transatlantics this season, the summary seems rather like this: November 17 was a complete washout, saving that there seemed to be a path to OE-land. OH1BFH worked VO1KE just before the test started, then conditions seemed to go downhill, only HB9NL and DL1FF being heard, and that weakly. On December 22 the band was quite good from 2300 to about 0100, but by the time the test began the path had slewed southwards at this end, which didn't exactly help the first-timers to get across. Then on January 12, conditions made it a complete washout, the only DX QSO's to be noted being between North and South America.

Having looked at the wider scene through the words of WIBB's invaluable bulletin, we turn to the more domestic aspects of Top Band.

G4BWP (Henlow) continues, and found much useful GDX during the CQ WW 160 Contest—such as GC3SVK (the Old Firm!), GD4BEG, EI1AA, GM4DNN/A and GC3ZEM/P. Both the GC's were Jersey.

Top Band CW is not by any means a normal stamping ground for G2BY (Ventnor, I.O.W.), but he did try loading up his little bit of wire in the loft of his bungalow, about fifteen feet above ground. This unlikely aerial produced quite good CW well into Europe, to its owner's surprise and pleasure.

G2BJY (Walsall) mentions with appreciation the letter he got from G3ZEM telling about his Jersey activities with 180 feet of vertical—score sixty-odd countries, 37 States, and WAC, on Top Band, his only channel.

G3ORP (Maidstone) should really be discussed in the international context, as he seems to be well along in that region; QSO's are in the log with KV4FZ, W1, W2, W3, W8, W9, YV10B, VO1KE, VE1CD and W6BYB/VE1, the latter giving him a report of S9 + 20 at 0300 GMT. The aerial at the moment is a 220 foot inverted-L at fifty feet, thanks to a helpful neighbour; it seems to have been a great help with the QRN locally which makes it a bit easier on the ears when hunting DX, although it's low-angle properties are not so great. However, this is counteracted by waiting for the propagation to suit the aerial which gives fine results but only for about 25 minutes. For example, at 0240 to 0300 WB8APH was like 14 MHz, twenty over nine as already indicated. Another oddity is noticed by looking over his 1964 logs. Then, for example, W1BB came in from 2230 to peak at 0010 and go out by 0025z, not being heard again until about 0430 to 0830—a very different scene from today's. The rate of QSO's is quicker, largely through people giving QSX on both sides when listening, which helps to avoid the RTTY around 1803, 1805 and 1807 kHz.

Now G2HKU (Sheppey) who says he can't help much this month as he has been fiddling about with QRP too much! Nonetheless, his 160-metre list includes DL1YA, EI9J, GM3AWF, OK3ODOK, OK3OMDK, 4U1TU, all on CW, plus PA0NK and PA0PN on SSB.

G4AYS (Moir) persists with his fleapower rig, but finds the counties to be coming a bit harder with only the 400 milliwatts. That didn't stop him tangling with HB9AJU, EI9BG and GM3HUN, which indicates his wings are spreading a bit—what about a go at the W's with your QRP, Albert?

We are asked to mention a "CRC Top Band Contest" although the contests manager who wrote gave no indication of who "CRC" might be; however, all was not lost, as "Club Secretary" was consulted and says it means the Chiltern gang. Anyhow, this shindig is on Top Band, 1000 to 1300, GMT of course, and any mode. Swap RS(T) plus a serial number, plus your county in accordance with the Jan. 1975 listing. Score total QSO's at a point a go times the number of counties worked. Logs to show, date, time, station worked, report and serial sent, report, serial and county received, posted to P. Russell, 13 New Road, Botter End, High Wycombe, Bucks., HP14-3NA. SWL section—these chaps to use only one receiver for the whole period. Certificates to leading club and non-club entries, in both transmitting and SWL sections. No date specified for receipt of logs. This should be an enjoyable change from the usual Sunday-morning natter.

## Eighty Metres

H'm—well—er—yes. By seeking in the depths of the mail we can find the odd reference to the band, come to think about it!

G4DMN finds himself back at Shrewsbury School, and edged firmly into the nose-at-the-grindstone posture. However, there are now inverted-Vees for 40/15 and for 14 MHz at the top of a forty-foot pole, so the staff can't be too over-bearing! On Eighty, there is good DX about, but most of it at night when Richard can't work it. From home on the Wirral, G4DMN registered with 6W8DY, K4RD, HK4BTY, VP5BT and TF5TP, and when he returned to school, OH0NJ and GC2FMV were added to bring the score up to sixty countries. However, as he puts it, Richard "worked" ZC4EJ, so the score comes down by one!"

G4CXM (Bristol) won't let anything get in the way of his DX, and to that end has changed his digs, to one nearer the top of one of the seven (shouldn't that read *seventy*?) hills on which Bristol is said to be built—at least, he claims, he now has a good take-off to TV sets in all directions! So far not much operation has been done, but the 18AVT is back up and Eighty tackled for the first time. Results so far, without any radials, all SSB, included FC2CD, IS0RNU, OK30's by the score, VP2MJ, VE1ADP, CT1QP and GD3YDB (!) for an all-time new country, the latter dispelling Ray's opinion that maybe the Isle of Man had sunk.

The /MM chase still interests G2NJ (Peterborough) and Nick this time can report working, just before midnight, OK4YDW/MM, when the ship was near Norway—CW, and the chap was being chased by many Eastern European countries for some reason.

Readers may recall us mentioning the textile-workers net of GW4AES (Anglesey) and others; however, no time was specified for these Nets. To correct this, Saturdays, 0930, at 3-795 MHz—a bit near the DX channel, one would think, if the bands hold up late into the morning.

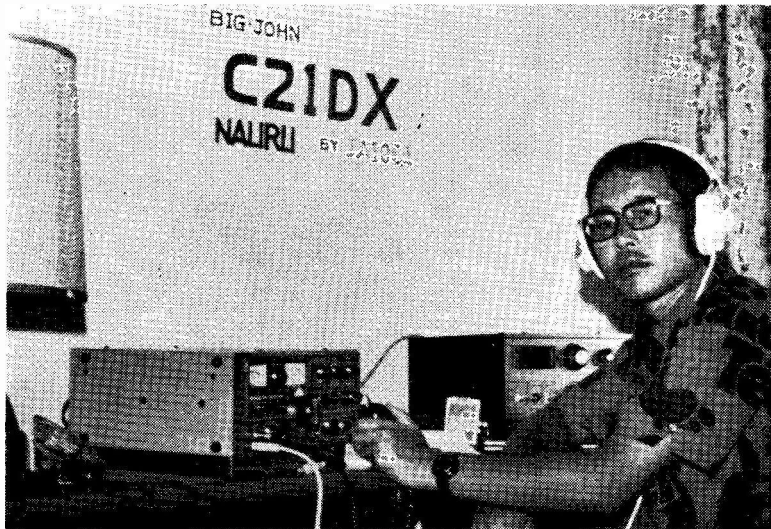
All the one watt belonging to G2HKU was deployed on the band, and it raised a 579 from OK3ODFS and some G's, while the QRO SSB accounted for OJ0MA. That "one watt" sounds as though the lantern batteries are getting tired again!

Not only did G3VFA (Broadstairs) run his QRP one-watt device into the Joystick with success, he continued to do so when the Joystick was on the ground—to F8, ON6, DL7 and HA3; hoicking the stick up to thirty feet produced more Europeans, plus one amusing one, where I1ENN gave him 559, and then himself dropped from 579 right out in the QSB to lose the contact!

The "VS1AA" aerial at G4BWP was worked on Eighty, and here it made SSB contacts possible with W1MX, W3AU, W3WJD, W2PV, W3GPE and W1ZM.

A "South Yorkshire Contest" is inaugurated by the Association of Sheffield Radio Clubs: Sunday, April 27 on Eighty. Full copies of the rules are available from P. E. H. Day, G3PHO, QTHR. Sections open to SWL's as well as the licensed types.

Obviously one of the attractive call-signs on the DX scene. Nauru is an Island in the Central Pacific, at 32° South and 164° 55' East, with valuable phosphate deposits. Station C21DX was operated by Isao Numa, JA10CA, Box 1409, Tokyo-Central, Japan.



#### Regrettable Situation

It seems we have had our last report on the activities of G5BIU; the authorities have not seen fit to renew his work permit, and so he is forced to return to U.S.A. Dave has proven not only a good amateur but, if all reports are to be believed, a good chap in the best sense; it seems wholly unfair that such an asset as G5BIU should be forced by officialdom to return home when we quite happily let in unemployable aliens on the strength of what has become a bogus British passport. However, Dave is nothing if not a good sport and he has not complained. He passes on the word that he is now a little outstanding on the matter of QSL's, which should go to him in future at WA2TLQ/4, Route 12, Box 541, Tallahassee, Florida 32304, U.S.A. Before this enforced close down, G5BIU was up to 38 countries worked, with perhaps his best one-watt QSO as the three-way between himself, WIBMS in Maine and ZELJV in Rhodesia. Dave promises to keep in touch and will welcome skeds.

#### Forty

Good DX country for those few who have the courage to try it; so many people just have a cursory swing over it once and then never look again.

G2BY has been looking closely at the band from his Isle of Wight hideout, and reports that, since September, he has worked 52 ZL stations plus 47 VK's; his 14AVQ puts a fine signal over there and he is often reported as the only European audible. Bert is yet another to have to report on a high level of man-made noise—farmers with electric fences, power lines, unsurpassed domestic appliances and, above all, the hash from colour TV sets, all of which add up to a far higher noise level in an "open" QTH than ever he experienced in the old days at Ascot. As he says, the law is there to require the suppression of these devices but, as he puts it "as long as the bodies who claim to represent Amateur Radio sit back and do not make strong representations, nothing will be done," and in some cases Amateur Radio could be driven to extinction by the environmental pollution—but woe betide any amateur who gets a bit of TVI and is complained about by the viewer. We couldn't agree more, and feel most strongly that in this lawless age, we will have to take strong action before we can expect even a hearing.

The activity by G2HKU on this band amounted to nothing on CW, though SSB was quite productive, with W5ZSX (a rare one on Forty is a W5 chez G2HKU), PY2GSH and PJ2VD.

Doesn't he just wish he were back at his old Paignton QTH! The sentiment of G4CXM. On the theme of Forty, his SSB made it to CT2BP, and CW to KQ4FW, IVØGKU and YU5XUF as the only contacts considered worth talking about.

G4DMN surprised himself by trying Forty and actually making a first-ever QSO on the band, in DM4PL/DM3ZOL (what a mouthful!) was the lucky recipient of this surprise.

This leaves only G3ZGC/MM to mention. Richard is developing into the sort of analytical commentator of conditions who is most helpful in setting out the DX story in this column for all the readers who seldom if ever chase DX themselves but like to know accurately

what is happening on the bands. This report is in fact the first time the FT-75 and long-wire has been seriously tried on Forty from the ship and it has been quite an eye-opener. From the Persian Gulf towards the opening of the Mozambique Channel stations to the East came through well on 7025 kHz CW but conditions deteriorated by 1500z as the BCI came up. Once south of the Comoros things worsened during the 1400-1500 period as it was daylight there and high summer. From Comoros to South Africa only locals were worked but from ZS and on towards Liberia, the DX again pounded in. Here there were two operating times, namely 0600-0730z and 1800-1900, the former CW on 7025 and the latter SSB on 0750 kHz. Richard was never short of a DX QSO and one evening he was overwhelmed when a quick CQ on SSB from the South Atlantic resulted in a call from JA8IXM. The mornings, of course, always gave a DX contact, but the Europeans didn't show up until the ship was in the North Atlantic (from where he wrote his report); And when G3ZGC/MM ended by listing it all up the result was like a log from the late G2DC at a sunspot peak time on Twenty! An interesting /MM contact was with a K6 on a 96-foot yacht, going from quote, "Los Angeles to Los Angeles via India!"

#### Here and There

It has been quite a while since the name and callsign W6AM (Long Beach), Don Wallace, have called for a mention in this piece, and we almost thought he had lost interest in DX! Not so, but Don is far from a one-man band even in his senior years. This time we have to note the annual "W6AM hamfest" at Rhombia Farm, when over a hundred showed up and had a whale of a time. W6AM and associates have opened up a Trailer Park in Santa Maria; all the power lines, telephones, and TV cables are run underground, and amateurs who lease are allowed a rotary beam at any height and assured as far as possible of a noise-free site. Yet a third angle to the W6AM story appears with a picture of him with a group of World War One old-timers at Virginia Country Club golf-course getting ready for a tournament; and it has to be said that W6AM looks like a man of half his age, with not an ounce of surplus on him and as fit as a fiddle. No wonder he can stay at the top of the DX game and keep up all his other activities.

G3UZ (Goring-by-Sea) skips his usual twenty-metre report this time in favour of a description with sketches of his solution to the "broken 300-ohm feeder" problem after losing his aerials earlier in the gales; so far the solution seems to be working very well indeed. Basically it involves a modified Tee-piece made from a sheet of clear perspex. G3UZ uses an all-ribbon folded dipole configuration, and a start is made by making-up the centre connection in the usual way. The ribbon is clamped with a T-piece on either side of the feeder, bolted right through from one Tee to the other, with no soldered part free to flex. Your scribe would add a warning of the danger of splinters of perspex, either in the fingers or in the eye; it is very painful, so go warily with the stuff.

Next we have a letter from VP2DAI, home at Hemel Hempstead for a spell; he is off the air because he "isn't qualified" for a normal U.K. licence—blimey, it sounds like another G5BIU sort of situation!

### Top Band Counties October — September

Callsign	AM	CW	SSB	Total
G2BJY	9	126	14	149
GM3YOR	—	114	22	136
G4BWP	27	70	—	97
GD4BEG	—	82	11	93
G4BOH	9	40	16	65
G4AYS (QRP)	—	62	—	62
G4AKY	—	46	16	62

Each County may be worked once in each mode. AM contacts score three points, CW two points, and SSB one point: a maximum of six points per county. AM contacts made by changing from SSB after making contact are not allowable, neither are cross-mode QSO's. New U.K. County designations apply.

Starting date October 1, 1974. Closing September 1975.

However, VP2DAI writes in primarily to acknowledge that he does owe some G's cards, he having had some difficulty in getting on top of the QSL's while there; as soon as the logs come in from Dominica, VP2DAI promises to catch right up.

Now a word on *Piracy*. The Royal Omani Amateur Radio Society write formally to advise that there have been two known cases of pirating the Omani prefix "A4XDY" and "A4XDJ" are the offenders and no such calls exist. However, a couple of new ones have been issued recently, namely A4XVB and A4XVC, valid for six months to a couple of R.A.F. types on Masirah Island.

Calgary Amateur Radio Association write to tell us that in connection with the Centennial of Calgary, all Calgary amateurs are authorised to use the prefix CY6 for the year 1975. They are having a Convention on the first three days of August; details from Box 592 Calgary Alberta T2P 2J2. In addition there are three awards: Calgary Centennial Award 1975, Calgary-Alberta Centennial QSO Party, April 1 1975 to May 1 1975; and a Calgary-to-Mobile Contest for those who intend to appear at Convention. All the detail is obtainable on these from the address given.

Royal Navy Amateur Radio Society sponsor the Hampshire Award, the Rules for which have now been revised to take into account the new county boundaries. Basically, you work stations in Hampshire at a point a go, with two points for a contact with the Hq. station G3BZU, or GB3RN if the latter call is activated within the county. U.K. stations need fifty points, the Europeans twenty and DX stations a mere fifteen for Class I. Class II revises the numbers down to 30, 15 and 10, and Class III to 20, 10 and 5 respectively. All the rest of the detail from, and applications to, G2GM, *QTHR*.

Easter week-end sees several of the G1 groups making a rendezvous at the Hq. of the Ballymena Radio Club, the idea being to generate some G1 activity for those who want that country, on all bands 1-8 up to 144 MHz, CW and SSB; various calls will be heard including very probably G12BX and G16YM—100% QSL's are assured, *skeds* can be arranged by writing to G14CRQ or G18AYZ, both *QTHR*, and visitors will be welcome at the Ballymena premises over the weekend.

The QRP Club seems to be going from strength to strength, as is very clearly indicated in the letter from Secretary, G3RJV. Incidentally, G3RJV notes the sad business of G5BIU already mentioned, and shares our feelings on it. Anyone interested in QRP, this is the club to belong to; and we could remark that the Rev. George Dobbs, G3RJV, seems to have missed his vocation—he drives this group on so well as to excite the admiration of anyone who has ever had a Club with a listless defeatist secretary!

### Ten Metres

Generally it seems to be a non-starter in DX terms, at least during the review period; but still this is a matter of activity more than anything, as G4DML sees it from Essex University. He tried the band during the CQ WW DX Contest which happened just nicely to celebrate the dropping of the old G8GSX call in favour of the man's licence. G4DML found the band livening up just as soon as the contest started, and over the weekend racked up 89 countries, 500-plus QSO's using the FT-101 and an HQ-1 Minibeam. Among the countries worked we note VK, ZS2, A2, FY0, CR6, TJ, PY, VU, ZL, VY, KP, VP2, LU, OA, CE0, PJ9, KG4, and VP9!

Although he himself has a *nil* report for Ten since he does add that 9J2DT and 9G1LZ both remarked that they had been working G's on the band.

Our only other comment on 28 MHz comes from G2BY; Bert has found the band dead over the past two months with even GB3CX

down to \$1.

As for your conductor, he can report possibly the most *non-DX* QSO of them all; three feet! This marvel of technology was achieved with a pair of handy-talkies belonging to G3MWF and was a complete QSO right down to the final R—just to see whether the beast would make the TV sit up and blink; we are pleased to report no TVI!

### Fifteen

A dearth of reports on this band, although it has been doing its best at times, considering the low state of the sunspot count.

G2BY found that he could work South Americans around lunch-time, but in general not very lively for the rest of the day.

G3NOF agrees with this, he having heard them too; Africans up to 1400, short path VK's occasionally around 1100, but a band closure by 1700 or so. Don made contacts with CR7AF, PV0AX (Arvoredo Is.), VK6HE, VQ9HCS, ZC4AK, ZS1GR, ZS1IC, 3B8AX, 9G1LZ, 9J2BO and 9J2DT.

At home, nothing, but from school G4DMN had a G-whip at ten feet which produced a QSO with VP8CB. G4DMN comments that although the QSL's have started to trickle in, disaster struck when an envelope-full of them posted from home split open and arrived minus the contents. Post Office had been informed but at the time he wrote Richard was still hopefully waiting for a reply telling him where the cards have been found; a forlorn hope, indeed.

### What About Twenty?

Well, at least it's still there! G3CED/G3VFA tried it out with the QRP and Joystick and managed some quite interesting QRP contacts of which quite a proportion were QRP both ways and still with fine reports all round Europe.

The lengthening of the days is beginning to show its effect on the bands, says G4BWP; he has a dipole at fifteen feet and with its exchanged CW with W1, W2, W3 and W4 during the contest. W5, W6 and W7 have been heard around 1700 but attempts to bring them to book have so far not been very successful.

G4BKY only worked a few Europeans with his QRP this time; the reason is the purchase of an FTDX-401. This hasn't yet been given a real testing-out as there is only the 14 MHz dipole, but he has managed a few contacts over to W and VE. For the moment, everything else is held pending a multi-band vertical being hung up—then look out, DX!

G3UZ (Goring-by-Sea) didn't report on the band this month, no doubt due to the time spend gale-proofing his aerial as mentioned earlier, an activity rather needful in a windy seaside location; we inland types who only see the sea for a fortnight each year tend to forget the sea "breezes" are usually S9 plus gales in terms of what they can do to aerials!

It was all SSB from G2HKU. Ted accounted for JA2HGA, JH3DPB/P1 (Harumi Is., Tokyo Bay), ZL1VN, and 9H1ED, when he could spare time from his flea-power machine.

In contrast with 21 MHz, G4DMN found more DX from home than school, by way of 6W8DY, K4RD, HK4BTY, VP5BT, TF5TP; but the school rig only managed OH0NJ and GC2FMV (Jersey) hardly real DX but new countries for Richard who now has managed sixty-odd. School work does tend to interfere with DX'ing, but half-term will have come and gone by the time the next month's reports are due, and, if the band plays ball, G4DMN will have three evenings of real DX-chasing.

VK,ZL, JA appear around 0830, says G3NOF, East Coast W's from noon to 1800 or sometimes as late as 2000, Africans strong from 1630 to 2030, and sometimes skip to the South has produced the odd ZL4. It all mounted up in the log to SSB contacts with CY6AGV, FL8DJ, FL8HM, JA2AEY, KA6AX, VE7BVH, VE7WJ, VE0NEF (HMCS *Algonquin* in Mid-Antarctica) VP8NN (Halley Bay) ZL3AZ, W6USG, W7BGH, W7RS, WA6HXR/KC4 (Ross Island, Antarctica), ZS1KZ, ZS2MN, ZS5MN, ZS5PG, ZS5PV, ZS6TL, 3D6AW, 7P8AD, 7P8AQ, 9J2B and 9J2WR.

### The QSL Front

G2HKU offers JX2HK, to LA3JQ. G3NOF has his usual crop of useful ones, like 7P8AQ, to P.O. Box 1266, Maseru; VK9RH, to P.O. Box 97, Norfolk Island; WA6HXR/KC4 to W6 Bureau.

### Valle

We are at the end of the material now; so what better place than this to remember Jack Wakeman, G4FN, of Grays, Essex, who died on the last day of January at the age of 70. He was an excellent operator, F.O.C. member No. 20, an ex-R.A.F. type, and very keen and active on the HF bands. G4FN will be much missed.

### Signing

The deadline for next time is to arrive first post March 13, (or before preferably) addressed as always to CDXN, *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ. And, as ever, 73.



## MOBILE RALLY SEASON—1975

A number of Mobile Rally dates have already been notified for the coming Season. As in previous years, we shall be covering the Mobile Scene and keeping a calendar of going events.

It is perhaps of some interest to note that the very first Mobile Rally ever held in this country was at Binsey, on the river near Oxford, nearly 20 years ago, on October 9, 1955. This historic event, fully reported in the November 1955 issue of *SHORT WAVE MAGAZINE*, with the callsigns of those /M's present, brought in 23 cars actually fitted mobile—for 160m., 80m. and two metres—most of them having travelled considerable distances. As each car brought several passengers, the total callsign attendance was about 75—including (the late) G3HYZ who arrived "/MM" on his river cruiser.

In the intervening 20 years, literally hundreds of Mobile Rallies have been held and there must now be something like 5,000 U.K. amateurs licensed /M. The bands still being worked are mainly Top Band and Two Metres, though with much more sophisticated equipment. Winners of the *concours d'elegances* that were a feature of Rallies held in the early /M days would not now look at the gear with which they were winning in the 1950's.

## MOBILE RALLY CALENDAR

**March 30:** White Rose Rally at Lawnswood School, Leeds, junction A.660/A.6120, with many trade stands (some new to the Rally scene), a raffle, well-stocked canteen facilities, ample free parking and talk-in. Local travel by Leeds Metro No. 1 service, railway station to School.—Miss C. Wade, G4CUY, 74 Cow Close Road, Leeds, LS12 5PD.

**April 20:** North Midlands Rally at Drayton Manor Park, near Tamworth, Staffs., on the A.4091, and within 12 miles of Intersection 4, M.6, with local AA sign-posting.—A. R. Walton, G3ZKQ, *QTHR*.

**May 4:** Tulip-Time Rally at Glead Boys School, Halmer Gardens, Spalding, Lincs. All regular attractions, talk-in on Top Band and two metres, 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 at Northwick Park Hospital (Clinical Research Centre), Watford Road, Harrow, London, with acres of parking space and easy access *via* District Line, Northwick Park Station. Trade show organisation by W. S. Barwick, 34 Malvern Road, London, N8 0LA. (Tel.: 01-888 0636.)

**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, Humber-side, 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 G3YSC. Trade stand enquiries to A. S. Walters, G3WXL, 4 Oak Farm Gardens, Headcorn, Ashford, Kent.

**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, G3WFO, *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.*)

Organisers of Mobile Rallies not listed are asked to let us have their details as early as possible, for the Calendar to be kept running till the end of the Season. Address to "Mobile Scene," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ.

## SPECIAL-EVENT STATIONS

As is usual at this time of year we will include under this heading details of Amateur Radio stations to be operated in the presence of the public, mainly under special licence "for duration only" and either in support of or in conjunction with some local public occasion.

Details, set out in the form shown below, should be sent to: "Special Activity," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ.

**GB3WRC, March 12-14:** For the Wallington Rotary Club hobbies exhibition, at the Public Hall, Stafford Road, Wallington, Surrey. Station organised and operated by Sutton & Cheam Radio Society, hon. secretary A. Keech, G4BOX, 26 St. Albans Road, Cheam, Sutton, Surrey, SM1 2JN.

**GB3RN, March 28-April 7:** From H.M.S. *Belfast*, the historic cruiser now at permanent moorings in the Pool of London. Amateur Radio activity on all bands, HF and VHF. Members of the Royal Naval A.R.S., R.N. or ex-R.N., are invited to serve as operators. This could be a good "Easter week-end cruise" (at moorings, of course!) if you apply to: D. F. J. Walmsley, G3HZL, 153 Worpole Road, Isleworth, London. (Tel.: 01-892 3239, evenings and week-ends.

## AERIAL CONFIGURATION FOR TOP BAND

### IDEA FOR LOADING

J. S. CUSHING (G3KHC)

THE technique of loading an aerial is often used and as a rule is done to restrict the size of the aerial without too great a reduction of radiated signal. Loading can be used on any band between 160 and 10 metres, and naturally any amateur with an interest in LF-band operation—160 metres in particular—but with limited ground space will almost certainly find it worth while experimenting with loaded aeriels.

These are several methods of loading LF band aeriels but it is difficult to say if any way is "best" as to some extent individual situations and requirements affect overall considerations. The loading device discussed here is suggested as one method among others of improving a Top Band signal.

Essentially, the loading device consists of a coil placed in the aerial at or near the remote end of the wire. A familiar diagram is that of Fig. 1, the coil being near the remote end so that a little capacitance exists between turns in the coil and the wire on either side. This tends to give more reliable results than having the coil right at the end of the wire.

The effect of the coil is to vary the RF current distribution by increasing the electrical length of the aerial, the usual aim being to bring the maximum RF current point (the current antinode) to a position from which it will radiate to best effect. In the case of a small 160m. aerial, maximum current is best positioned somewhere along its horizontal top.

The loading device now described involves using a coil, but is constructed as a unit to which an aerial wire is connected, the following advantages being claimed:—

- (1) Construction is easy, needing ordinary hand tools and no special skills,
- (2) Materials needed are easily obtained,
- (3) The finished job is neat, inconspicuous and forms part of the aerial mast,
- (4) Joined to a small inverted-L, better results are obtained on 160 metres.

In Fig. 2 the general appearance of the device is illustrated, the coil being placed between, and joined to, two lengths of metal tubing. Some capacitance must then exist between coil and tubing.

At first sight, Fig. 2 is not unlike a centre-loaded mobile whip. It is not, however, resonant on 160 metres, but a GDO did show a dip at about 14 MHz. This was with the device lying isolated on a wooden bench and the fact the coil contains approximately 20 metres of wire could have some connection with the GDO reading.

Materials for construction happened to be to hand. Two lengths of  $\frac{3}{4}$ in. copper tube, left over from a plumbing job, one measuring 4ft. and the other 3ft., provided the tubing, and a couple of feet of wood dowling made a former. (Copper tubing is usually stocked by builders' merchants, and any tubing is cut very nicely with a plumber's pipe cutter, but a hacksaw is almost as good though only moderate pressure should be applied,

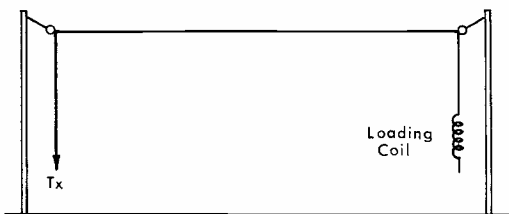


Fig. 1

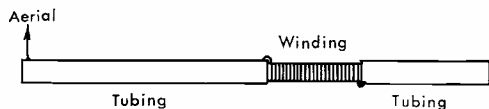


Fig. 2

A  
592

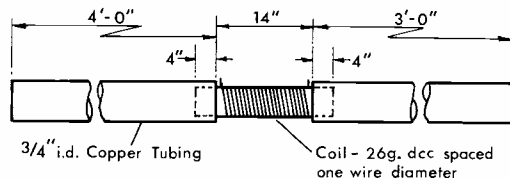


Fig. 3

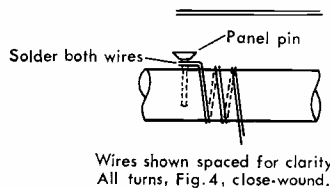


Fig. 4

A  
593

since copper is a soft metal).

Measurements of the finished job are given in Fig. 3. It will be seen that the dowling is slipped three or four inches into each tube, with a few short wood screws holding tube and dowling together. Two half-inch or  $\frac{3}{4}$ -inch panel pins are tapped into the dowel some 14 inches apart to serve as anchor points for the winding.

The winding specified was determined empirically, which is another way of saying the first winding tried was not very successful but the second (luckily) seemed about right. This is mentioned as there might be an optimum size winding; the device as shown works well, however, so no further coils have been made.

### Making It

Winding the coil is the only part of the job needing some care—and a couple of hours without interruption. If possible, improvise means of mounting the dowling so it can be turned with one hand as the wires are fed on with the other. Two lengths of wire are used, both about 60 or 70ft. long and each length should be loosely wound

on to some sort of spool. The ends of both wires are soldered to one of the panel pins and the winding commenced. Fig. 4 is in a sense misleading as the wires are, for the sake of clarity, shown spaced: the actual windings on the dowel should be as close-wound as is practicable. It is essential that both windings are put on under slight tension and the wires not transposed at any point. Difficulties should not arise so long as the job is done unhurriedly and methodically. When the second pin is reached both wires are again soldered and the coil carefully examined for obvious faults.

One of the windings must now be removed. It does not matter which is uncoiled, but this operation should also be done carefully so that a neat coil spaced one wire diameter remains. (This process should also be carried out using cord instead of wire).

The final step is carefully to apply a coat of waterproof varnish. This will help hold the turns in place and give protection against weather. The brush is best not run along the coil but round it as this reduced any risk of turns slipping. Further coats of varnish should be applied and this might just as well include the tubing and ends of the dowling. A short length of heavy wire is used to join each pin to the tubing. A big iron is helpful when soldering as the large mass of metal rapidly conducts heat away from the area of the join.

The loading device was installed, as illustrated in Fig. 5, clamped to a short mast so that the total height was about 20ft. About 60ft. of wire in the form of an inverted-L was run to the transmitter.

A neon bulb held at various points close to the loading device produced interesting results. (See Fig. 5—N1, N2 and N3). At position N1, the remote end of the aerial, the neon glowed brightly, indicating high voltage but low current. At N3 the glow was slight, indicating the opposite, and this suggests that the horizontal top would carry high or fairly high current. When the neon

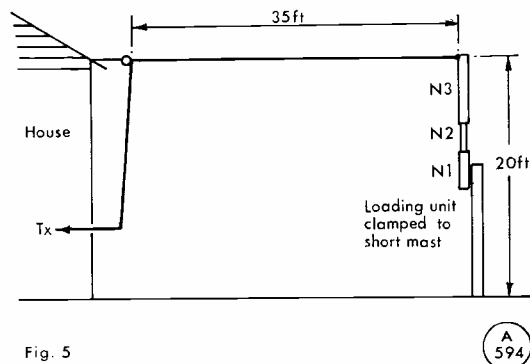


Fig. 5

was held near the coil (N2) the glow varied according to the neon's position, being least at the coil top, but becoming brighter as it was moved down the coil.

Sometimes a coil inserted in an aerial can act as a choke which prevents passage of RF. Indications given by the neon also suggest no choke effect is present.

Contacts with local stations produced S9+ reports and stations at from 50 to 100 miles usually gave S7 or S8. For a short loaded aerial this is satisfactory going by previous experience with other loaded aeriels.

Time has not allowed extensive testing, so contacts at greater range have not been made. Contacts over several hundred miles have been made with similar aeriels so it is felt there is more than a little chance of as-good results given suitable conditions.

Attempts were made to use the aerial system as shown in Fig. 5 on 80 and 20 metres. A few very indifferent contacts gave the impression the aerial was not very suitable for these bands, though a coil with less turns might be an answer.

## PA COOLING FOR THE FL-DX500

### FITTING A FAN

P. BURNETT (G4BLL)

THE writer having recently acquired an FL-DX500 transmitter of Sommerkamp origin was a little disconcerted to hear the output valves (6SJ6C in this case) performing what sounded like a "tap dance" whenever full power was demanded, either on tune-up or transmit.

It was found that the noise described emanated from the glass envelopes expanding at a "fair rate" under the influence of the heat generated on full power.

Probably many readers, especially other owners of this range of transmitters, will say that this is a quite normal state of affairs and that their particular specimen has run quite happily under these conditions for many months, perhaps even years. The writer can only say in mitigation that his relatively limited experience as a G4/3 has been with a Central Electronics Tx of American

origin (from "the golden years") rated at a conservative 100 watts input and fitted with two (!) cooling fans, built like a battleship and weighing nearly as much. It was decided to provide some form of cooling for the FL-DX500.

It seemed that the cooling fan as fitted to the FT-101 would do the job admirably, especially when one considers that the output stages and input powers of both models are almost identical. The FT-101 fan is available as an extra and is designed for fitting to earlier versions of that Tx where the fan was not provided as standard.

### Doing The Job

Fitting the fan proved to be technically a simple job, it being necessary only to fabricate an aluminium backing plate on which to mount the fan and which also served the purpose of masking off the holes in the back of the perforated metal cover of the PA compartment to give the correct air flow. The dimensions for this plate are given in Fig. 1, but it may be necessary to alter these slightly to suit individual models. At first, the fan was fitted without cutting a corresponding hole in the perforated cover—it being assumed that air could just as well be drawn through a lot of little holes as one big

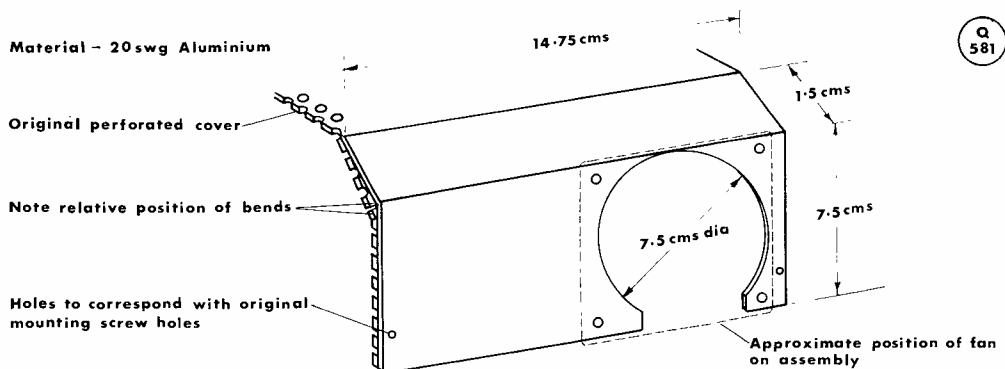


Fig. 1 Backing Plate

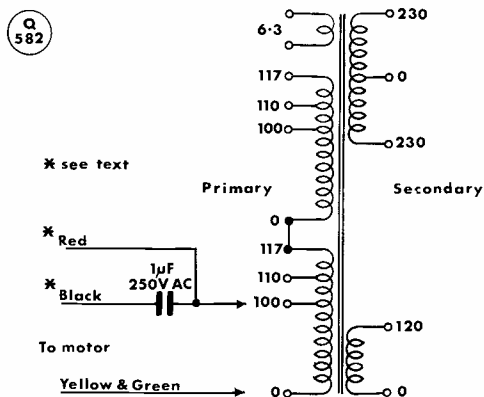


Fig. 2 Mains Transformer

one. However, this proved to be a fallacy as the fan vibrated noisily and a slight but audible siren effect was created, due to air turbulence created by drawing air through the small holes. The whole thing was stripped down and a large hole cut in the perforated sheet-steel cover. This can be effectively and cheaply done by means of an *Abrafila* blade fitted to a fret-saw. (Other methods of cutting this hold will spring to mind, such as the use of a "nibbling" tool, but unless you already have one it is now quite an expensive tool to buy.) Ensure that no metal projects over the entrance to the "air tunnel" of the fan as this will introduce noise again, due to air turbulences.

The fan when purchased is supplied with the necessary capacitor and plug (not wired) but unfortunately no mating socket is provided on the FL-DX500/400 and the writer, not wishing to "operate" any further on the rig, decided to wire the motor in permanently and the series of ventilation holes cut in the chassis under the mains transformer provided a convenient route for the wiring. It was only necessary to drill a 6BA hole in the back drop of the chassis to take a small terminal strip on which to mount the capacitor, the connections then being taken to the 100v. winding on the transformer,

as shown in Fig. 2.

With the fan connected as per the instructions supplied it was found that it was operating in reverse, *i.e.* blowing instead of extracting—it was only necessary to reverse the red and black leads and the motor then functioned correctly; check this point before wiring permanently.

The writer is prepared to admit that this modification is, perhaps, not strictly necessary, but it does at least bring some peace of mind and enables a little extra RF to be squeezed out as an added bonus.

#### READING FOR THE R.A.E.

Over the years, we have been able to recommend books and general references to help the student for the R.A.E.—and, indeed, all beginners in the field of Amateur Radio.

Those titles immediately available are *Amateur Radio* (£1.68); *Guide to Amateur Radio* (95p); *Radio Amateur Examination Manual*, a very helpful treatment (95p); *Amateur Radio Techniques* (new edition), £2.25; *Radio Amateur Operator's Handbook*, covering basic data for the newcomer and now in its 13th edition, 82p. For a standard text on the principles and practice of Amateur Radio, covering theory, design, construction and operation, the new edition of the well-known U.S. *Radio Amateur's Handbook* (£3.13) has for fifty years been the "bible" for Amateur Radio.

These books together constitute a library covering not only the immediate reading requirements of anyone aspiring to a U.K. amateur transmitting licence but also embracing the practical work involved in getting a modern amateur station on the air—with a lot of useful reference data to keep any licensed amateur interested and occupied for a long time.

All titles named are latest editions of books of proven worth. Prices quoted include postage/packing, immediate delivery from stock. Orders, with remittance, to: Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, SW1H 0HF.

## TRANSVERTER FOR SEVENTY CENTIMETRES

OPERATING IN THE SSB MODE

A. H. DORMER, C.Eng., F.I.E.R.E. (G3DAH)

AS is the case with other VHF bands, the use of ASSB on 432 MHz is steadily growing, but few designs for simple transverters for this band have been published and, of those that have, some leave a great deal to be desired.

The design to be described is certainly simple to construct and set up and is suitable for use as a low power Tx or as a driver for a 4CX250B.

### Design Criteria

The first parameter to be established was what the output power should be and, with *Oscar VII* in mind, 10 watts was considered to be about right. This power should also be ample to drive a high power final if required. The obvious choice of valve was the ubiquitous QQV03-20A, with the option of replacing this with a QQV06-40A if the unit was to be used without an external amplifier.

Choice of mixing frequencies was next considered. Mixing 144 MHz with 288 MHz was rejected immediately as simple arithmetic shows that there will be a large spurious in-band signal. A frequency at 14 MHz, or indeed 21 MHz, which might be readily available from the usual prime movers, implies mixing with 418 MHz or 411 MHz—this could lead to difficulties in reducing the amount of injection frequency appearing at the output. This left 28 MHz and 404 MHz, or, since it was available at the station, 70 MHz and 352 MHz. While the latter frequencies are attractive from the point of view of ease of suppression of the injection frequency at the output, it involves using two mixers if one was not to build a separate unit, and yet another oscillator which could increase *spuri*—so the final choice became 28/404 MHz.

The use of valves or transistors was next considered while it is quite possible to obtain transistors which will give 10 watts RF out at these frequencies, they are rather expensive and the circuit design is also more critical. Transistor balanced mixers at 432 MHz also present a bit of a problem. They tend to produce more distortion than a properly-designed valve stage and, since the output must be low, require considerable post-mixer amplification with possible instability problems. One can, of course, use IC's, but, there again, FET, quad-ring, double-balanced mixers (which are probably the ultimate in this application) wreck the bank balance more than somewhat! So, valves it would have to be. The QQV02-6 is suitable for use here and, although becoming more expensive and difficult to obtain on the surplus market, they are still available from advertisers in *SHORT WAVE MAGAZINE*.

The design of an oscillator chain at 404 MHz is not difficult and can serve for both transverter and converter (with an IF of 28 MHz). The alternative, and the arrangement adopted here, was to make use of the existing oscillator chain in a *Microwave Modules* converter and amplify it to drive the mixer, thus obtaining full transceive facilities. Since this equipment is designed for SSB and CW working only, it is possible to use fixed-tune circuits in the driver stages to cover 432.0 MHz to 432.5 MHz and tune the PA anode circuit only. However, tests have shown that the whole range between 432.0 MHz and 434 MHz can be covered without appreciable loss of output power.

With the above mentioned points in mind, the Block Diagram in Fig. 1 fell into place.

### Circuit Details

**The 404 MHz Amplifier**—Fig. 2: The output at 404 MHz from the *Microwave Modules* converter is taken via a .001  $\mu$ F capacitor and 47-ohm resistor in series from Gate 2 of the converter mixer transistor and was found to be about 7mW. It was calculated that some 400-500 mW would be needed for the balanced mixer and a three-stage amplifier was therefore built to the circuit in Fig. 2 to give the required gain.

(over)

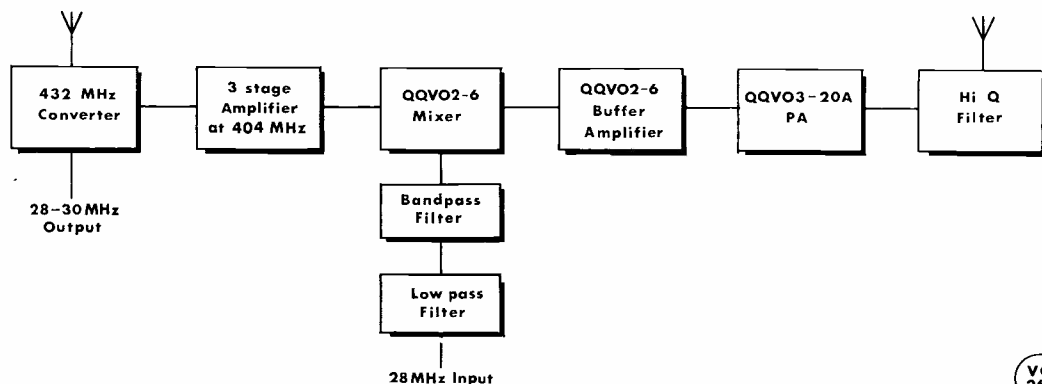


Fig. 1 Block diagram of RF units

Fig. 1. Block diagram of the RF Unit layout

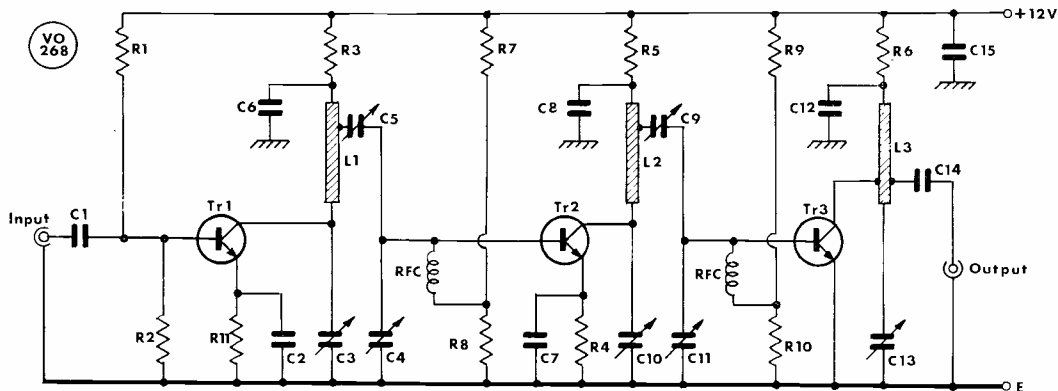


Fig. 2 404 MHz Amplifier

Fig. 2. The 404 MHz amplifier unit

**Mixer & Buffer amplifier**—Fig. 3: Several mixing circuits were tried before the choice finally fell upon push-pull injection of the 404 MHz frequency and parallel injection of the 28 MHz SSB signal. Since the author has a rooted objection to any design which does not permit the cathode of the mixer to be directly earthed, the SSB injection is to the grids of the mixer together with the oscillator frequency. Screen-grid injection proved to be a dead loss. Note that with this arrangement the 28 MHz input must be AC-coupled to avoid shorting out the mixer bias if a four terminal pad is used between prime mover and transverter. In the present case, the low power output from an FT-101 required attenuation of 10 dB when the microphone gain control was at normal setting.

The original design used quarter-wave lines throughout, but it was found that, unless the valves were run up to the absolute limit of their design parameters, it was not possible to achieve the required 10 watts output. A half-wave line at the mixer grid improved matters, but mechanically presented certain layout problems, and the final design uses a three-quarter line here. The mixer anode and buffer amplifier grid circuits are quarter-wave lines, and the buffer amplifier anode circuit is a half-wave line. The ratio of 404 MHz to 28 MHz is kept at about 10 : 1 by adjustment of input loop and grid line spacing—please note *not* by detuning either circuit, nor by reducing the mike gain on the FT-101.

To help to ensure a clean 28 MHz input to the mixer both band-pass and low-pass filters are used between the output of the FT-101 and the input to the mixer.

The buffer amplifier is quite straightforward. The length of the anode line and the value of the tuning capacitor are chosen so that they will *not* resonate at 404 MHz. Accuracy here is vital. The photograph of the Driver Unit shows the layout adopted. The metering circuit is shown in Fig. 3.

**Power Amplifier**—Fig. 4: This shows the circuit of the fairly conventional power amplifier and the photograph indicates the layout. The drive level is adjusted by varying the spacing between the input and grid lines. To prevent surge on switch-on, the screen is earthed on "receive" via Relay 1. The QQV03-20A is loaded by

### Table of Values

Fig. 2. 404 MHz Amplifier

R1 = 8,200 ohms	C10, C11, C13 = 10 $\mu$ F disc ceramic
R2 = 2,200 ohms	RFC = 8 turns, 1/8in. diameter, spaced wire dia.
R3, R5, R6 = 22 ohms	Tr1, Tr2 = 6BFY90
R4 = 10 ohms	Tr3 = 2N3866
R7, R9 = 820 ohms	L1, L2 = 1in. long, 16g. centre tapped
R8, R10 = 33 ohms	L3 = 1½in. long, 16g., centre tapped
R11 = 100 ohms	C15 = 0.1 $\mu$ F
C1, C2, C6, C7, C8, C12, C14 = .001 $\mu$ F	C3, C4, C5, C9, C13 = 0.1 $\mu$ F

All resistors are ½-watt

L4 and C6 and the coupling is arranged to be somewhat heavier than that which gives the maximum output of 10 watts.

**Power Supply**—Fig. 5: The 185v. and 380v. circuits and the relay supply are quite conventional and need no further comment. Particular care was taken to ensure a ripple and noise-free 12v. supply for the converter and amplifier. The arrangement shown was examined with an oscilloscope and found to yield less than 1 mV of either at 250 mA load current. All components are assembled on a PCB with the exception of the 2N3055

### Table of Values

Fig. 3. Mixer and Buffer Amplifier

R1, R2 = 10,000 ohms	C11 = 6.4 pF split stator variable
R3, R6 = 1,000 ohms	Ft = .001 $\mu$ F feed-through capacitors
R4, R5 = 8,200 ohms	RFC1 = 10 turns, 1/8in. dia. 26g. enam., close wound
R7, R8 = 100 ohms	RFC2 = 8 turns, ¼in. dia. 20g., enam., close wound
C1, C5, C6, C12 = 3 pF tubular ceramic trimmer	
C2, C8 = 10 pF disc ceramic trimmer	
C3, C4, C7, C9, C10 = .001 $\mu$ F disc ceramic	

All resistors are ½-watt

See Fig. 7 for coil data

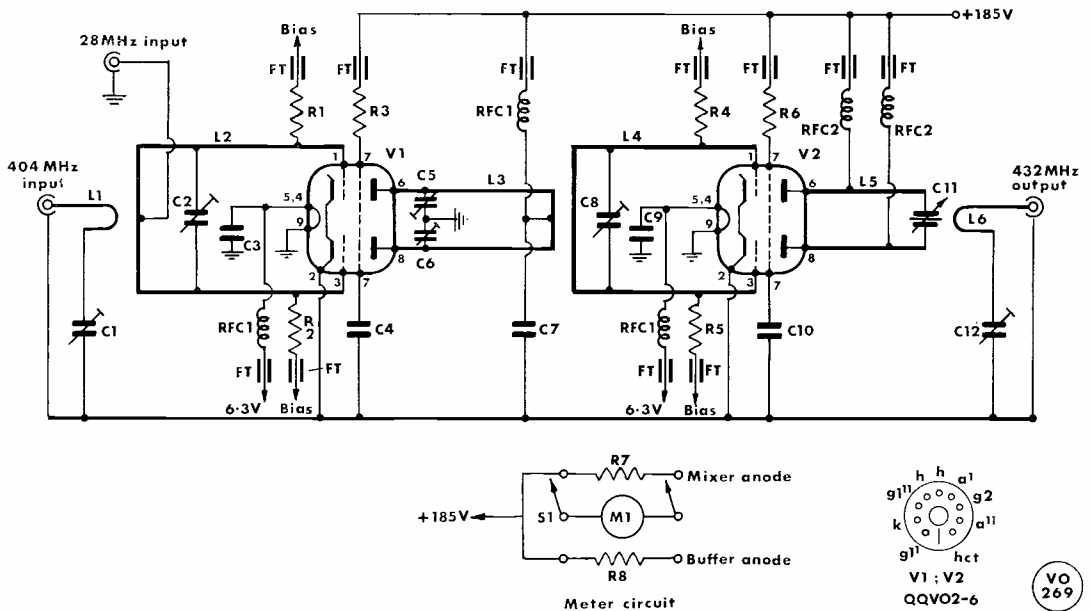
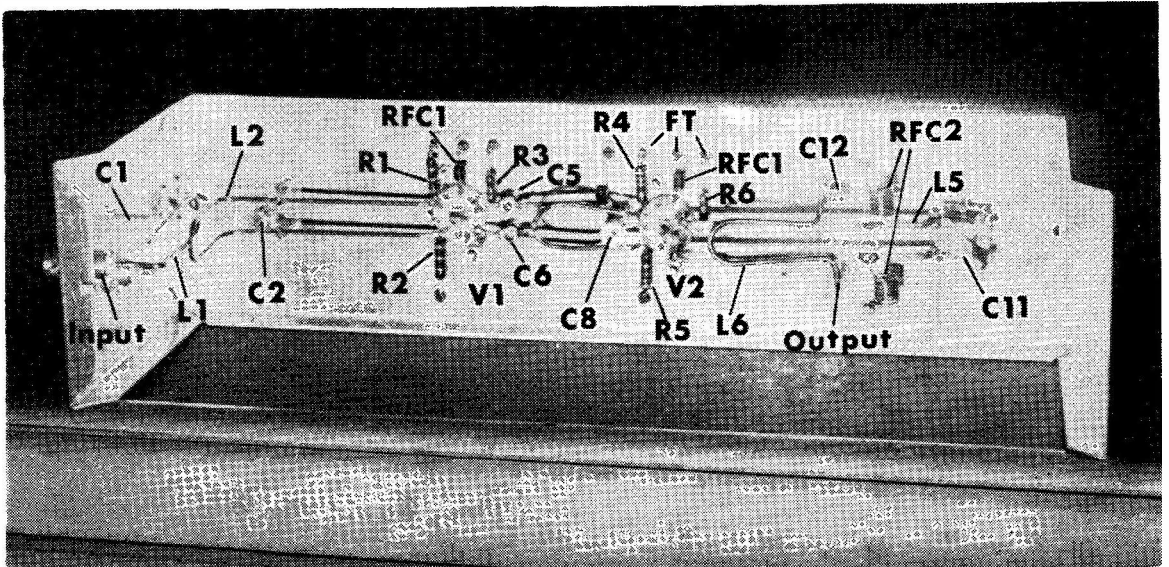


Fig. 3 Mixer and Buffer Amplifier

Fig. 3. Mixer and Buffer Amplifier stages for the Transverter

which is mounted on a 4 x 4in. heat-sink constructed from 16g. aluminium sheet.

The 40v. bias line goes to another PCB which is mounted in the driver cabinet, the associated variable resistors being fitted on the front panel. Purists will want to stabilise this line also, but in practice it has not been found necessary to do so.

All DC leads are decoupled at the entry points to the driver and PA chassis, and ferrite beads are slipped over these leads.

### Construction

The 404 MHz amplifier is built on a PCB measuring 2 x 4 inches and housed in a diecast box. The layout

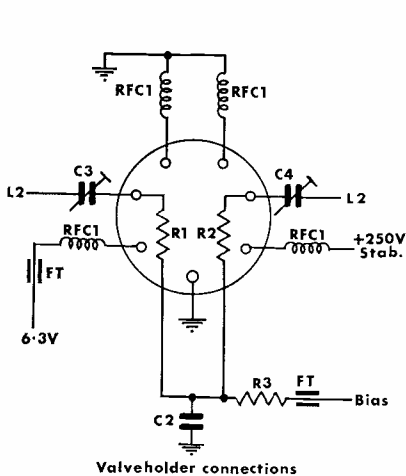
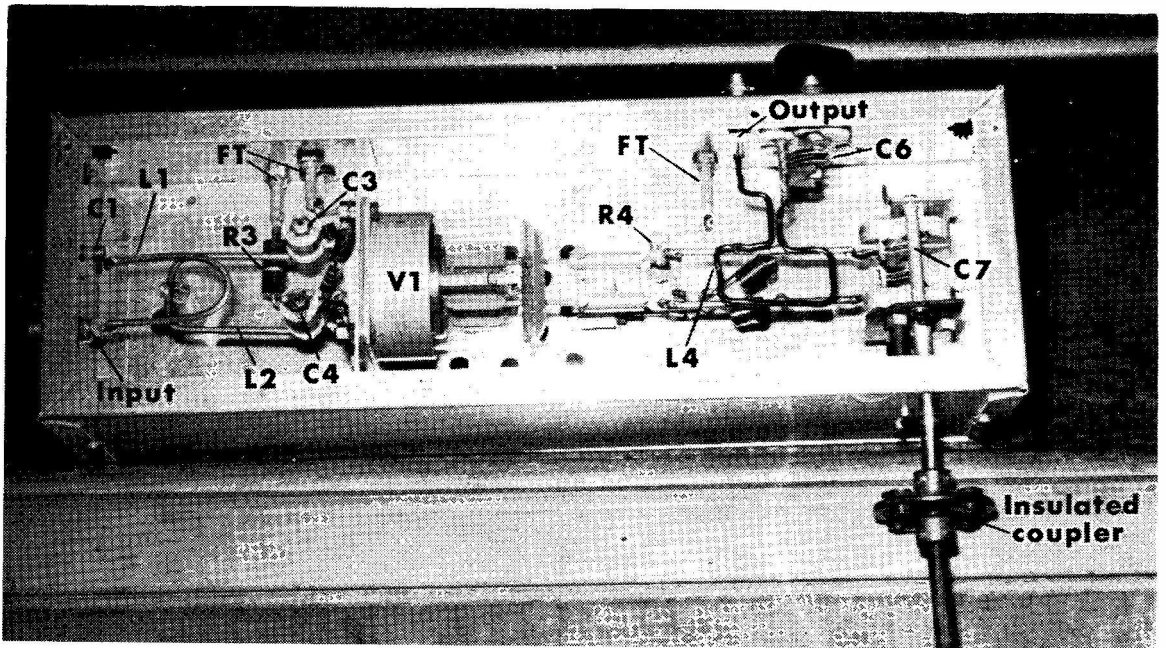


Fig. 4 Power Amplifier

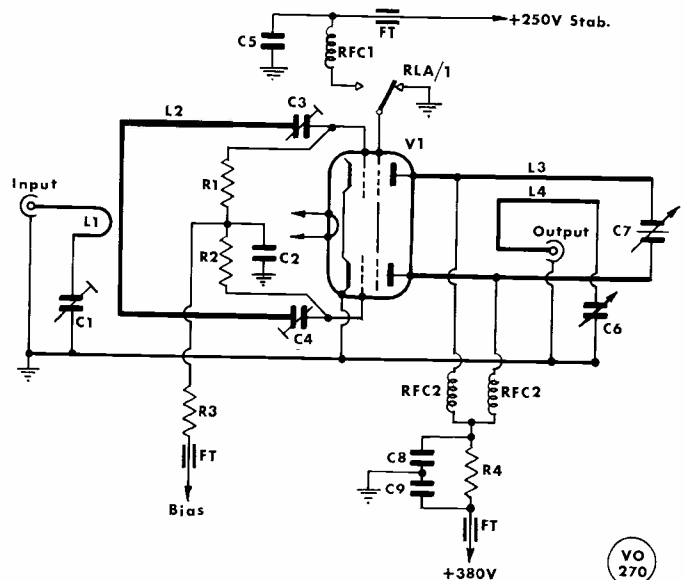


Fig. 4. The RF Amplifier stage

VO  
270

closely follows the circuit diagram of Fig. 2. It is very important that the transistor leads be as short as possible; this will call for some swift soldering if damage to the transistors is not to result. The components are mounted on the copper-clad side of the board with clearance holes for the short, interconnecting leads through to the underside.

The chassis for the driver unit consists of a top plate measuring 12 x 3 in. and sides 4in. deep, this depth being required to accommodate the folded grid line for the mixer. The side plates of the chassis are constructed from expanded metal. Details of the coils are given in Fig. 7 and the general layout can be seen in the photograph. The spacing between coils is critical and optimum must



## Table of Values

Fig. 4. Power Amplifier

R1, R2 = 27,000 ohms, $\frac{1}{2}$ -watt	C6 = Jackson Type 808 split-stator capacitor reduced to two fixed and one moving plate per section
R3 = 1,000 ohms, 2-watt	RFC1 = 6 turns, $\frac{1}{4}$ in. dia. close wound
R4 = 10 ohms, 5-watt, wirewound	RFC2 = 8 turns, $\frac{1}{2}$ in. dia. 18g. enam., close wound
C1 = 3 pF tubular ceramic trimmer	Ft = .001 $\mu$ F feed- through capacitors
C2, C5, C8, C9 = .001 $\mu$ F disc ceramic	
C3, C4 = 8 pF Philips trimmer	

See Fig. 7 for Coil Data

be found during setting-up, but as a guide, start with quarter-inch spacing and vary as required for maximum drive to the following stage. The valve holders are  $2\frac{3}{4}$  in. centre-to-centre and this measurement establishes the

amount of overlap between mixer anode and amplifier grid coils. Capacitors C2 and C8 are supported on p.t.f.e. stand-offs for mechanical stability, the latter as close as possible to the grid pins of V2. Capacitors C5 and C6 are mounted close up to the anode pins of the valveholder. The position of the feed chokes associated with the anode line must be determined by tapping a lead pencil along the energised lines and finding the point at which the anode current does not vary. In the author's case, this was at about  $1\frac{1}{4}$  in. from the capacitor end of the lines. No screens were used on the valves but, if radiation from the mixer is a problem (it should not be) a circular shield of fine wire mesh may be slipped over the valve and earthed to the valveholder skirt, although this will alter the tuning slightly and reduce the output.

(To be concluded)

# • • • SWL • • •

## SHORT WAVE LISTENER FEATURE

By Justin Cooper

### THE EARTH CONNECTION — POINTS ON ANTENNAE — PRE-SELECTION GAIN FACTORS — GENERAL NOTES AND NEWS — TABULAR MATTER HELD OVER

PERHAPS one of the more regrettable aspects of contemporary amateur—and in particular SWL—activity is the comparative absence of the home-building of equipment in favour of purchase of commercial equipment, and, as a corollary, the lack of significant interest in the generation of good but simple aerials. Of course, most SWL's cover all the HF bands, and some even venture on to VHF, making it a necessity to use multi-band systems. Usually, it ends up as just a random length of wire plugged into the back of the receiver, or at best fed through some sort of ATU, used in conjunction with a very crude sort of earth, usually no more than a single stake of three feet or so knocked into the ground, or even a connection to the mains earth. Changing such a set-up to, for instance, an End-Fed Zepp used in the normal way for the HF bands, with the feeders strapped and used as a random wire on the LF bands would make some considerable improvement on the HF ranges; on the LF's, the amount of time and energy spent on the earth could give a spectacular improvement in LF-band results.

The Zepp arrangement mentioned is, like the centre-fed arrangements, well-known and adequately documented, but less is said about the almost lost art of providing a decent earth.

Let us, therefore, look into the question a little more deeply: First, it should be remembered that the object is not so much to make a point contact with the ground (like a closed relay-contact) but more to improve the conductivity of the ground near and under the aerial, and to make this improved conductivity area lead to the earth terminal of one's ATU, independently of the mains or telephone earth connections, however good they may be. Thus, one may drive in a ground spike at the point where the actual lead from the ATU or receiver reaches ground; then one can take a "fan" of wires, each buried an inch or two below the surface out radially from this point right round the garden, bending them as needed to go round tree-roots or other obstructions; lots of short ones, and as many longer ones as can be reasonably got down—quantity not quality applies here! If there are any wire fences, these should be bonded together and connected to the main earth system. All soldered joints need to be waterproofed to avoid electrolytic corrosion due to the dissimilar metals of the wire and the solder. If an end-fed long-wire system is

used, it will also be found to be of yet more help if you add a "counter-poise" for each band, connected to the earth terminal and led out and away above ground—J.C. "loses" his counterpoise in his and a neighbour's boundary-hedges; they should each be a quarter-wave long, one for each band if possible.

This sort of earthing will be found to give a spectacular improvement in the system and one will cease to be annoyed by hearing a local G3 giving a 57 report to, say, a W on Top Band who is quite inaudible at your end! And, by the way, you will have found out that the way to have that incoming FB signal is to do work on the aerial system and hear the same DX he hears. No amount of high-power on the Tx side ever improved the station reception; this can only be obtained from improvements to the receiver or aerial.

#### Technical Points

Having just touched on the matter of the aerial, Murphy's Law says that the first letter we pick up mentions aerials. *M. Rivers (Whyteleafe)* used to play HPX back in 1970, but the bug has attacked more violently than ever lately. Malcolm uses a 250-footer, end-fed, in a V-configuration due to the odd shape of the garden. In order to be successful, such bent aerials must have the bend, preferably obtuse, right-angle is necessary, and never bent into such an acute angle that it all but returns to where it started from, lest it cancel most of its own pick-up; and anyway, too sharp a bend may leave such a discontinuity of impedance that the bit beyond the bend is effectively disconnected from the nearer length, an effect which will probably show up at some frequency or other anyway. All this is not to say that the popular "Inverted-Vee" centre-fed is not O.K.; it most certainly is, as is the centre-fed V-aerial.

Like, no doubt, many others, *G. F. Gullis (Ogbourne St. George)* has been listening to *Oscar VII* but George has been after the 144 MHz-432 MHz mode, on which his luck has been out. This had also been his fate when it comes to the 28 MHz downlink channel; he sreekon he needs both to raise his two-metre beam a bit, and to put up crossed dipoles for the 28 MHz signals. One would have thought that a simple dipole would have been enough to at least ring the bell occasionally if not every time.

*R. MacKean (Liverpool)* is trying to teach himself for the R.A.E. and wonders whether there is a course near him—the nearest we know of is at Birkenhead—details appear in the October 1974 *SHORT WAVE MAGAZINE*, on p.428. Changing tack a little, Robert has a Trio 9R-59DS and wonders whether any articles have appeared on the subject of modifications for it. Not formally, but there have been comments on the subject in the past, one seems to recall, by people

writing in to this piece. If anyone has any useful notes maybe they would get in touch direct with him at 61 Anfield Road, Liverpool L4-0TQ.

S. Bandy (Luton) wants to know exactly why we seem to be "against the use of pre-selectors," as he describes it. He asks because he has one and finds it of considerable use. Basically, a receiver requires as much gain as will lift a minimum signal—say, 0.5 microvolt—up to a level adequate to give specified output power from the speaker, again, say, 500 milliwatts. This order of gain is around 140 dB from the input stage to the grid of the output stage if we assume, first, that 0.5 microvolt input "sees" the signal-to-noise ratio at the input stage as 6 dB, i.e. 0.25 microvolt of noise coming down the aerial—the figures apply roughly to a receiver bandwidth of 10 kHz, which would be about right. Now, the main points where distortion will occur on strong signals are the stages which are required to operate in a non-linear manner, such as mixers, or where a normally linear RF or IF stage can be made to become non-linear by the presence of a strong signal. For a strong unwanted signal to do this, it must appear on the grid of the stage in question; thus, ideally, all the gain should be in the audio side and none in the RF mixer or IF stages. However, no receiver is ideal, and therefore enough gain must be generated in the RF and mixer stages to give an acceptable signal-to-noise ratio with the small signal we have just mentioned. Assuming this is so (and it should be with any modern receiver in reasonable alignment and with healthy valves and circuit), then any pre-selector cannot in fact improve the sensitivity of the set-up, but can only degrade it by the degree to which it in itself generates noise—which any valve or transistor will do in its normal operation. However, by the mere fact that it adds gain to the receiver system at the most vulnerable point, before the mixer, it follows that it will in addition worsen the cross-modulation performance of the basic receiver, although it may give an impression of "liveliness."

The only real justification for the use of a pre-selector is in the case of a poor receiver which cannot, unaided, get down to the sensitivity of the small signal already defined above,—and even there it needs to be used with care and discretion, particularly on the LF bands where the aerial noise incoming is so very much higher. If, as Stephen has, there is an RF attenuator in the shack, then one could maybe use either the attenuator or the preselector by switching them, or use the "barefoot" receiver, and then with a small, poor aerial and a quiet location on the HF bands there might be some advantage, although J.C. doubts whether measurements as against estimates would show one up.

#### The New Chaps

C. Davies (Leeds) is attending the University there, although his home is at Cringleford, Norwich. Listening is strictly confined to the home QTH, study being obviously more important during term-time. However, Chris tried last year for the 500, and started again at the beginning of 1975, with 144 knocked up in the first five days of the year before returning to Leeds. We shall watch his progress on the Ladder this year with interest.

A. R. Murray (Larbert, Stirlingshire) has recently "taken up Amateur Radio," initially with a BC-348 borrowed from GM3GRX, and later with an FR-101 of his own. Interest has been mainly on Twenty and Eighty, with some useful DX logged, and Alastair hopes to make an entry in the Table ere long.

A. Darragh (Cowthorpe) has been an SWL for about ten years now, with FR-500, AR8D and a Geloso converter as receivers and what he describes as a "rather strange ATU"—also a 12-AVQ sitting at mast-top and fitted with seven radials per band. A bent-dipole at forty feet does duty on Eighty. Eighteen days were enough to run up 262 prefixes for an entry in the 1975 Table.

#### Prefixes

M. J. Quintin (Wotton-under-Edge) comes up with a very dubious one when he claims an EL4/MM, which the operator said was a private boat; he was an Englishman. As far as J.C. is aware, the EL people authorise /MM stations in the EL0 series invariably, so in the absence of further proof, we have to write this one off till we hear otherwise.

A. Roberts (Shephed) intends, having got to 455, to carry on to get himself up into the All-Time List. This is quite OK, but there will of course be a lapse in his listing after a final appearance in the 1974 Table until the All-Time score rises to the 500 minimum figure. On a different line, Andrew wants to know the QSL Address of 9K2DR, which J.C. does not know as such; however, it is understood that cards can go via 9K2AN, Alhaj Nasir H. Khan, Box 736, Kuwait who appears to be the QSL man for the 9K2 chaps.

By way of a mention, A. Glass (Plymouth) indicates he has been spending much time listening to *Oscar VII* but although he has heard 22 countries, no new prefixes have shown up. However, it

remains to define the status of prefixes heard by way of *Oscar*, and after much thought anent the pros and cons, we have decided that *Oscar* prefixes will not be countable in HPX.

IVQ is a new prefix for stations in Rome, celebrating Holy Year, points out P. Barker (Grangeotown); and we could answer another one ourselves by adding that the IA chaps are in the Tuscan Archipelago.

A big question-mark hangs over a station signing "HB9AUZ/5UW," which is alleged to be the Red Cross station for disaster relief in Niger, says J. Fitzgerald (Gr. Missenden), and we cannot but agree, as nobody else reports him a. far as J.C. can recall.

#### General Notes

R. Griffiths (Ventnor, I.O.W.) accidentally tuned out of Forty one day and heard a lot of signals around 6-650 MHz, poor booms imitating real amateurs with all the jargon and so on, though their abilities and equipment only run to 52 and 19 Sets. One hopes the authorities will be kind enough to "take care" of this crew, who call themselves the "Echo Charlie Net."

On December 30, 1974 J. D. Ugherty (Ryth pe) made up his totals for 1974, so as to make sure he got his totals in in good time, before, as he put it, "this unfortunate year inflates itself into oblivion!" He can say that again!

Still with SWL Dougherty, he raises a couple of questions as to KG4FZ and WIP/E/C. The first seems to be OK, but just what the suffix on that W1 call is, your conductor really doesn't know! Any others?

J.C. was saddened to read the letter from H. Alford (Burnham-on-Sea), who has been for some months in the hands of the medicos, and, on top of that, has suffered a deterioration of both sight and hearing, making intensive SWL activity no longer really practicable. However, we will keep SWL Alford in the Table for awhile, as he wishes, to see whether things pick up a bit and make it possible for him to chase up the odd new one, even though his EA-12 is becoming redundant now. Other readers may not recall it, but SWL Alford is a real dyed-in-the-wool OT SWL, whose picture appeared in the November 1972 issue of the *Magazine*, on p.555, when he was in his 83rd year; his listening experience goes back to 1930, and he was still no mean constructor of equipment, as the picture of him at the rig shows.

E. Parker (Hove) has also been taken up with personal problems. His firm went bust on him and made him, at 59, redundant, and then he was involved in a "spectacular road accident." After that came a period of rest and quiet while he got back to fitness. On return to the receiver, a listen on Eighty made SWL Parker come to the conclusion that the band had slipped into the Planet of the Apes!

M. L. Peters (Newbury) has been pressing steadily on with his DX listening on Top Band, 14 and 21 MHz, not to mention fourth-year school work, R.A.E. study, and the construction of a converter for Two. In between times, Martin eats and sleeps!

Another long-time correspondent is R. Carter (Blackburn) who complains that all the new ones seem deliberately to avoid his aerial—'we know the feeling!' However, part of the problem has been that time has been spent on the sound system at his Church, setting it all up properly and "repairing as necessary."

Our congratulations are due to G. Lucas (Kennoway, Fife) who is now GM8JKT, and is preparing himself for a full ticket which it is hoped to obtain later in the year.

N. N. Graham (Newcastle-on-Tyne) has been flogging things a bit lately so as to make the switch into the All-Time HPX by the end of this year; and not surprisingly, the XYL has been, shall we say, in opposition. However, the target was met, and peace (we hope) restored to the Graham household.

A most interesting letter comes in from N. A. Phelps (Devizes) who recalls our issue No. 1 of *Short Wave Magazine* (March, 1937) but has been QRT since 1949. The return has been made, not with the old TRF 2-V-1 receiver but a FR-101S; on CW this results in an initial entry of 449. On a different theme, SWL Phelps comments on G6ZY/CN/MA—very active there in Tangier where he now lives.

\* \* \* \* \*

G3RJV writes in to point out how useful good SWL reports can be to the members of the G-QRP-Club. SWL membership is possible should the listener be interested in QRP working. However, anyone can send an SWL report out and be helpful to the chaps with the flea-power rigs, particularly on Eighty. If you want some more info. about this, send an s.a.e. to: Rev. G. Dobbs, G3RJV, 61 Park Street, Cleethorpes, South Humberside, DN35-7NG.

His last report from the present QTH comes in from K. Kyezor (Perivale) he having exchanged contracts on the new one—and he hopes the noise level at the new place won't be as bad as the old one.

A versatile type is N. Henbrey (Northiam), who listens on all

One of the stations on the air in the Scout interest for the recent J-O-T-A was GB3HS, operated by the Hereford Amateur Radio Society for their local Scouts. About 100 stations were worked, mainly on for J-O-T-A, and here, with the Scouts, we see G4CNY, hon. secretary of H.A.R.S., at the microphone, with G3WRQ. On right is an Old Scout of 77, who joined in 1910.

Picture courtesy Hereford Times



bands from One-Sixty to Two, and is now gathering parts to build a super-duper receiver which will cover from MW right down to Ten, but will be specifically used for LF band listening.

The problems involved in getting QSL's from the U.S. is raised by R. H. McVey (*Weston-super-Mare*), he having QSL'd direct with an IRC. Possibly an alternative method would be to go down to the local stamp-collectors' emporium and buy mint U.S. stamps with which to stamp-up s.a.e.'s—one feels the IRC is rather a second-best in that it puts the onus on the recipient to go to his Post Office and change the IRC for stamps. (On the other hand, if the chap is not interested in QSL'ing, nothing will persuade him).

P. Rooney (*Liverpool*) is now hard at work at College, this of course knocking a hole in his SWL time. However, one consolation is that the unwanted signals he mentioned last time—and on which both G. F. Gullis and jour J.C. commented—has proven to be the harmonics of BC stations in the 7 MHz band, so at least he now has a clue to help in resolving his problems.

Complete revision of one's check-list must be a mammoth task for anyone near the top of the Ladder, as is S. Foster (*Lincoln*)—but he has done it; and it showed one claimed twice, and four not claimed, which is a pretty fair degree of reliability considering how long Stew has been recording his results. Add to that another nine new ones for this time, and clearly he has not been wasting his time.

Another one who has been listening to Oscar is S. Eldridge (*Crawley*) who is now the proud owner of G8IZX; already he has been operational, initially with five watts of AM, to be followed by AM and FM modes out of a converted Pye AM25B.

\* \* \* \*

Those who sat the December R.A.E. were still awaiting the result when they wrote, but they will have been put out of their misery before this piece comes to be read—indeed one local laddie has already sent off for his call. B. J. McCartney (*Wokingham*) took the December paper and reckons it was an easier one than the May 1974 R.A.E.—an opinion with which we agree. The May 1974 paper was a bit too "clever" for the average chap able to deal with the fundamentals who was not a basically exam-passing type, although the questions, once clearly discerned through the smoke-screen, seemed fair enough. Be that as it may, the McCartney time is now being fully devoted to Morse practice by means of the G3HSC course so that he can go straight for a G4/3 call rather than a G8/3. Good!

K. A. Whiteley (*Castleford*) has his opinions on the eighty-metre inhabitants, and in particular the tuner-up on DX on the one hand and the bad-tempered bozo on the other; however, we couldn't read his opinions 'cos they burned a hole in the paper! But we have to agree—a QSO on the DX end of Eighty SSB would be worse for your old scribe any day than having a tooth pulled out!

Sad to tell, N. Askew (*Coventry*) has been unable to report to the piece for a while now, as his receiver is "in store," and has been for some weeks. However, a few signals have been heard on the HF bands with a Panasonic portable radio, which at least keeps the Askew ears tuned up ready for the bumper listening session to be expected as soon as the Rx is available again.

Some folk are *gluttons* for punishment, and it seems H. M.

Graham (*Harefield*) is one of them—he having bought a colour TV to add to the food mixers, electric drills and so on which generate his local noise level! Most of Maurice's listening has been on 21 MHz, a fine band when it is open. Sometimes, when the MUF is fairly low it opens to North-South paths, and when the MUF goes a bit further up than the W's and such show up. On Ten there have not been any items of interest, save for U.K. QSO's. In conclusion, an interesting prefix on 14 MHz was CG3GGO with VE3GGO at the helm, not mentioned by anyone else.

J. D. Porter (*Baslow, Derbyshire*) wants us to send him a full list of his verified prefixes so he can have a sort-out—Sorry, OM, this is just not "on" with the records kept here in their present form! On a different angle, John has been having a listen at the CW end, and hopes soon to add a CW HFX entry to the list. (With the normal volume of mail for this feature, it is just not possible to keep individual records).

M. Eccles (*Lancaster*) seems to have been in mortal combat with his receiver, and so has a nil return for the Table; however, peace, we understand has been restored by the rig agreeing to behave itself, so further entries can be expected.

From Brentwood, R. Elliott has put in entries for the final 1974 list and also for the 1975 t.ubulation, both of which look to be quite fine; let us hope Ray manages to keep up the good work.

A fine crop of queries appear in the list from W. H. Smyth (*Hartlepool*). Apart from the characters with the "30" in the middle, whose *raison d'être* he has cottoned on to correctly, there is a "VU4" heard on 3690 kHz and a "TN9TRN" noted on the SSB DX channel of Eighty—both thumbs-down, sad to say. An interesting situation heard on Top Band—a couple of K8's having a local matter one night on AM, and still quite readable at or about R55 and 6! This causes Bill to ask what powers are allowed to the Stateside Top Band chaps, the answer to which is that they now have the full kilowatt on all the band when considered overall—but in different parts of the U.S. the frequencies and power limitations available vary, so no hard rule can be laid down. Anyway, power had little or nothing to do with hearing that QSO—it was largely a matter of the K station aerials, the aerial Bill has, and the propagation between the two which "did the trick."

#### Other Letters

We have these to acknowledge from the following: J. Apinall, *Leeds*; L. Craven, *Alvechurch*; L. Gibson, *Barrow-in-Furness*; Mrs. J. B. Jane and P. C. Jane, *East Looe*; B. F. Hughes, *Worcester*; M. Kitchener, *Hitchin*; H. A. Londesborough, *Swanland*; A. F. Roberts, *Kidderminster*; R. Shilcock, *Kingswinford*; B. Cushing, *Hove*; and M. Rodgers, *Harwood*.

#### Finale

Once more we come to the bottom of the well; for next time it will be March 20 to arrive, addressed as always to: "SWL," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18-1RQ*.

# VHF BANDS

A. H. DORMER (G3DAH)

WELL, That Was The Week That Was! February 2 to February 9 saw tropo propagation at an exceptionally high level with the atmospheric pressure rising to a peak of 1034 mb and not dropping below 1030 mb until the Sunday. Best DX axis was North/South and out to Germany and the Scandinavian countries, little coming in from France or the Channel Islands and, indeed, little from the West either, which must have engendered some teeth-gnashing among the EI/GI boys. Some idea of the magnitude of this opening may be gained from the following signal strengths logged by G3DAH at around 1100z on February 9: GB3MH—57, GB3PI—59, GB3BC—59, GB3DM—56, GB3ANG—53, GB3SC—59+20, GB3DD—57, GB3SU—59+10, GB3SX—59 and GB3GW—53, GB3CTC was not heard. For some reason not yet clear to the writer, nothing was copied from DL0PR on 144-140 MHz, in fact it has not been heard since it shifted frequency, although it was reported from many parts of the country at 59+ for several days. HB9HB was also inaudible, although several stations in the Midlands report hearing HB9AEN/P from his mountain eyrie.

Looking at the bands in greater detail, one gets the impression that Four did not enjoy the same lift as other bands. True, signal strengths were up over 100-200 mile paths, but DX beyond those ranges was not particularly evident, and was subject to much QSB in spite of the apparent stability of the high-pressure system. For example, several attempts were made to establish a contact between GM3ZBE (Aberdeenshire) and G3DAH and, when finally achieved, was still only at the 53/44 level although it has been made much more easily on previous occasions. Activity on this band is still low in the evenings—allegedly due to TVI, in spite of the shift of much TV to the UHF region—and did not seem much above average even on the Sunday mornings when most operators come on. The shift to SSB on this band becomes ever more marked.

Two-metre conditions can only be described as fantastic. SM and OZ were coming in very strongly in the North and East and were also audible, and indeed workable, in the South, but at much reduced levels. Several operators in the northern U.K. also worked LA fairly easily although there were not too many signals coming from there. Those that were came from the extreme south of Norway. A GM3/OK contact on CW was also being mentioned on the band, but no confirmation of this has as yet come in. There seemed to be a particularly good path between GM and ON/PA, most of it over water of course, with RS59+

reports being exchanged between quite low power stations.

Alas, almost inevitably these days, there were the usual complaints about over-driven SSB transmitters causing much QRM. When *will* some of these anti-social types realise that bellowing into a microphone and seeing the output power indicator rise does *not* mean increased audibility and readability at the far end? The signal merely contains a high percentage of distortion products in addition to the normal output, to the detriment of the whole picture. Another undesirable feature under these DX conditions was the appearance on the SSB calling channel of FM operators. The presence of any carrier-borne intelligence here is to be deplored and can be far less easily tolerated than the presence of an SSB signal within the FM frequency allocation where limiters reduce the receiver response to amplitude-variable signals. Further, the  $\pm 5$  kHz spread of the average FM signal these days occupies a bandwidth which could accommodate several SSB transmissions, and the presence of a carrier is irritating if nothing more. It is unfortunate that our current band plan does not specify an upper limit to the SSB allocation on two metres, and, by implication therefore, a lower limit to the "Other Modes" allocation. To use a rather fancy term which is being vastly overworked these days, the two-metre band is becoming, and indeed has largely become, "polarised," segregating those who operate SSB and those who favour FM, and the ever-diminishing number of AM users, the schism being widened by references to DX or local working. This may or may not be a good thing, depending upon individual preference, but a mix of the two modes certainly is *not* a good thing however looked at and however attractive the DX on the SSB channel may be.

In spite of these strictures, this opening appears to have produced better DX over a longer period than did the major opening in January last year. We could do with more of them!

The 70 cm. band also came into its own, as well as providing a vehicle for the setting-up of contacts on 23 cm., and conditions during the 70 cm. contest on February 2 were unusually good. Cross-Channel QSO's were fairly easy but, on this band also, the best results came over North/South paths. Peak conditions probably occurred on Sunday, February 9, when GD2HDZ was an outstanding signal in the South and GM3ZBE (Inverurie) and G3DAH were able to have a long technical discussion, in the small hours of the morning, with signal strengths at times reaching the 59+30 dB mark.

Similarly, 23 cm. users enjoyed the enhanced ranges which this lift brought to their band. Several stations on the East Coast were able to raise DJ/DL and the regular skeds over what are normally difficult paths yielded some excellent results. It is the author's opinion, shares by other East and South-East based operators, that even under these conditions the 1296 MHz band population is still not high enough to be able to call "CQ." and be certain of getting a reply. The main traffic is still North/South and the best bet remains to listen to regular skeds, of which there are now quite a number (as we have previously reported) and trust that, after completion, the two operators will scan the band. Failing this, calling on 70 cm. for 23 cm. is still

current practice and yields results even though it might be construed as a retrograde step. One gets the impression that most activity is still concentrated at the low end of the band, although somewhere around 1296.6 MHz is still a fruitful spot to check for the transmission striped up from 70 cm.

There it was, then, one of the most protracted openings that your scribe can recall during his 26 (on and off) years of VHF operating.

## Contests

Reports: As has been noted elsewhere, propagation was very good for the 70 cm. contest on February 2. Outstanding signals came from the two Welsh portables, GW3UCB (Clywd) and GW8AWM (Powys), the former finishing with over 100 scoring contacts and the latter with 85. G3QA/P in Derbyshire came up with 68 contacts only, which was a little surprising in view of their consistently good signal, but their total included two ON and one F and their points/km score must be quite good. Incidentally, they ran an FT-101 into a *Microwave Modules* transverter followed by a 4CX250B linear which gave them 200 watts p.e.p. to the double 46-ele beams at 40ft. Any chagrin they may have felt at not making the century was, it is understood, dispelled at "The Mermaid"! Congratulations to GD2HDZ and G3NHE who are joint winners of the 432 MHz Cumulatives.

There seems to be some dismay at the deletion of the 70 MHz and 70 cm. Cumulatives from the Contest Calendar. While agreeing that two sets of each in the year might have been a bit much, there is the feeling that one of each would achieve the aim of encouraging activity on these under-used bands.

Propagation and activity were fair for the Four-Metre CW contest on February 19. G4AIR (Macclesfield) finished with 109 points from 17 QSO's and G3OHH (Mow Cop) with 246 points from 34 contacts. Forthcoming Events: March 1/2, 144 MHz Open. April 5/6, 70 MHz Open; and just to give you plenty of time, the 23 cm. Open is on April 27.

## Twickenham Convention

The London VHF Convention will be held this year, as last, at the "Winning Post" at Whitton, Twickenham, and the date is May 10-11, over two days again. Tickets from Deakes, VHF Convention, 35 Doughty Street, London, WC1N 2AE at £3.00 for the whole meeting and dinner, or 80p for the Convention only. Lecture programme includes such subjects as Oscar, Microwaves and VHF propagation. There will be the usual Trade show and raffle.

## The Oscars

OSCAR VI is now available on all descending orbits as it has been established that the restricted schedule has led to over-charging and overheating of the batteries with undesirable side-effects.

The interest in OSCAR VII seems to be waning somewhat and the similarity to OSCAR VI operation, frequency allocations apart, may be the cause of this. It is now officially confirmed that the Rx sensitivity problems have been sorted out and that all is working normally on board with the exception of the 435.1 MHz beacon, which continues to be on reduced power. Orbital data published last month are proving sufficiently accurate to enable us to forecast

reference orbits for March, as follows:

Date	No.	Mode	Time	Bearing
Mar. 3	1345	B	0101.9	056.4°W
Mar. 4	1357	A	0001.2	050.2°W

The times quoted are for equator crossings in GMT and the method for calculating later orbits was fully explained last month.

The overlap in time and space of the two OSCAR satellites causes some confusion and the first reported case of reception of a station through both translators simultaneously came from OH2RK whose QSL cards to G3BHW for contacts on orbit Nos. 1827/10507 gave him RST 559 for both. It is possible to pick up the odd QSO after a Mode-B pass by tuning the bottom end of 70 cm. Several operators now follow this practice and put out a quick "CQ."

**Twenty-Three Centimetres**

We are pleased to welcome G8AII (Chepstow), to the Table. Walter is quite an old hand on this band which he has been working on for the last ten years. It should be noted, when submitting county scores, that his station is in Gloucestershire, although the postal address is in Gwent. All very confusing and not the first anomaly we have encountered since the re-organisation!

G4BEL adds to his 23-centimetre total with Yorkshire (G3NHE), Greater Manchester (G3KMS), South Yorkshire (G3NHE) and Avon (G3KAC). He runs skeds every Monday evening at 2000z with G3NHE and G3KAC on 432.20 MHz, followed by QSY to 1206.6 MHz and callers-in are welcome. G3NHE has upped his total to 13 + 1 and one suspects that this was bettered during the recent spell of good conditions. He also has a weekly sked on Mondays at 2215z with G4BYV in Dereham, Norfolk. G3DAH has added South Yorkshire (G3NHE) and Greater Manchester (G3KMS) to his total. The appropriate All-Time Table appears here-with and we should like to have your entries.

**FM Mobile**

Although FM Mobile on Two is becoming ever more popular, we receive few reports of outstanding /M contacts. If, as seems likely, it is in the minds of devotees of this genre of amateur activity to increase interest in it, this Column will do what it can to support the idea but needs the basis information to work on. "Black Boxes," to use a generic but by no means derogatory term, are on the increase and FM repeaters are proliferating at a significant rate, so activities in this sphere are becoming of more than just parochial interest. We would like to hear more of strictly VHF/M working.

The U.K. FM Group (London) are organising a convention to bring together those interested in mobile working, to take place on March 15 at Brooklands Technical College, Heath Road, Weybridge, Surrey. The doors open at 1200 hrs. and tickets, at 50p for the convention only and £2.50 for convention and buffet supper, can be obtained from G8FNF, QTHR. The programme includes presentations on the OSCAR satellite operations, antennas, repeaters and a "Bring 'n Buy" sale. Talk-in facilities will be available on 145.50 MHz 145.175 MHz and 433.20 MHz.

Latest information on FM repeaters is as follows: GB3SN, *Four Marks, Hants.*, commissioning at any time now; GB3NA, *Barnsley, Yorks.*, awaiting Home Office approval; GB3LO, London, still not in

operation; GB3BC, *Bristol Channel* and GB3MH, *Malvern Hills*, both functioning well; GB3CS, *Lanarkshire*—hoped to be in operation by end-March. Several other proposals are in the pipeline but have not been processed far enough to warrant comment at this time.

A very useful booklet entitled "The International VHF—FM Guide" has been produced by G8AUU and G3UHK. It gives all the relevant information about reciprocal licensing in Europe and lists the repeater facilities available in each country. For the mobileer planning a Continental holiday this is just the job and the cost is only 30p, including p & p, from G3UHK, QTHR.

**VHFCC Awards**

Two-metre Certificate No. 232 goes to G4FJC, Chelmsford, Essex. He was first licensed as G8HXL in August, 1973 and a year later obtained his G4/3. The Tx is a *Microwave Modules* job with an AM output of 5 watts and the *Microwave Modules* converter feeds a Drake R4B. The beam was initially a 6-ele. Yagi at 40ft., but this has now been replaced with a 8-ele. at 50ft. on the 125ft. a.s.l. site.

G8IQH puts in a claim for VHFCC on two metres from Castleford, West Yorkshire and gains Award No. 233. We shall look forward to having a further claim from him with his new call, G4DTO. His first contact was made in February, 1974, appropriately enough with his former tutor for the R.A.E. G3HCW. The Tx at that time was an ex-WD item, the QQV03-20A PA yielding about 20 watts, and this was fed to a loft-mounted beam. The Rx was a Yaesu FR-50B which had been suitably modified to give full coverage of the 2m. band and this was preceded by a *Sentinel* DG mosfet converter. This little lot produced 60 contacts up to early April, in spite of the obvious limitation of an indoor beam. Then the rig was moved to a specially prepared shack in the garden and, while waiting for planning permission for a tower, was operated with a halo which gave surprisingly good results, including three French contacts. In August, 1974 a Liner was acquired, the score then standing at 212 different stations worked, and a Telomast was installed with a 6-ele. beam at 32ft., and this, combined with a hilltop site at 250ft. a.s.l., quickly pushed up the total. Activity slackened off during

**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	20	2	35	6	29	6	98
G3ZMD	19	1	43	8	17	3	91
G4BWG	13	1	47	9	—	—	70
GD2HDZ	8	1	21	5	30	3	58
GM8FFX	—	—	45	13	—	—	58
G4BYP	14	3	30	5	—	—	52
G4DNJ	—	—	41	7	—	—	48
G4CZP	—	—	35	12	—	—	47
G8FWB	—	—	41	6	—	—	47
G3FIJ	19	1	17	5	1	1	44
G8FMK	—	—	15	1	24	2	42
GW3KGD	—	—	36	5	—	—	41
G8GHZ	—	—	33	6	1	1	41
G5DF	16	1	—	—	16	2	35
GM4CXP	2	2	35	4	—	—	33
G8GII/P	—	—	30	2	—	—	32
G8BKR	—	—	23	4	—	—	27
G3EKP	3	1	6	3	—	—	13
G4AGE	—	—	—	—	3	1	4
G4BKY	—	—	2	2	—	—	4

**Notes:**

- (a) Claims should be on the basis of the new County organisation for England and Wales and on the old basis for Scotland (at present).
- (b) The Table shows claims to date from January, 1975 and will close on December 31, 1975
- (c) 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.

## TWENTY-THREE CENTIMETRES

## ALL-TIME TABLE

Station	Counties	Countries	Total
G4BEL	28	7	35
G3DAH	22	7	25
G3JVI	20	4	24
G8ARM	20	2	22
G4BYV	15	5	20
G3COJ	15	3	18
G3JXN	17	1	18
G4ALN	15	3	18
G3NHE	13	1	14
G8AOD	11	2	13
G5DF	11	1	12
G8FMK	10	1	11
G8FIG	7	1	8
G8AII	5	2	7
G8EOP	1	1	2

December while the midnight oil was consumed in study for the Morse test, and G8IQH made his last transmission on January 16, 1975 with a total of 401 different stations worked. The QSL return rate continues low (less than 30%) in spite of s.a.e. This sort of discourtesy never ceases to amaze your scribe. All right, so paper and printing are expensive these days, and in many cases operators have abandoned the practice of sending out a QSL for each new contact—but surely it is not too much to ask that, in reply to a request for a QSL card accompanied by an s.a.e. at least a 2p postcard be returned?

## With The GM's

The major topic for most GM readers is the remarkable opening at the beginning of February. The East Coast stations were really having a time of it with the Continentals, and there were several good openings to the West from G1/EI. Of particular merit is the contact between GM3ZBE (Inverurie) and DL7QY in Berlin, on 70 cm. According to GM6XI, the German beacon, DL0PR, on 144-140 MHz was at RST 589 for much of the time. GM8DMZ (Patna, Ayr) bemoans the fact that, in spite of his good site, he was not even hearing the DX, let alone working it.

GM6XI (Edinburgh) did exceptionally well with his Liner and the *Datong* clipper, the more so since he was able to get on the air during the daytime when the QRM is not so fierce. GM8FFX (Kincardineshire) and GM3BQA (North Berwick) were heard knocking off the DX at a rate of knots—the latter now has his beams back up at 80ft. thanks to being able to persuade GM8HXM to permit himself to be hoisted up to that height on the famous 'BQA fire escape!

After a brief sojourn in Edinburgh, GM3WOJ has joined the BBC in Glasgow and will be QRV from there. Also on the move is Old Timer GM6XR of Edinburgh who is QSY in the City. GM3FYB is putting his TR-700 to good use and has been working into Kent, which is a fair old haul with that low power.

GM8BJF has now completed a modification to his frequency counter which takes it up to 500 kHz. (How about some details, Brian?). GM8EKF has been very pleased with the results from the 10 amp PSU, also designed by GM8BJF. Medical student GM8IER (Dundee) is putting a big signal into Edinburgh which enables him to join the Lothians Mobile Nets, much to their surprise, we are told!

Both GM3SAN and GM8BKE in Glasgow

are arousing considerable local interest due the success they are having with *OSCAR VII*. GM4CXP (St. Boswells, Roxburgh) now has 20 watts of CW available on Four and uses a 3-ele. Yagi at 24ft. on this band. The Tx is xtal controlled on 70-26 MHz and 70-32 MHz and he is looking South, on most Sunday mornings.

On 10 GHz, GM3OXX is building an SSB rig for his portable adventures later in the year, GM4CLH (Edinburgh) has caught the bug at an early age, and GM8GEC has been producing some very well-designed units for this band.

## Sunspots

With the appearance of a sunspot at a high solar latitude it appears that the new, eleven year, sunspot cycle may have begun, although the old one is not yet over as spots at low solar latitudes are still being observed. Other evidence indicates that the present cycle of activity may continue to fall to a minimum until 1976 or even 1977. The last sunspot maximum was in 1968, and it is possible therefore that the next maximum may occur sometime between 1979 and 1982.

The mechanism responsible for this rhythmic fluctuation in sunspot number is not yet fully understood, but the latest theory is that it is associated with the gravitational pull of the planets, and, if this is the case, it should be possible to predict sunspot variations and hence the length of cycles.

As most amateurs will be aware, the appearance of large sunspots and solar flares, in fact any abnormal solar activity, has a significant effect upon propagation at both HF and VHF, and with an increasing sunspot count we may look forward to increased Auroral and Sporadic-E phenomena which, although possibly more of a nuisance than a benefit at HF, can yield some outstanding DX on 4m. and 2m. and, in extreme cases, up to 432 MHz.

## News Items

G2DN reports on GB3SX, the Sussex beacon on 70 MHz, which will gladden the hearts of those who run Four anywhere north of Luton. Considerable changes are to be made in the installation which should improve reception radically. The Tx output power is to be raised to 15 watts from the present 7 watts, the gear is to be re-installed in better accommodation and the antenna, at

present a ground plane, is to be replaced with crossed dipoles. G8FET and G3DME are making all the arrangements.

Progress on the Chelmsford 70 cm. beacon continues satisfactorily. Whatever happened to the Durham 70 cm. beacon which was mooted some two years ago?

We have mentioned elsewhere in this piece that there is some confusion on the bands about the exact location of some stations now that the new County organisation is in operation for the Annual Tables. A good wall map, which shows both the old and the new boundaries, may be obtained quite cheaply from "Geographia" or local newsgagents. Operators in Counties which have changed name are advised to announce their new locations when calling "CQ"—it will help them and us.

G8EKP (Blackburn, Lancs.) now has SSB on 2m. from a Liner, and 20 watts to a 4-ele. beam on 4m. There is now much activity on 2m. from Aberystwyth, with regular skeds in operation on Sunday mornings at 1130z on 145.0 MHz (presumably with a QSY from the mobile channel when contact has been established). Participants are GW3BAZ, GW3DRV, GW3PXY, GW3RFA, GW3UYH, GW8FII and GW8JKU. Callers-in are welcome as are reports on these transmissions. GW8FII advises that three of these calls belong to the University of Wales staff, and they offer a welcome to any visitors during the summer months who make a prior appointment over the air.

G3BTO, a dedicated CW operator in both amateur and professional fields, does not regard with any favour the idea of establishing 144-20 MHz as a CW-calling channel. There seems to be some apathy among amateurs in this regard since this is the only letter we have received which comments upon the suggestion. It may also be noted that G3DAH has been keeping an eye on this frequency to record any use of it for purely calling purposes, and to date has heard none. Perhaps we don't really need it after all.

## Deadline

That wraps it up again and it only remains to say that the deadline for the April issue is Saturday, March 8 so please let us have all your claims, news and views by then to: "VHF Bands," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ. Cheers for now and *vy 73 de G3DAH*.

## CORRECTION NOTES

In the article "Pre-Amplifier for the Liner-2", the high-gain and low-gain figures in the tabulation, p.603, should be reversed—also in this Table S2 should read S3. On p.604, the last line in the first paragraph, right-hand column, should of course read "on" for receive.

For his article, "Mixer-VFO for VHF" on p.605 of the January issue, G3TWG says that L1 (p.605) could be tapped, as L3, to increase selectivity slightly, which would affect the tuning range of this coil within small limits.

# THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for April issue: March 6)

BY the time this appears, we shall be almost out of the winter season and into the rallies and other outdoor activities. Perhaps this is the time for those who have to set up programme details to start thinking. Some Clubs provide a "night out" by challenging another group to, say, a quiz, on a home-and-away basis, which can be quite fun, especially if some food can be organised. If you live in the part of the country where skittle-alleys are to be seen in the local pubs—not the tepin variety, please, they are too noisy and unlicensed!—a challenge to another Club, or even taking sides within the Club may provide a pleasant break from routine, and at the same time give the YL's and XYL's a bit of a chance to get to know each other and to join in the fun. And you notice, we haven't even thought about the normal run of visits and Field Days and whatever, yet. Who says you can't get a programme together in a remote part of the country?

## The Reports

Straight down the clip this time; so if you are on the lookout for a Club to join in your area, a quick look through the Secretaries' Panel will tell you if one has reported this time. If not, don't despair—there are at least as many who don't report this month who will show up in the lists over the next few months, and twice as many yet again who appear on our files—and if all this fails, you can always try starting a Club yourself!

Torbay are first this time, and point out that the Cheshire Home effort mentioned last month was in fact very much to do with radio; it is a Torbay project to get the Brixham Home radio-active, and Peter Allen is being coached for RAE; the rig is already installed (a transmitter) and being used on receive, but Torbay members are in the habit of going there and operating /A to keep up the interest. Meet the chaps of Torbay at the Hq., Bath Lane, Belgrave Road, Torquay, on March 29, when G3UXN talks about "Being an Apiarist." Before that, the annual dinner comes on March 8 at Templestone Hotel, Torquay.

The gang at *Bishops Stortford* had their AGM last time, and to the surprise of, we suspect, the committee, the turnout was the best for many months, if not indeed a record. The new committee has already met to consider the question of a Club Project, a two-metre version of the "Natterbox" of hallowed memory, with about a watt of RF out on a chosen frequency, a fixed receiver, with squelch, on the same frequency, and aerials to suit, so that any member wanting a QSO has only to transmit and all the other receivers will "open up" to him without the operators having to leave the "sharsh" running all the time; then they hope the rig will be acceptable by the TV! Other activities include talks, films, visits and whatever. Normal meetings will be held at the venue in Windhill, Bishops Stortford, where they have been since they started out, years ago; go up Windhill to the island at the top and just before you get there look for a white-fronted building labelled British Legion. Before 8.0 p.m. you'll find them in the bar, and afterwards in the committee room upstairs, on the third Monday in every month.

For the chaps with the cars and the mobile gear, *A.R.M.S.* is it. The current issue carries copies of the correspondence with the licensing people about the modified logging conditions now required of mobiles, and a note on the issuing of a WAZ certificate for /M's.

Northwards now, to *White Rose*, where the main item for March is the Mobile Rally on the 30th, surely the first such event of the season. They are to be found at the Hq., 83 Town Street, Armlay, where they have a shack, a workshop, library, lounge and canteen running every Wednesday evening, and also on the first Sunday in each month between 10.30 a.m. and 1.30 p.m.

On Fridays we find *Hull* opening up their place at 592 Hesse Road, near the flyover, and there is always something set up for them; however, we can hardly expect them to give us details this time, as the new committee had only just been elected when they wrote. No doubt the Secretary, G8GDD (see Panel), will be only too pleased to oblige, and give you all the latest gen if you get in touch with him.

Also on Fridays we have *Harrow*, in the Sea Cadets Hq., Woodlands Road; March 7 is a Practical, with Morse tuition, a station on the air and so on, which is followed on the 14th by a Junk Sale. Another Practical Evening comes up on the 21st, and as the 28th is Good Friday there will be no meeting.

Fridays again, this time at *Maidstone YMCA*, the "Y" Sports-centre, Melrose Close. Apparently they have recently been doing drastic things to their place, like knocking down walls to make a larger shack/workshop facility. Looking at the programme, we see the Beginners' class under G3XUN on March 7 and 21; March 14 is left to G3ORP to tell them a little of the way of attacking a contest, procedures and pointers. Good Friday is dropped.

*Cornwall* next, for Films and an extended natter period, on March 6. As usual this one will be at the SWEB Clubroom, Pool, Camborne.

The lads at *Hull University* are justifiably proud of having 11 members passing the RAE, to double their licensed membership—good going. They have a room at the Department of Electronic Engineering, and a Liner-2 available for loan to members. All the details from G8EDS at the address shown in the Panel, where he has a pigeon-hole in the Students' Union.

St. Martins Court, Kingston Crescent, Ashford, Middx. is home for the *Echelford* folks. Their routine is to foregather on the second Monday and the last Thursday of each month, 7.30 for 8 p.m. March 27 is an important date for them—the AGM.

March at *Star* implies March 6, for a Contest, the 19th for a session of VHF DX-chasing with the Club's Liner-2, and the 26th, when they will have a bingo night. Assembly is at the New Inn Hotel, Bramley Town Street, Bramley, Leeds, 13.

The scribe at *Derby* got himself into a bit of a twist this time with his dates, but luckily he spotted the mistake and wrote immediately to rectify it. The situation is that they are at 119 Green Lane, Derby every Wednesday evening. March 5 is a Surplus Sale, and on the 12th there is a talk on Microwaves. March 19th says the annual general meeting, followed by a Film Show on the 26th to complete the month.

At *Verulam* there is just the one meeting in the month at this time of year; it will be on March 19, for a talk and demonstration of Marconi test equipment for communications purposes.

A newsletter which is always looked forward to by this old scribe is that from the *Royal Navy A.R.S.* In the current issue one notices that the group will be operational on H.M.S. *Belfast* from March 28 for ten days.

The Secretary of the *G-QRP-Club*, G3RJV, is certainly doing his best to make the thing swing—and a secretary of that mind is probably more important to the success of a Club than anything else. They issue a newsletter, free with first enquiry, are planning nets and a technical information service to members, and want to have as members virtually anyone who is interested, as listener or transmitter, in QRP and the results to be obtained with simple equipment.

Although they are booked for every Tuesday at Mosses Community Centre, Cecil Street, Bury, the *Bury & Rossendale* crowd regard the second Tuesday in each month as the main meeting, with lecture, films or whatever; the others are given over to RAE and Morse on the one hand and to informal natter-sessions on the other. For March, the speaker is G3UGF, and his subject is Maritime Mobile.

Up in *Sheffield* the various radio amateur groups covering the University, the Polytechnic and the City are bound together in a sort of alliance which means that all three dovetail their activities. However, that didn't, it seems, prevent some *Workshop* members being locked-in after a recent meeting, no-one having told them of the exit route after hours! On Monday, March 3, G3TDZ will be talking about the business of Going Portable, in Room 3106 at Sheffield Polytechnic. March 17 at the Sheffield Hq., Sheaf House Hotel, Bramall Lane should draw the DX types, whether HF or VHF, as they have a discussion on "Town Planning and the Radio Amateur" at which there will be in attendance a representative of the Planning Department.

There should be lots of interest for the transistor-minded types at the next *Acton, Brenford & Chiswick* show, when they will have some radio handbooks of the 1937-1945 period to look at and compare against 1975 practice.

Ever heard of an Electron Microscope? If you haven't you had better go to the *Solihull* get-together on March 18, for a talk and demonstration by G3OOQ, at the Manor House, High Street—visitors are very welcome.

*West of Scotland* are still getting together at 81 Virginia Street,

### PLEASE NOTE!

Closing dates for this feature for the next few months will be: March 6, April 3 and May 8. These are final dates after which material cannot be taken in but will be held over for the month following.

Glasgow, although there is a move in prospect. At present the routine is to meet each Friday evening, and the programme outlined in the report sounds to be quite interesting. As there is quite a lapse of time between the arrival of the report and the date the piece appears in print, one would feel intending members or visitors would do well to contact GM3RHR beforehand in order to confirm the Hq. address—he is in the Panel.

Salisbury now calls itself "Salisbury Radio and Electronics Society" to reflect the change in interests of its membership over the years. If you want to look them up, try any Tuesday, 8.0 p.m. onwards, at Salisbury Activity Centre, Wilton Road.

\* \* \* \* \*

The Hq. of the *Sutton & Cheam* crowd is at the Library, Cheam, and they will be there next on March 18, to hear all about the G4CHV Two-Metre Transmitter.

"Programme to be arranged" is the brief message with the *Midland* newsletter; this refers to their date on March 18, at the Birmingham and Midland Institute, Margaret Street, Birmingham, 3, where the group have had a place for years; indeed, at times your scribe finds it a little difficult to remember the address and thinks automatically of the Midland Institute being in Digbeth!

Changes in the Top Table at *Reading* are notified by the Secretary—they can still be found on the first and third Tuesdays in each month in their clubroom at the White Horse, Peppard Road, Emmer Green.

It seems that at *Glenrothes* there is a meeting on the first Sunday in the month, with something special laid on—March 2 is down for some films—and in addition they get together every Wednesday evening in their Clubroom, Douglas Road, Leslie.

Back in January we commented on the way some groups seem to be so consistently strong and healthy while others wither and fade or are erratic in their success level. The junior committee member of

*Shefford* wrote in to us as a result; he says that of the 46 meetings in 1974 the average attendance was 31, and there were three meetings showing 45 or better booked in; this with a total of 31 licensed members, and many chaps being over ten miles "by crow" from Hq. or several more road miles and still regular attenders. In fact, the writer of that letter was so keen to make us get his point—and fair enough at that—that he forgot to rub in the name of the Hq. However, old scribe seems to recall it as being the Church Hall in Amphill Road, and the Secretary—see Panel—can doubtless tell you all the rest of the story.

Somebody must smoke "Erinmore" at *Cray Valley*, where the activity tables in the newsletter show the names of three YL members—not to mention some of the other members, of course! They have the first and third Thursdays booked each month, the first one being the formal and the other one set aside for a natter. Both are held at Eltham United Reformed Church Hall, 1 Court Road, London, S.E.9.

March 3 sees *Worcester* gathering to listen to G3TQZ on Digital Frequency Synthesis, and on March 15, they turn their attention to Video Tape Recording; in both cases the venue is the Old Pheasant Inn, New Street.

All sorts of changes seem to be in prospect for the *North Kent* chaps, involving the newsletter and its production, also it seems that the Hq. is due to be "re-developed" out of existence fairly soon so that feelers are out for a new place. Anyhow, for the moment it is still a question of looking for Bexleyheath Clocktower, and then the United Reformed Church Hall for meetings on the second and fourth Thursdays of every month.

Every Friday evening seems to be the rule at *Coventry* where the venue is Baden-Powell House. Various activities are organised for these evenings, lectures, nights on the air, and whatever. More exact details from G3HDO, as Panel.

There was so much of interest to be crammed into the current copy of the *Cheltenham* RSGB newsletter this time that they had to leave

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

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London, W3-8LB.  
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CHELTENHAM (RSGB): G. D. Lively, G3KII, 131 Mandaring Way, Wymans Brook, Cheltenham (34785), Glos.

CHILTERN: F. G. Rose, G2DRT, 84 Cock Lane, High Wycombe, Bucks. (Penn 4240.)

CORNISH: H. Webster, G3XTF, Crandale, Gillyfields, Redruth (6905), Cornwall.

COVENTRY: B. W. Arnold, G3HDO, 159 Oldfield Road, Coventry, West Midlands, CV5-8FQ.

CRAY VALLEY: P. F. Vella, G3WVP, 78 Hurst Road, Sidcup, Kent.

CRYSTAL PALACE: G. M. C. Stone, G3FZL, 11 Liphook Crescent, London, SE23-3BN. (01-699 6940.)

DERBY: F. C. Ward, G2CVV, 5 Uplands Avenue, Littleover, Derby (21931), DE3-7GE.

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EXETER: A. W. Bawden, 232 Exwick Road, Exeter, Devon, EX4-2BA.

GLENROTHES: A. Givens, GM3YOR, 41 Veronica Crescent, Kirkcaldy, Fife, KY1-2LH.

HARROGATE & KNARESBOROUGH: D. Boniface, G4DSC, 11 Holmefield Road, Ripon.

HARROW: L. Light, G3KDL, 12 Chippendale Avenue, Wembley, London, HA9-6NQ. (01-902 2570.)

HEREFORD: S. Jesson, G4CNY, 181 Kings Acre Road, Hereford (3237).

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HULL (University): J. Hind, G8EDS, Students Union, The University, Cottingham Road, Hull, Humberside, HU6-7RX.

MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead (20107), Berks., SL6-5LA.

MAIDSTONE YMCA: G. H. Taylor, G4BNI, 26 Valley Drive, Loose, Maidstone (43976), Kent.

MIDLAND: A. L. Walton, G3ZKO, 243 Barnes Hill, Birmingham, B29-5JN.

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NOTTINGHAM: S. F. Claringburn, G8HLD, 49 Fernleigh Avenue, Westdale Lane, Nottingham, NG3-6FN.

QRP: Rev. G. C. Dobbs, G3RJV, 61 Park Street, Cleethorpes, South Humberside, DN35-7NG.

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ROYAL NAVY: Lt. P. Gadsden, G3MTP, c/o Royal Navy A.R.S., H.M.S. *Mercury*, Leydene, Hants.

SALISBURY: A. C. A. Newman, G2FIX, 74 Victoria Road, Wilton, Salisbury, Wilts.

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SHEFFORD: R. Squire, 10 Britains Rise, Lower Stondon, Hemlow, Beds., SG16-6JT.

SOLIHULL: L. G. Boswell, G4AEJ, 170 Kestrel Avenue, Yardley, Birmingham, West Midlands, B25-8QX.

SOUTH MANCHESTER: D. Holland, G3WFT, 7 Alcester Road, Sale, Cheshire, M33-3GW.

STAR: T. Leeman, G4BUU, 115 Asket Drive, Seacroft, Leeds, West Yorkshire.

STEVENAGE: C. Barber, G4BGP, 473 Canterbury Way, Stevenage, Herts., SG1-4EQ.

SUTTON & CHEAM: A. Keech, G4BOX, 26 St. Albans Road, Cheam, Sutton, Surrey.

THAMES VALLEY: R. Blasdell, G3ZNV, 341 Walton Road, West Molesey, Surrey, KT8-000. (01-432 2343.)

TORBAY: M. Yates, G3UIQ, Top Flat 23 Waveley Road, Newton Abbot (3025), Devon.

VERULAM: H. Young, G3YHY, 93 Leaford Crescent, Watford, Herts., WD2-5JQ.

WAMRAC: L. Colley, G3AGX, Micasa, 13 Ferry Road, Wawne, Hull, Humberside, HU7-5XU.

WEST OF SCOTLAND: K. Drinkwater, GM3RHR, 41 Southesk Avenue, Bishopbriggs, Glasgow. (041-772 3085.)

WHITE ROSE: K. R. Robson, G3VTY, 34 Saint James Drive, Horsforth, Leeds, West Yorkshire.

WIRRAL: H. J. Crofts, G3DLF, 3 Barmouth Road, Wallasey, Merseyside. (051-638 2515.)

WOLVERHAMPTON: J. Nicholls, G8GCV, 27 Denham Gardens, Finchfield, Wolverhampton, West Midlands, WV3-8LW.

WORCESTER: B. A. Jones, G8ASO, 12 Woodside Road, Larkhill, Worcester (29208), WR5-2EG.

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



We don't often hear from the Jersey Amateur Radio Society, but that they are very much an active group "in being" is shown by this picture of their turn-out for a recent Field Day.

out the Hq. and the meeting dates! This means we have to refer you to G3KII for the latest information and the venue—again, see Panel.

On now to Maidenhead, with G3FVC suggesting if we want to know about the Club we should turn up at the AGM! Let him take care, lest we do just that! March 6 is down for a talk on an Integrated-circuit Receiver for Eighty, by G4CDL and G4CDZ, postponed from an earlier date; and on March 18 there comes this AGM. Time, 7.30 p.m.; place, British Red Cross Hall, The Crescent.

March 15 is the date for *Crystal Palace*, starting at 8.0 p.m. at Emmanuel Church Hall, Barry Road, London, S.E. 22; G8HAX is to present the second part of a series on Logic Circuitry.

*Thames Valley* have had an active existence for 42 years, and for 38 of those years G8SM has been helping things along; in recognition of this, the Club have made him president. The group have their Hq. at the King George's Hall, Esher.

Nice to see that *WAMRAC* is booming once again after the lean years; this group is open to all those of the Methodist persuasion and interested in Amateur Radio, either as licensed or SWL. Details from G3AGX, the Secretary.

Changes in dates are to be watched out for at *Chiltern*, March 4 is down for an informal and the programme for March 26 is yet to be settled. It should be noted that the normal rhythm is restored in May. This does not mean a change of venue; they are still to be found at the Ernest Turner Works, High Wycombe.

March 4 is the Natter Night; at the "Marquis of Granby," Hooley Lane, Redhill, and March 25 the formal, in St. Mark's Church Hall, Alma Road, for the *Reigate* group. At the latter meeting, G3TDR will be discussing the literature in the Amateur Radio context.

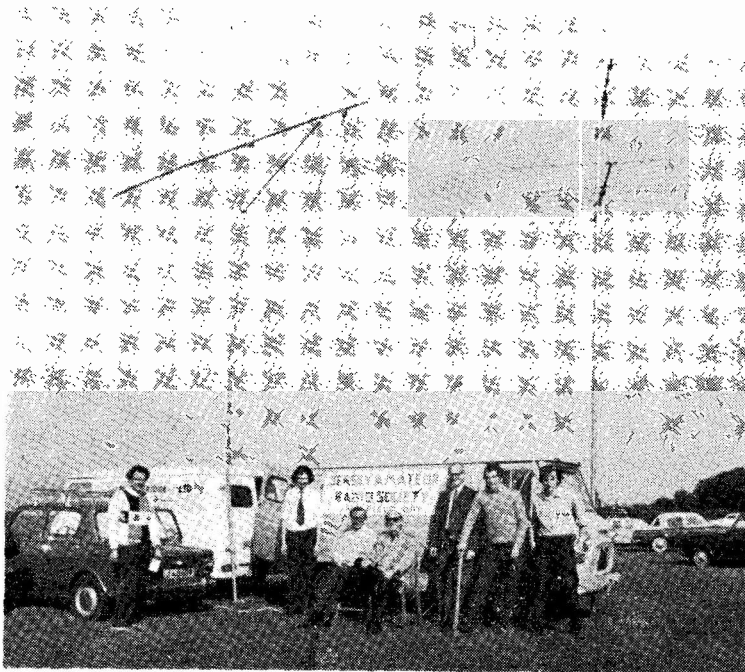
March 6 and March 20 are the dates, following the usual form, for the *Stevenage* chaps, the latter being the AGM. As for the venue, it is the Hawker Siddeley Dynamics Staff Canteen in Gunnels Wood Road; cross the railway, heading west, up Six Hills Way, and turn right into Gunnels Wood Road; and H.S.D. is on your right.

A little bit of history now! Although they have been existent in their present form since 1947, the *York* group have been made aware that there was a Club in the city as far back as 1925—the newspaper report on the first meeting said that 25 members had enrolled and a "public demonstration" was to be put on to stimulate interest. What the present members want to know is, simply, are any of those original 25 still readers now? One would expect 50 years to have taken their toll, but those old pre-war amateurs were a durable lot and many of the survivors of that era are still active on the bands. Any offers, then—either to G3WVO, at the York address in the Panel, or to your "Club Secretary."

Over to *Milton Keynes* now, on the second Monday of each month at the Lovat Hall, Silver Street, Newport Pagnell. This implies March 10; and that indeed is the date for a talk on "Cable Television" by a member of Milton Keynes Development Corporation.

Usually the *Wirral* Newsletter has some reference to the programme details required for this column in the guise of "future events," but no such luck this time; not to worry though, as we happen to know it is the custom to foregather at the Sports Centre, Grange Road West, Birkenhead, on the first and third Wednesdays of each month at 1945 clock, and memory says they always find someone to provide the entertainment, by talk or films or whatever.

Much the same as usual could sum up the *South Manchester* situation; Mondays for the VHF types at the club shack at Greeba, Shady Lane, Manchester 23, plus the Fridays at Sale Moor Community Centre, Norris Road, Sale. For the latter, we see March 7 starts things off with a Mystery Lecture, and on the 14th there will be



a Progress Report on the current project. There should be a good turn-out for Bill Lowe, G3UBO, the Bandit himself, on March 21—non-members welcome—while March 28 will allow time for a good old natter session.

*Harrogate & Knaresborough* report says the group plans entries with the Club call, G3HRS, in various contests. The letter ends with the statement that they foregather "at the usual time and place"—of which we have no record! The quick answer is to write to the address shown in the Panel.

March for *Nottingham* is as follows: On the 6th, they have their regular "Forum" session, followed on the 13th by a Junk Sale—an inauspicious date for buyers?—and a talk on a subject to be announced on March 20. Finally there is March 27 for an Activity Night. These sessions are all slated to be taken at the Hq., Sherwood Community Centre, Mansfield Road.

Neachells Cottage, Danescourt Road, Stockwell End, is home for the *Wolverhampton* group. They seem to be running Thursday evenings primarily for the beginners, and will continue to do so until the RAE is over, plus the usual Monday sessions. This gives us (Thursdays) March 6, for TVI and Hi-Fi interference; March 13 for Operating Techniques; 20th for Mobile Equipment and Operation; and the 27th is missed. Now to Mondays, with March 3 to G6GR to talk about electronic ignition for the car; March 10 for a Natter, night; the 17th for G3UBX to discuss simple D/F gear; the 24th a committee meeting and the 31st scrubbed as it is Easter Monday.

Not so many years ago the *Hereford* newsletter was complaining of the lack of activity; but there is little to complain about these days, with 55 members in the book as at December 31 last year. For them, the routine is to get together on the first and third Friday in each month; March 7 is down for a talk about local electricity supplies, and the 21st is to be announced. Hq. is at the County Control, Civil Defence Headquarters, Gaol Street, Hereford.

A talk on Aircraft and Marine Radio is down for *Exeter* on March 10. Club Hq. is at the ATC Hut, Colleton Hill (at the end of the Quay), and the start time is 7.45 p.m. The Secretary mentions in his letter that "New Members are wanted so visitors should be prepared to be solicited!"

#### Finis

At least, for another month. For next time, you will be telling us all about your April activity plans, not forgetting to mention where you meet and when, your Secretary's name and address, plus telephone number if that is possible, all to reach us by first post Thursday, March 6, addressed to "Club Secretary," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18-1RQ. See you then.

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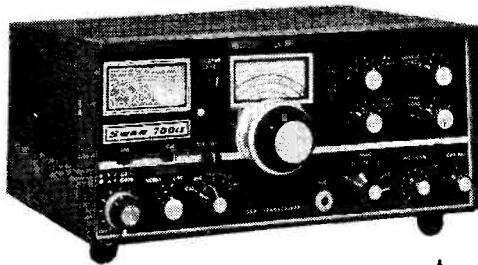


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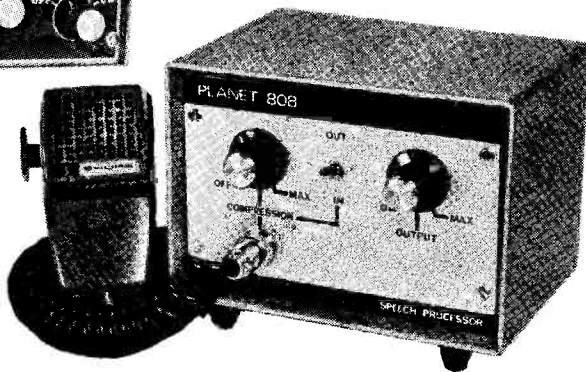
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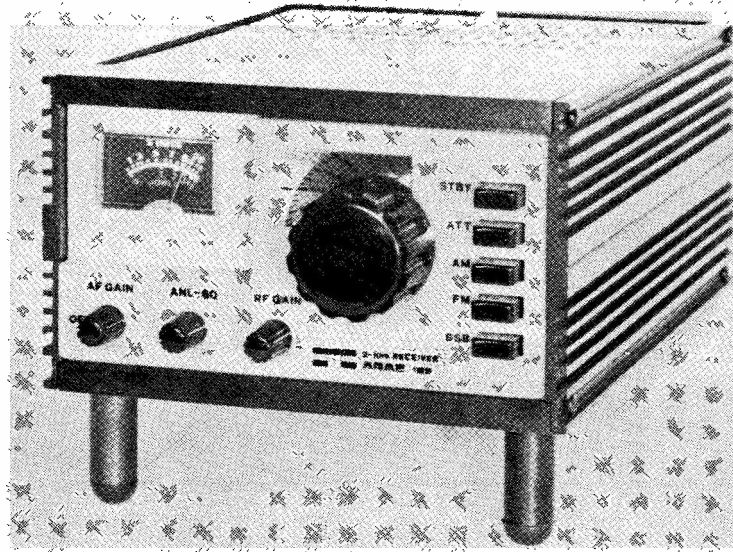
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- ★ Two FET R.F. amplifiers and FET mixer.
- ★ Oscillator chain uses a 10I MHz crystal with oscillator output socket to drive the Europa 70 transmit converter.
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### EUROPA B 10 METRE TO 2 METRE (OR 4 METRE OR 6 METRE) RECEIVE AND TRANSMIT CONVERTER—Ex-stock



1000s of happy users, why not join them? In response to the RSGN reviewers comment on the self tap screws holding the case, we are now threading the holes and using chrome plated 4BA instrument screws. The comment on crystal frequency drift had already been attended to in the Europa B by the use of a ten times higher specification crystal—'0005%' in place of the '005%' tolerance used previously.

- ★ The Europa B now includes an aerial change over relay and SO239 aerial socket for ease of fitting thick coax.
- ★ The answer to reliable VHF communication, tropo, or Oscar.
- ★ Any mode fed in comes out. SSTV, RTTY, CW, SSB, AM, etc. The Europa makes sense! For the cost of the Europa and a 28-30 MHz transceiver or transmitter—receiver combination, you get:
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Designed like our Europa 2 metre unit to have sufficient power for satellite communication. 70W input Hybrid design similar to the Europa B. Size: 6" x 6" front panel, 12" deep. Price: £43-20.

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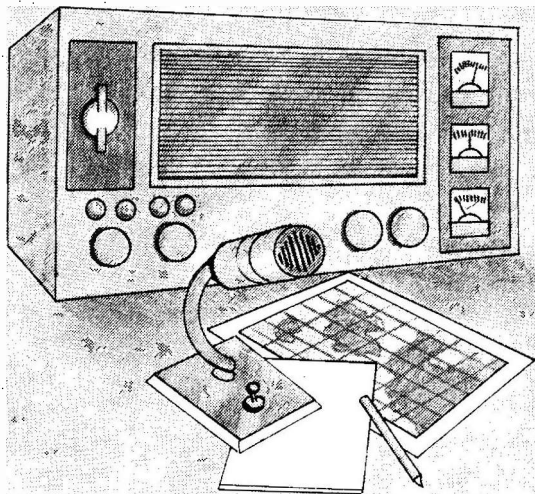
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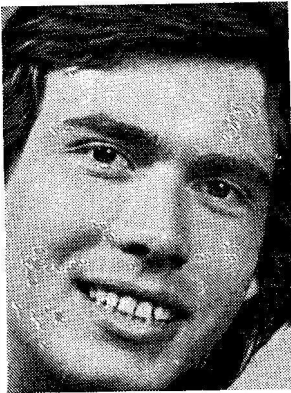
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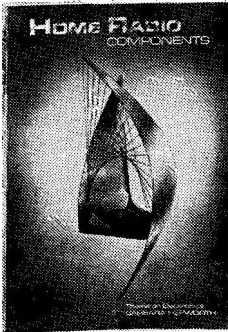




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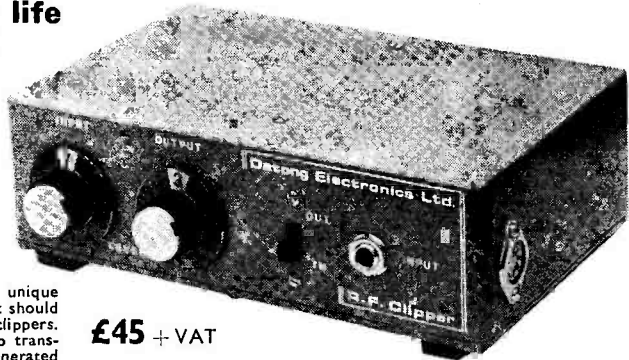
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WANTED any clean copies of "Newnes Radio and TV Servicing" from 1963 onwards. S.A.E. with details please.

## SMALL ADVERTISEMENTS

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**ANTENNAE:** G-Whip, J-Beam, 18-AVT, HQ-1.—Holdings, 39-41 Mincing Lane, Blackburn, Lancs. (Tel: 59595/6).

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**APRIL Issue:** Due to appear March 28. Single copies at 36p post free will be sent by first-class mail for orders received by March 26, subject to supplies being available.—Circulation Dept., Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

### READERS' ADVERTISEMENTS

3p per word, minimum charge 50p payable with order. Add 25% for Bold Face (Heavy Type). Please write clearly, using full punctuation and recognised abbreviations. No responsibility accepted for transcription errors. Box Numbers 15p extra. Replies to Box Numbers should be addressed to The Short Wave Magazine, 55 Victoria Street London, SW1H 0HF.

### READERS

**WANTED:** German military radio equipment of W.W.II vintage. Details and price please. (Belgium).—Box. No. 5391, Short Wave Magazine Ltd., 55 Victoria Street, London SW1H-0HF.

**FOR SALE:** FT-DX400 with external VFO and speaker, £175. Hy-Gain TH-3 Mk. III beam, never unpacked, £70. TR-44 rotator, as new, £35. 30-yds. RG8U coax, brand new, £15. Galvanised steel tower, 30-ft. high by 10-in. triangular-section, stripped down, £30. Trio JR-500SE Rx, £35. All in mint condition. Delivery arranged anywhere in England, free. Owner returning to VK3.—Ring 01-218 5967 office hours, or write Box No. 5392, Short Wave Magazine Ltd., 55 Victoria Street, London SW1H-0HF.

**SALE:** Stolle 2010 auto-rotator, with extra bearing, £20.—Ring Gregory, G3LCV, Derby 701516 (QTHR).

**WANTED:** VHF receiver for aircraft bands, 118-138 MHz. Must be good. Details and price please.—Ring Pesani, Wokingham 785746.

**SELLING:** Eddystone 830/7 Rx, with plinth speaker and Hamgear PM-IIC preselector, mint condition, £340. Buyer inspects and collects. (London).—Box No. 5393, Short Wave Magazine Ltd., 55 Victoria Street, London SW1H-0HF.

**FOR SALE:** Dumant oscilloscope, needs a set of test leads, hence only £20. Buyer collects. **WANTED:** Handbook for AR88LF, to buy or borrow.—Ring Saunders, Chieveley (Berks) 620, evenings.

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**WANTED:** Good key, straight or bug. Also low-capacitance low-loss ceramic four-pole three-way switch.—Miller, GM4AGS, QTHR. (Tel: Newport-on-Tay 3113).

**OFFERING:** Collins 51-J Rx, 0.5 to 30.5 MHz in 30 bands, 1 kHz readout, 1 kHz, 3 kHz and 6 kHz filters, with cabinet and manual. Sentinel-X 2m. converter, IF 28-30 MHz, with PSU. Offers? **WANTED:** 3-ale beam and rotator for 10-15-20m.—Smith, GM4DNM, St. Ninians, Cardenden, Fife, KY5 0JG.

**WANTED:** R.1155 receiver, must be in good working order. Required for young SWL. Will collect Hants/Dorset area. Details and price, please.—Lees, 450 Castle Lane West, Bournemouth, Hants. (Tel: Bournemouth 517200 after 6 p.m.).

**SALE:** Drake CC-1, with SC-2, SC-6 and CPS-1, £30. K.W. antenna switch, £2.50.—Baker, 65 Crompton Street, Chelmsford, Essex. (Tel: 0245-69034).

**WANTED:** Heathkit SB-220 linear amplifier. Eddystone 888A Rx. K.W. Vespa Mk. II or KW-204 Tx. Must be in good condition. Details and prices please.—Ring Rabiohns, G3YBG, Exeter 74607.

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**FOR SALE:** Tower, triangular galvanised steel construction, consisting of six 8-ft. sections, will sell with or without AR-20 rotator and two-metre Sky-beam, £75 or near offer.—Lockley, G8HKM, QTHR. (Tel: Nantwich 63961, daytime).

**SELLING:** Europa two-metre transverter, £60. Yaesu Sigmasizer, excellent condition, £100. Trio 2m. walkie-talkie with extra channel, £65; free chargeable batteries. K.W. SWR bridge, unused, £5.—Goodbody, G3YQE, QTHR. (Tel: 01-592 7800, 9 a.m. to 6 p.m.).

**APRIL Issue:** To appear March 28, single copies at 36p post free will be despatched first class mail on receipt from printers. Orders by March 26, with remittance to: Circulation Dept., Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

**SALE:** Record player, mains transformers, short wave components, valves, meter 300v./mA., £10 or near offer. **WANTED:** Receiver, under £50. Exchanges or W-H-Y? (London).—Box No. 5395, Short Wave Magazine Ltd., 55 Victoria Street, London SW1H-0HF.

**MANUALS:** 250 available on most types of Tx, Rx and 'scopes.—Brooks, 5 Farrant House, Winstanley Road, London S.W.11.

**FOR SALE:** Drake R4-A Rx, without speaker, excellent condition, £125.—McHenry, 2 Park Town, Oxford. (Tel: 0865-56321).

**FOR SALE:** FL-DX400 Tx, complete with all plugs and leads, as-new condition, £150. Trio JR-599 Rx, coverage 160-2m., with all accessories, mint condition, £130. S.S.M. "Europa" transverter, complete with all accessories, mint condition, £50. Cash sale. Buyers to inspect and collect, or carriage extra.—Stickings, G8FZH, 79 Landseer Avenue, Painters Ash, Northfleet, Kent. DA11 8NW.

**SELLING:** Complete home study course for RAE, with model examination answers, £5. "Denshi" block electronic kit, builds 3 to 7 transistor radios, interphone, Morse practice oscillator etc., £5. Trio 9R-59DS, unmodified and as new, £38. Joymatch IIIA ATU, Tx/Rx, £8. FT-2FB, three months new, usual channels, £80. Eddystone EC-101, £38.—Ring Ward, 01-648 6117.

**WANTED:** Pensioner SWL requires discarded S.640, Mohican GC-1U or similar Rx. Also rotator and BC-221. Very cheap appreciated. Postage refunded. (Yorks).—Box No. 5396, Short Wave Magazine Ltd., 55 Victoria Street, London SW1H-0HF.

**WANTED:** American-type straight key on ball bearings. Also Junkers straight key.—Edwards, 241 Hyde Park Road, Leeds 6.

**WANTED:** R.216 and PSU. Details and price please.—Ring Fawcett, 061-665 1288 (Oldham, Lancs.).

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**READERS are reminded that if they hold an official call sign, in their own interests this should always be quoted in our Small Adv. notices, particularly where Tx equipment is involved. No charge need be made for the call sign in calculating wordage—Small Advertisement Dept.**

**FOR SALE:** Eddystone EC-10 Mk. I, as new condition, £45. Eddystone Type 659/650 marine Rx, £10 or near offer. Truvox PD-95 tape deck, new, £10. Pye UHF base station Rx, £5.—Harvey, 9 Palace Grove, Bromley, Kent. (Tel: 01-460 4061 evenings, Orpington 39336 daytime; 0634-73319 weekends, Medway).

**SELLING:** Drake R4-C with MS-4, coverage 160m., with handbook and cartons, bought January 1975, absolutely mint (cost £296), unexpected house purchase forces sale at £186, plus your KW-77, FR-50B and KW-107 etc.—Pearson, 8 Bridge Street, East, Peshaw, Nr. Houghton, Tyne Wear.

**WANTED:** FL-2000B or SB-200/220. Details and price please.—Wilson, G3YQA, QTHR. (Tel: 0482-798763).

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**SALE:** K.W.-109 QRO ATU, new and unused, £60. Vespa Mk. I with PSU, K.W. reconditioned, £50. Hy-Gain 18AVT/WB, new and unassembled, £35. K.W. SWR meter, 52/75-ohm, £7. K.W. Dummy Load, 52-ohm, £5. K.W. E-Zee Match, £12. K.W. trap dipole, £10. K.W. 12v. transistorised PSU, latest model, for KW-2000E, £30. K.W. p.e.p. meter, £7. K.W. Q-multiplier, early model, £5. Shure 201 mic., £3. All items postage at cost. (Kent).—Box No. 5399, Short Wave Magazine Ltd., 55 Victoria Street, London SW1H-0HF.

**SALE:** Drake R4-A, good condition, re-valved, Top Band to 10 metres, £95.—Cummins, Aubrey Dene, Mill Road, Denmead, Hants.

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**WANTED:** Electronic keyer, preferably mains-  
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**SELLING:** Heathkit HW-100 with mic., AC/PSU and  
speaker-cabinet, fitted with CW filter, £110.—Cooke-  
Sanderson, G3UQZ, QTHR. (Tel: 021-373 8806).

**FOR SALE:** Lafayette KT-320 general coverage  
receiver, 0-55 to 30 MHz, excellent condition and  
very little used.—Ring Mirrington, Brentwood  
212060.

**SALE:** Skywood CX-203 general-coverage/amateur-  
band receiver, 200 kHz-30 MHz, mint condition, £25  
or near offer. PM-IIB preselector, £7.—Ring Krestin,  
01-346 1893.

**FOR SALE:** Superb SB-102 with AC/PSU, brand  
new, professionally built, inspected by Heathkit,  
perfect performance and condition, £220 or near  
offer. Will gladly demonstrate. Genuine reason for  
sale. (Wilts).—Box No. 5398, Short Wave Magazine  
Ltd., 55 Victoria Street, London SW1H-0HF.

**SALE:** Yaesu FR-DX400 de luxe Rx, £160. FL-  
DX500, £140. Both used a few hours only. Shack  
clearance: Condensers, resistors, magazines, etc.  
Radio-compass rotator and indicator, suitable for  
small beam, given to purchaser of Tx and Rx. Buyers  
inspect and collect.—Kirkbride, G3ODT, 5 Lome-  
shaye Road, Nelson, Lancs.

**WANTED:** Q-Multiplier to cover 1.6 kHz. Or  
would buy essential parts to make same, i.e. Hi-Q  
coil or 1.620 kHz xtal. Details please.—Ring Handy,  
Coventry 22201.

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old, with all fittings and original carton, plus home-  
built PSU, £125. Eddystone 898 dial, as new, with  
unmarked scale, £10 or near offer.—Whalley,  
G8HOQ, QTHR. Tel: Newcastle (Staffs.) 619593  
office hours.

**WANTED:** Books, diagrams on microwave receivers,  
telemetry, radar, amateur television. **FOR SALE:**  
Heath GR-78 short-wave receiver, £50. Sinclair  
calculator, assembled, £20. Hamgear preselectors,  
PM.IID battery powered, £7-50; PM.IIDX, mains,  
£10-50.—Hughes, 11 Henley Road, Ludlow, Shrop-  
shire.

**FOR SALE:** HRO-5 Rx with 14 coil packs and  
power supply, speaker, £20. Will deliver reasonable  
distance. **WANTED:** Kokusai Type MF455-15K  
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**CLASSIC '50's or '60's Rx** wanted, with gear driven  
separate dials, e.g. SX-88, SX-100, NC-183D, HQ-  
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still original, working or not (with handbook?).  
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Milford, Leeds, LS25 5AY.

**SALE:** FT-75 with ten extra crystals. AC and DC  
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Barry, G3UFU, 15 Fairlawn Court, London W4  
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**SELLING:** FL-DX400 Rx and FR-DX400 Tx; latter  
covers 80-10m., Rx covers all bands, £250 or near  
offer.—Ring Rogers, G8IJP, 0272-834776 evenings  
(QTHR).

**SELLING:** Drake R4-C, £210. K.W. Model 204 with spare 6146's, £120. Heath OS-2 'scope, £18. ETM2B keyer, £18. Junkers hand key, £9. All excellent condition. Will arrange carriage.—Marshall, G4BJF, QTHR. (Tel: Loughborough 63324 after 6 p.m.).

**FOR SALE:** Yaesu FT-75 with xtals for 3740, 3750, 3760, 7065, 7075, 7085, 14200, 21400 and 28550 kHz, DC-75 mobile PSU, G-Whip Tribander with 80m. adaptor, £100 the lot.—Ring Tinkler, G3SMR, 0536-3500 (QTHR).

**OFFERING:** Heath SB-200 linear; SB-620 spectrum analyser. Both excellent condition. Officers?—George, G4AMT, QTHR. (Tel: c/o St. Buryan 324).

**WANTED:** K.W. Vespa Tx, K.W. E-Zee Match ATU, Electronics QP-166 coil unit. Good unmodified condition essential. Details and price please.—Tibbert, 11 Darwin Road, Mickleover, Derby (511434), Derbys.

**FOR SALE:** Unique opportunity and investment: Carl Braun SE-600 (the "Rolls" of two-metre transceivers), as new, with digital readout, all modes, CW/AM/FM/USB/LSB, independent Tx and Rx tuning to better than 1 kHz with vernier tuning; split frequency working—simplex or duplex on any frequency, squelch, noise limiter, speech clipper, p-t-Vox, AC mains or 12v. DC, with plugs, comprehensive handbook, mic. etc. Check on new price and realise this is a bargain at £550 or nearest offer.—Davies, GW8EHR, 153 Iscoed Road, Hendy, Nr. Llanelli, Dyfed.

**WANTED:** Racal MA-79, or circuit for photocopying. Any operational information from a user of this unit appreciated.—Hobin, G3XIX, QTHR.

**WANTED:** Transceiver suitable for Club use (G3TAD), coverage 80-10m., with or without 160m., will pay up to around £200. Any offers?—Ring Rogers, G8IJP 0272-834776 evenings (QTHR).

**EXCHANGE:** Trophy 8 receiver with speaker, 1940, model BFO, very good condition, would exchange for Trio 9R-59DS/E with cash adjustment.—Bond, 28 King Court, Capworth Street, London E10.

**SALE:** Complete HRO for spares: Coils, £1 each; Dial, 50p; Drive and capacitors, £1.50; PSU, £1.50. Etc. All plus postage. Send s.a.e. with enquiries please.—Grainger, 50 John Street, Brierley Hill, Staffs.

**SELLING:** Tiger Z-Match ATU and 75-ohm dual antenna switch, £10. R.C.A. valve Type 6883B/8032A/8552, and unused 12v. 6146, £2.—Michaelson, G3RDG, 01-455 8831 (QTHR).

**WANTED:** Morse recorder; also Hallicrafters VHF receiver in working order. Details and prices please. (London).—Box No. 5389, Short Wave Magazine Ltd., 55 Victoria Street, London SW1H-0HF.

**OFFERING:** HRO-M, with new octal valves, re-crackled case, new dial and S-meter, all paper capacitors replaced with metal ones, all coils, four bandspreads, handbook, in perfect condition. Bendix RA-1B, 150 kHz to 15 MHz, with modernised front and handbook, very good condition. Codar pre-selector, all-matching black/silver. Sensible offers? **WANTED:** American Signal Morse key (straight) with solid brass base. (Leeds).—Box No. 5390, Short Wave Magazine Ltd., 55 Victoria Street, London SW1H-0HF.

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**WANTED:** Young SWL requires inexpensive communications receiver. Details and price please. Can collect 30 miles.—Garner, 2 Dane Drive, Cambridge.

**FOR SALE:** AR88D in good condition with S-meter and manual, £30. QRP Tx, 160/80m., £5. Tiger 150 Tx, CW/all-bands, large, £7. 813's, £2 each. UM-3, £2. Home-built LPF, £1. K.W. LPF, 75-ohm, £5. Old TV set for monitoring TVI, £2. Plus lots of junk.—Ring Prater, G4AEI, Reading 85123, ext. 7613, working hours.

**WANTED: EB-37 or EB-35. Details please.—Hall, 2 Napier Road, Edinburgh EH10 5BD.**

**SELLING:** IC-21 two-metre transceiver, with six pairs of crystals and VFO, £120.—Williams, GW3YLZ, QTHR. (Tel: 0745-590066).

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**SELLING:** Yaesu FR-400DX receiver, almost new and very little used, in unmarked excellent condition and under guarantee, very good reception, exceptional bargain at £135; (saving £20 at today's price). SP-400 speaker, new, £9. No offers please.—Bowyer, 27 Woodend Road, Deepcut Camp, Camberley, Surrey.

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**WANTED:** Buy or borrow circuit details of Geloso G-212-TR transmitter.—Ring Peaty, G4DOY, Chesterfield 75325 after 6 p.m. (reverse charges).

**SALE:** AR88D, re-aligned and with manual, £45. Prefer buyer collects.—Ring Catherall, Rossett 570738 (Clwyd).

**WANTED:** Trio JR-310 receiver in good condition, preferably with Top-Band and 2 MHz coverage on 10 metres. Others considered. Details and price please.—Ring Booth, Tamworth 68720.

**WANTED:** Trio TX-599 transmitter in proper working condition and well looked after. Details and price please.—Whitehead, G4CSA, 91 Blackpool Road, Ansdell, Lytham St. Annes (7680), Lancs.

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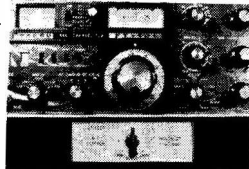
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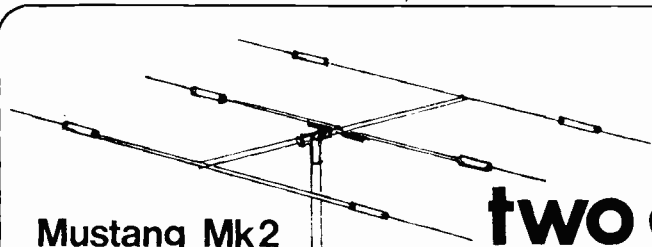
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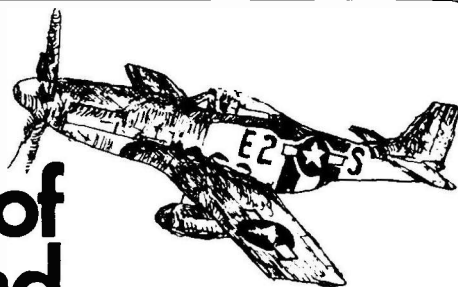
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