

The SHORT WAVE Magazine

VOL. XXX

NOVEMBER, 1972

NUMBER 9

TTRIO



PS 515

TS 515

TL 911

PRICES ARE DOWN

- | | | | | | |
|---------|-------------------------------|---------|-------------|----------------------------|---------|
| 9R 59DS | General Coverage Receiver | £49.50 | TS / PS 515 | SSB Transceiver | £210.00 |
| JR 310 | Amateur Bands Receiver | £75.00 | TL 911 | 2KW PEP Linear Amplifier | £140.00 |
| JR 599 | Amateur Bands Receiver | £185.00 | TR 2200 | 2M Personal Transceiver | £62.50 |
| TX 599 | Matching transmitter to JR599 | £185.00 | SP 5D | Communications Loudspeaker | £4.50 |



9R 59DS

JR 599

JR 310



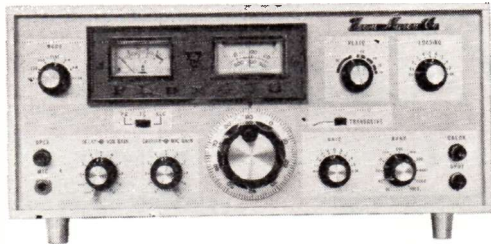
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OUR AESU MUSEN DISTRIBUTOR

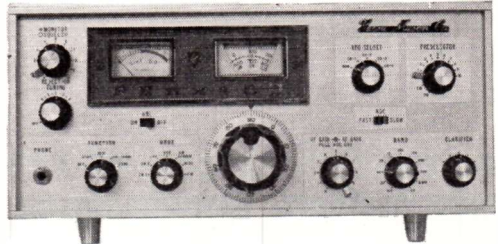
When you buy YAESU from their U.K. main distributor you get the best engineering standards in the world and superb performance too. All items carry the YAESU 12 months guarantee. We also do free labour on warranty claims, and carry an excellent stock of spares.

WESTERN



The FLDX400 Transmitter runs 240w. p.c.p. and is designed to transceive with FR100B or FR400. AM and "break-in" CW keying are fitted. SPECIFICATION: Frequency coverage 3.5-4.1, 6.9-7.5, 13.9-14.5, 20.9-21.5, 27.9-28.5, 28.5-29.1, 28.9-29.5 MHz. Selectable USB or LSB. Stability: less than 100Hz/hr. after warm-up. Sideband suppression 50dB. Carrier suppression better than 50dB. Nesting facilities for zero-heating will receive if not switched to "transceive". Provision for listening on transmit frequency as well as the frequency to which the receiver is tuned. ALC fitted to secure effective performance and a "clean" signal. VOX/PTT operation. Relays operate linear amplifier and receiver. Dial read-out to 1 kHz.

★
NEW
FR400SDX
fitted 4m
+ 160-2m!
(Ex Stock)



The FR400SDX (Super de luxe) receiver is now available fitted with 4m. This model is only available from us and covers 160, 80, 40, 20, 15, 11, 10, 4 and 2m. 4 mechanical filters are fitted for SSB (2.4 kHz), AM (5 kHz), CW (0.6 kHz) and FM 24 kHz. Dial readout to 1 kHz from stable VFO. Rejection tuning to notch-out unwanted heterodynes. Clarifier control permits adjustment of SSB/CW received signals when working transceive. VFO select for internal VFO or 4 crystal frequencies. Monitor facility enables transmitted signal to be monitored at all times. Squelch circuitry silences receiver for noise free AM/FM reception. FM discriminator fitted to SDX model, 25/100 kHz calibrator. WWV band to check calibrated. 3 step AGC. Built-in noise limiter. Basic FR400 receiver from £120.

YC305 FREQ. COUNTER (Ex Stock)



FL2000B
(Ex Stock)

The FL2000B operates at a maximum i/p of 1200w. p.e.p. on SSB and covers 80-10m. All grid i/p circuitry is screened. Two cooling fans fitted, one for each rugged 572B carbon anode tube. Built-in SWR bridge functions when linear is "off" or "on"! Safety interlock on lid switches AC supply off. Safety interlock on PA compartment lid bleeds residual HT to earth thus preventing shock from the storage capacitors. All in all the FL2000B is quite a linear!



This compact digital frequency counter which is equally suitable for laboratory, industrial or amateur applications has the following specifications: Compact design by advanced IC technique to count wide frequency range 5Hz-30 MHz. Dual range system provides 8 digit measurement with MHz and kHz indicators. 240v. AC/12DC dual power pack built-in; accuracy ± time base stability + 1 count; gate time 1 m.s. or 1/2 second; input Z 1MΩ, low 56Ω; input capacity = less 20pF; max. i/p 60 v.p.p. less than 10 sec. 20v. p-p continuous; time base frequency 1000 kHz crystal controlled; stability 0.0005 per cent at 25°C, 0.0025 at 40°C. Dimensions 8 1/2" x 3 1/2" x 10 1/2". Weight 8 lbs.

NEW 305D 220 MHz
(Ex Stock) Only £111

OSKER POWER METER

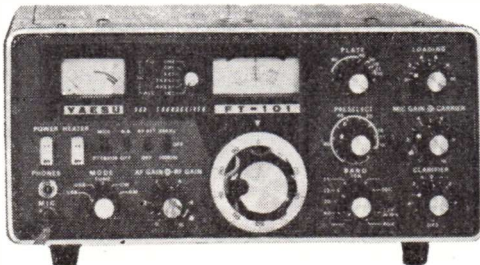


Price: £18.50

THE SUPERB FT-101 (Ex-Stock)

Features: Switchable for 52 or 75 ohm systems. Each instrument is individually calibrated. Four ranges: 0-2, 0-20, 0-200 and 0-2kW, 3-200 MHz. Excellent styling.

MATCHING FL-2100 LINEAR (Ex-Stock)



The FT-101 is a 260w. p.e.p. SSB/AM/CW transceiver with an amazingly sensitive receiver. You'll hear signals which are inaudible on many other equipments. It comes complete with speaker and microphone, AC and DC P.S.U.s built-in. There's nothing to touch it for value!



The FL-2100 is designed to match the FT-101 and runs 1200w. p.e.p. If it's a linear you require for some other exciter, compare the FL-2100 with 2 fans, AC and HV safety interlock and fully screened input circuitry. You'll not find better value!

ELECTRONICS (UK) LTD



FT200
FT200
FP200
All
Ex Stock

THE FT200 is without doubt one of the "best buys" available. Compare its features with similarly priced units and kits. SPECIFICATION: 260w, p.e.p., i/p, SSB/CW; 75w, AM, 1 kHz readout on all bands 3.5-4, 7-7.5, 14-14.5, 21-21.5, 28.5-29 MHz. (3 optional crystals available for 28-28.7, 29-29.5 and 29.5-30 MHz, Stability: 100Hz 30 mins after warm-up. Sensitivity: 0.5µV 10dB S/5 + N. Selectivity: 2-3 kHz (6dB), 4 kHz (60dB). Solid state FET VFO with excellent linearity (like all YAESU VFO's), 25/100 Calibrator. VOX/PTT. Separate DC supply available for mobile use. Clarifier ± 5 kHz. Break-in CW keying.

YD844

SP400 (Ex Stock)

FT 401 (Ex Stock)

FV 401 (Ex Stock)



THE FT401 offers a high power SSB/CW transceiver with many extra features at a minimum price. SPECIFICATION: Power i/p 560w, p.e.p. Built-in CW filter, noiseblanker and blower cooled pa. Complete coverage 80-10m. Plus WWV (10 MHz) to check the 25/100 kHz calibrator plus 3 spare band positions. VOX is built-in (not an extra). Dial readout to 1 kHz on all bands. Sensitivity 0.5µV for 20 dB S/5 + N. Selectivity: 2-3 kHz (6dB), 3-7 kHz (60dB). CW filter 600 Hz. Clarifier 5 kHz. Break-in CW with sidetone. Selectable USB/LSB,



THE FT-2F opens the door to noise-free broadcast quality two metre FM operation. It is a highly advanced all solid-state unit complete with an automatic toneburnt signal. Channel capability of 12 simplex or duplex frequencies. Three channel frequencies included. Advanced cct design protects automatically from damage of transistors caused by antenna trouble or reverse connection power supply. Portable or home base operation can be achieved with the addition of the optional FP-2AC/B power pack which provides regulated DC power for the transceiver and charging voltage for the leak proof re-chargeable colloidal type batteries. Spec. frequency 144-148 MHz., 12 channels. Frequency modulated, power drain Rx 0.5A Tx 2A. Dimensions 6½" x 2½" x 10". Weight 4lb. Standard accessories, Dynamic mic., and mobile mount. Transmitter RF power 10 or 1w. o/p. Stability ± 0.001 per cent.



Ex Stock
£146

NEW 2m. FT-2 AUTO SCANNING TRANSCEIVER

The receiver automatically scans the 8 channels and will indicate on which one there is a signal. Power output: DX, 10w. Local, 1w. Frequency coverage: 144-146 MHz. Weight: 4.2 kg. Size: 210w x 95h x 270d mm. Mode: F3. Power requirements: AC, 100, 110, 117, 200, 220, 230v. DC, 13-15.

THE FR-50B AMATEUR BANDS RECEIVER AT ONLY £59 or +CAL + WWV £63

The FR50B low-cost YAESU amateur bands receiver covers 3.5-3.8 MHz, 7.0-7.5 MHz, 14.0-14.5 MHz, 21.0-21.5 MHz and 28.0-29.2 MHz. Sensitivity: CW/SSB, less than 0.5 µV for 10 dB S/5 + N. AM, less than 1 µV for 10 dB S/5 + N. Selectivity: ± 5 kHz, -50 dB, ± 1.8 kHz, -6 dB. Image ratio; better than -50 dB.

THE FL-50 SSB-CW TRANSMITTER £68

The FL-50B Transmitter operates on SSB/AM and CW. Power input is 50w, p.e.p. 80-10m. Carrier suppression, unwanted sideband and spurious radiation are all -40 dB. The unit is VXO controlled or will transceive with the FR-50. With the FV-50 VFO control is possible.

THE FV-50 REMOTE VFO FOR FT-75 or FL-50, £27-50

YAESU PRICES

CARRIAGE FREE BY SECURICOR

MANUFACTURER'S 1 YEAR GUARANTEE

FR-50B Receiver ...	£59.00	FL-2100 1200W Linear ...	£148.00	SP-400 Speaker ...	£10.00	YC-30SD 220 MHz Counter	£111.00
FR-50B + Cal. + WWV ...	£63.00	FT-200 Transceiver ...	£134.00	FL-2000B Linear, 120W	£146.00	YD-844 Table Microphone	£12.00
FL-50 Transmitter ...	£68.00	FP-200 AC PSU/spkr. ...	£38.00	P.e.p. ...	£146.00	YD-846 Hand Microphone	£5.00
FV-50 Remote VFO ...	£27.50	FV-200 Remote VFO ...	£38.00	FL-2500 Linear, 2kW p.e.p.	£122.00	FT-2F 2m 12Ch. FM Transceiver	£84.00
FT-75 Transceiver ...	£99.00	DC-200 DC PSU ...	£46.50	160-10m. ...	£122.00	FT-2 Auto Scanning	£146.00
FP-75 AC PSU/SPKR. ...	£22.50	FR-400DX Receiver ...	£120.00	FT-401 Transceiver, 560W	£230.00	FP-2AC AC PSU/Spkr	£25.50
DC-75 DC PSU/SPKR/Mount	£22.50	FR-400SDX Receiver ...	£120.00	FV-401 Remote VFO ...	£38.00	FP-2ACB as above fitted	£36.00
FT-101 Transceiver, 250W	£249.00	160-10m. 4m., 2m. ...	£160.00	SP-401 Speaker ...	£10.00	Batts. ...	£36.00
FT-101 Trans. fitted 160m.	£235.00	FL-400 Transmitter ...	£146.00	FT-S60 Transceiver, 560W.	£195.00	FF-50DX L.P. Filter	£6.60
FV-101 Remote VFO ...	£38.00			YC-30S 35 MHz Counter ...	£85.00		
SP-101 Matching spkr. ...	£10.00						

USED EQUIPMENT: Heath SB3034 CWV assembled, New, £238; Heath GR78, mint, £60; HM102 SWR power meter, £14; HW32 with HP23 and SB600, £60; HQ180, £80; KW Victor, £49; KW Atlanta, £150; New Atlanta, £210; Trio 9R59DS: several from £35 to £39; Skyworld CX203 general coverage and B.S., £22; ET500, mint, £149.

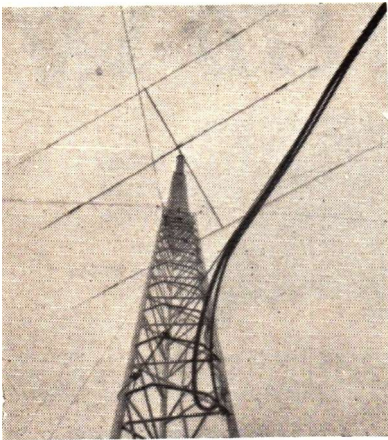
Send S.A.E. for further details and specifications or 15p for post paid spec. prices and 50-page catalogue including all antennas and masts. The best HP terms available only 10 per cent deposit: Part Exchange. House of business, Monday to Friday 9 a.m.-5.30 p.m., Saturday 9 a.m.-12.30 p.m.

AGENTS: MIDLANDS—Andy Martin, G3UDR Tel.: Shipston-on-Stour 61839

EUCKS. —lan Partridge, G3PRR Tel.: Chesham 024-054143

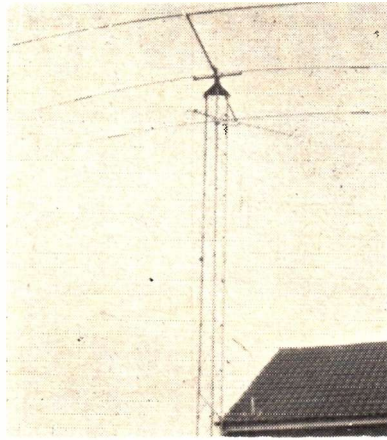
OSBORNE ROAD . TOTTON . SOUTHAMPTON SO4 4DN.

TELE: TOTTON 4930 or 2785

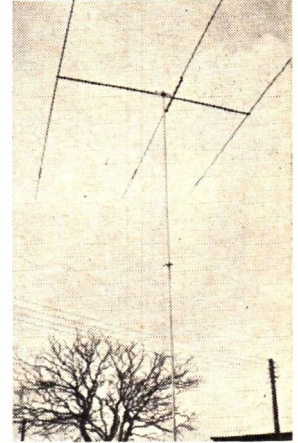


TELETOWERS

The finest value in guyed, galvanised steel towers which telescope down to 25". Price (carriage paid): 42' £77.00 57' £107.00 79' £132.00 101' £169.00



A self-supporting galvanised steel tower for HF band beams. Each 10' side weighs only 22 lbs., so the tower can be erected single-handed. 30' HAM TOWER Price: £55.00 carriage paid.



The best in telescopic rotatable masts. Can be erected single-handed in minutes and extends vertically upwards. Prices (carriage paid): Most only Most and Rigging kit

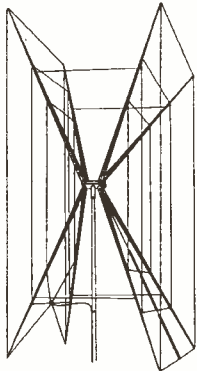
30' £15.00 £20.30
40' £17.00 £27.00
50' £20.00 £33.50

TOWERS

VERSATOWERS

Immediate delivery from our stock! Self-supporting tilt-over towers for 40', 60' and 85' P40, £121.75, P60', £146.50, T85', £275.00.

ANTENNAS



GEM-QUAD

for 10, 15 & 20m.

- ★ Weighs only 21 lbs.
- ★ Withstands 100 mph winds.
- ★ Forward gain up to 8 dB.
- ★ Balun included.
- ★ Converts to 3 or 4 element quad.
- ★ Fibreglass tri-dectic spreaders.
- ★ Front/back ratio 25 dB.
- ★ Low angle radiation.

£74.50

HY-GAIN 18AVT

HY-GAIN 18AVT/WB THE GREAT NEW WIDE BAND VERTICAL SELF SUPPORTING FOR, 10-80m. (ex-stock) £33.00. Take the wide band, omnidirectional performance of Hy-Gains famous 14AVQ/WB add 80m. plus extra heavy duty construction and you have the new 18AVT/WB ★ True 1/2-wave resonance on all bands ★ 52 Ω/I/P ★ SWR of 2:1 or less at band edges ★ 1 kW (AM) ★ Radiation pattern has an outstandingly low angle ★ Roof or ground mounting.

Hy-tower, 10-80m. (self-sup.)	£110.00	Hy-Quad, 10-20m. 2 ele.	£74.50
18V, 10-80m. vertical	£12.85	BD10-15, 10-15m. 3 ele.	£57.50
12AVQ, 10-20m. vert.	£16.50	204BA, 20m. 4 ele. beam	£80.00
14AVQ, 10-40m. vert.	£24.50	203BA, 20m. 3 ele. beam	£72.00
18AVT, 10-80m. vert.	£35.50	153BA, 15m. 3 ele. beam	£36.00
LC80Q, 80m. coil for 14 AVQ	£7.75	103BA, 10m. 3 ele. beam	£28.50
TH6DXX, 10-20m. 6 ele. beam	£97.00	18TD, Reestape portable dipole	£41.00
TH3MK3, 10-20m. 3 ele. 2 kW	£75.00	LAI Lightning arrestor	£14.50
TH3 Jnr., 10-20m. 3 ele. 600w.	£51.00	LA2 Lightning arrestor	£2.50

MOSLEY (Carr. pd.) (Ex Stock) from us for fast delivery

Mustang, 10-20m. 3 ele. 2kW	£45.50	TA33 Jnr., 10-20m. 3 ele.	£36.50	TA32 Jnr. 'E' for 2" mast	£26.50
TA33 Jnr. 'E' for 2" mast	£37.00	TA32 Jnr. 1-20m. 2 ele.	£26.00	TA31 Jnr. Rotary dipole	£17.00

BANTEX FIBREGLASS MOBILE ANTENNAS (Carr. 50p) including base

70 1/2. 70 MHz, 1/2 wave	£3.00	BGA, 144 MHz, 1/2 wave	£6.15	Magnetic mount	£6.15
144 1/2. 144 MHz, 1/2 wave	£2.85	B5, 144 MHz, 1/2 wave	£4.35	All aerials complete with base.	

ANTENNA ROTATORS. Immediate delivery from Stock

AR20 (p & p 40p)	£20.00	AR22R (p & p 65p)	£25.00	TR44 (p & p 75p)	£45.00
				HAM-M (p & p 80p)	£70.00

WESTERN ELECTRONICS QUAD (boomless) 10-20m. £27.00 (carr. paid).
WESTERN ELECTRONICS DIPOLES 10-80m., Type S (500W) £14.00. Type HP, 1KW, £15.25.

G WHIPS (Carriage 50p coils, 20p) THE FINEST MOBILES (Ex Stock)

Tribander 10, 15, 20m.	£9.45	LF160 160m. coil	£4.00	160 Ranger	£7.50
LF40 40m. coil	£4.00	Whip for LF coils	£1.00	Multimobile '71' 10, 15, 20m.	£12.50
LF80 80m. coil	£4.00	160/80m. Duobander	£9.00	40m. coil	£4.00

J BEAM ANTENNAS (Carriage paid)

10/4Y 10m. 4 element array	£24.10	2/8Y 2m. 8 element folded	£4.20	2/0V Omni dipoles	£7.15
4/3Y 4m. 3 ele. folded	£4.25	2/10Y 2m. 8 element folded	£9.00	2/8 2m. Double 4 slot fed	£5.10
4/4Y 4m. 4 element folded	£5.60	2/14P 2m. 14 element	£14.20	2/12 2m. Double 6 slot fed	£6.75
2/4Y 2m. 4 element folded	£2.90	2/10XY. Cross polarised 10 ele.	£12.10	2/16 2m. Double 8 slot fed	£8.40
2/6Y 2m. 6 element folded	£3.50			2/HO 2m. Halo mobile	£1.45
				2/HM 2m. Halo mobile	£1.75

RF COAXIAL CABLE AND PLUGS (Carriage extra)

50 ohm UR43 .2" dia. per m.	15p	75 ohm UR57 .4 dia. per m.	30p	50 ohm UR76 .2" dia. per m.	15p
50 ohm UR67 RGBAU "	30p	75 ohm twin "	5p	UHF Plugs 259A .4" dia.	37p
75 ohm .22 dia. UR70 "	15p	150 ohm twin "	5p	UHF Plugs 259A .3" dia.	37p
75 ohm UR39 .31" dia.	22p	300 ohm twin "	5p	UHF Plugs 259A .2" dia.	37p

SWL Listeners dipole ... £12.50

Note. Deduct 50p from price of aerial if base is not required.

HY-GAIN, 400 (p & p £1) ... £98.00

80m. coil ... £4.00
160m. coil ... £4.00

70/16 70 cms. Double 8 slot fed ... £5.60
70/14Y 70 cms. 14 ele. folded ... £7.10
70/18P 70 cms. 18 ele. ... £7.45
70/MBM/46 70 cms. 46 ele. ... £10.50

UHF in line coupling connectors 60p
UHF 'L' angle connectors 90p
UHF 'T' angle connectors £1.20
UHF panel socket SO239 ... 27p

Hours of business : Monday-Friday, 9-5.30 p.m. Saturday, 9-12.30 p.m.

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Bill: G3UBO

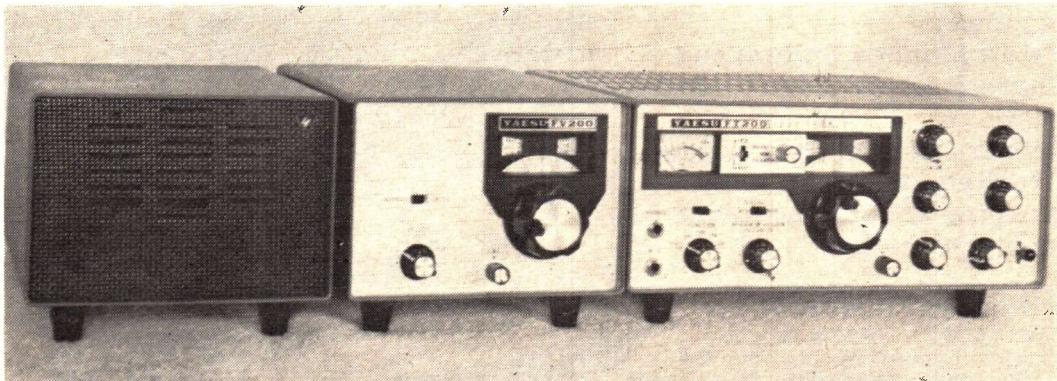
Alan: G3MME

MAIN DISTRIBUTOR FOR YAESU MUSEN EQUIPMENT

SERVICE AND SALES (evenings and weekends only) : John G3JYG, 16 Harvard Road, Ringmer, Lewes, Sussex. Tel : Ringmer 812071. Sim GM3SAN, 19 Ellismuir Road, Baillieston, Nr. Glasgow. Tel : 041-771 0364. Alan GW3YSA, 35 Pen y Waun, Efail Isaf, Nr. Pontypridd, Glam. Tel : Newton Llantwit 3809.

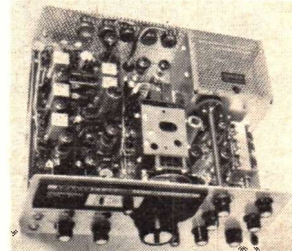
SERVICE ONLY (evenings and weekends) : Dave Dryden, G3BKQ, 205 Main Street, Thornton, Leics. Peter Ward G3XWX, 47 Radstock Avenue, Ward End, Birmingham, B36 8HD.

Sim, John and Alan will be happy to demonstrate New Yaesu Gear by appointment. They also have a pretty good selection of second-hand trade-ins at the right price.



There are several reasons why we feel the Yaesu FT200 is such a good buy. No attempt has been made to permit a CW filter to be fitted. The designer has not allowed any switching around the filter and thereby achieves maximum isolation between filter input and output. This accounts for the incredibly good skirt selectivity of the FT200. Skirt selectivity which, in our estimation is, for SSB, the best of the Yaesu range. We also like the pre-mixed oscillator chain which gives the superior signal handling and low noise capabilities of a single superhet while at the same time retaining a 9MHz I.F. with its superb image rejection. Lots of other things add up to an unmistakable best buy. Stable, accurate, gear-driven solid state VFO, VOX, break-in CW, CW sidetone monitor, RIT, 100 kHz marker, 300W SSB speech peaks, half microvolt sensitivity, etc. etc. All in all, at £250 it would still be a good buy. At £134 (plus A.C. psu £38) it's INCREDIBLE.

FT101 Transceiver NEW MODEL ...	£255-00
SP101 matching speaker ...	£10-00
FV101 remote VFO ...	£38-00
FT101 mobile mount ...	£5-00
FL2100 Linear ...	£148-00
FRdx400 super de luxe Receiver ...	£160-00
SP400 speaker... ..	£10-00
FLdx400 transmitter ...	£146-00
FL2000B Linear ...	£148-00
FT-2FB 2m. FM NEW MODEL ...	£89-00
FT-2 Auto ...	£146-00
FT200 Transceiver ...	£134-00



FP200 AC p.s.u./speaker ...	£38-00
FV200 remote VFO ...	£38-00
DC200 mobile p.s.u. ...	£46-50
FTdx401 Transceiver ...	£230-00
FV401 remote VFO ...	£38-00
SP401 speaker... ..	£10-00
YC355 counter NEW MODEL ...	£111-00
FT75 ...	£99-00
FP75 ...	£22-50
DC75 ...	£22-50
FR-50B receiver ...	£59-00
FL-50B Transmitter ...	£68-00

The above equipment is ex-stock and apart from sundry spares which go first-class mail, we send all equipment by Securicor, who almost invariably deliver within 24 hours and, more important, treat the gear gently. There is no extra charge for this service, nor for the fact that all equipment is thoroughly checked before despatch. Plus of course our unbeatable 12-month guarantee and our money-back guarantee.

Other new equipment: (post paid)

Plain morse keys, ball-bearing pivots, £1, Katsumi EK-9X electronic keyers £8-50, Asahi twin meter SWR meters £7-20.

Dummy Load/Wattmeters: please do not confuse these with the cheap and cheerful so-called power meters which are frequency conscious, impedance conscious and of dubious accuracy. These are Wattmeters (a horse of somewhat different colour!), they are neat and compact (approximately 5" x 5" x 10" deep), but MORE important are accurate and MOST important present a substantially constant 50 ohms impedance over the frequency range of 3 MHz to 500 MHz. They are switched to read F.S. 20 or 120W and give useful readings as low as 1/4W. The SWR is better than 1 : 1.2 over the entire range and no serious VHF operator should be without one, particularly at this price, £32.

Valves: Postage Extra: 6AH6 80p, 6AQ5 75p, 6BZ6 42p, 6U8A 80p, 6CL6 50p, 6AN3 74p, 6EW6 75p, 6EH7 45p, 6BM8 50p, 6AW8A £1-75, 7360 £2-10, 12 BY7A 70p, EF183 45p, 6GK6 92p, 6JS6A/B/C £1-75, 6 KD6 £1-75, 6146B £2-60, 61M6A £1-25, 6LQ6 £2-25, 572B £8-00.

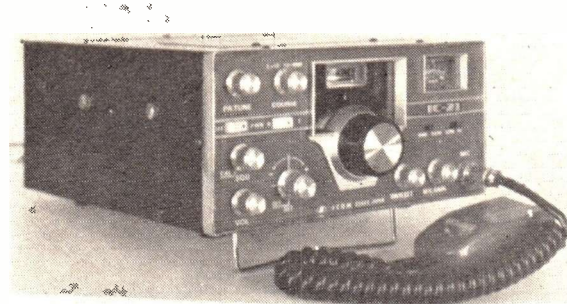
Please include lots for postage on valves—we'll refund any excess.

Antennas:

Asahi Echo-8G.40 to 10m. trap vertical. Self-supporting, handles 1kW p.e.p. SWR better than 1.5 : 1. This vertical can be mounted on a post at ground level, in which case radials are not necessary, although they are always beneficial, or it can be mounted up aloft, in which case it can be treated as a ground plane with radials as per instruction sheet. £18-50, carriage paid. In addition to the Echo G8 we have the Diamond range of verticals, the Asahi full size beams and a range of mobile antennas. We also stock coax (UR43 8p : UR67 22p per yard), rotators AR-22 £25 ; TR-44 £45 ; Ham M £70 and rotator cable (AR-22 15p per yard, TR44 and Ham M 30p per yard).

2m. Equipment

2m. Converter. We stock a very nice 2m. converter designed and manufactured by Sim, our Northern Representative. It features a dual gate 3N159 r.f. amp and dual gate 40602 mixer. It requires 12v. d.c. and the I.F. is 28-30 MHz. Quite honestly, I don't think you'll find a better converter at the price, £13.50 plus 15p postage.

**IC-21**

All transistor 25W input 2m. FM transceiver, fixed station or mobile.

Power supply : 12-13.5v. d.c. (negative earth) or 234v. a.c.

24 channel : 144-48, 144-60 and 145-00 fitted as standard, but other channels available.

0.4 microvolt for 20 dB quieting. Adjustable deviation, built-in SWR meter, RIT. Complete with PTT dynamic microphone, £130.

IC-21 VFO £35.

We also have the IC-20 in stock. This is similar to the FT-2F described below. Price £94.

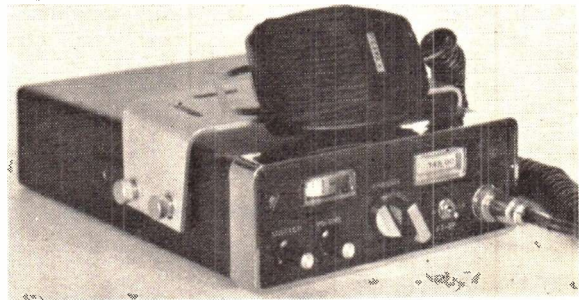
FT-2FB (NEW MODEL)

An ideal all transistor mobile 25W input 2m. FM rig. Power supply : 12-13.5v. d.c. (negative earth). 12 channels crystal controlled : 144-48, 144-60 and 145-00 fitted as standard. Other channels available. Adjustable deviation. Double superhet Rx with 0.3 microvolt sensitivity. 6½" x 2½" x 10" deep, £89.

FT-2 AUTO £146.00

This rather exotic piece of gear monitors up to 8 channels by scanning all 8 sequentially. If a signal comes up, it automatically locks on to it. Even if the signal is slightly off channel, the FT2Auto AFC pulls it right in. The other rather nice feature is the priority channel—this takes precedence over all others. Even when locked onto another channel and in QSO the FT-2 Auto regularly flicks to the priority channel momentarily. If something comes up on the priority channel it locks onto it. Needless to say there is a manual over-ride on all this, but I must say that in my estimation it is the most fantastic piece of Amateur Radio gear to appear on the market to date.

If you'd care to send us a Stamped Addressed Envelope (6p stamp) we'll send you details of any of the gear we sell.



There is no doubt that this mobile FM gear is becoming more and more popular. Quite rightly, so because of the advantages of FM. Lack of TVI, broadcast quality speech (except the nit who shouts into the mike of course !), noise-free reception, etc., etc. The fact that they are crystal controlled is not the drawback you might expect—they all use the same channels and hence, wherever you are, you have every chance of working someone with similar equipment. The IC-20 and FT-2F are small enough to fit in any car without major surgery and are the complete answer for a compact mobile rig at a reasonable price. Any of the above can be fitted with an extra internal AM detector incorporating its own I.F. and A.G.C. system for £10 extra.

SERVICE :

You may be lucky—you rig may never ever go wrong. You may never ever require a hard-to-get spare in a hurry. But should anything ever at any time go wrong, you'll be glad you got your gear from us, because all you have to do is pick up the phone and tell us. We arrange collection, repair your rig and return it to you within a very short space of time—average total elapsed time less than 4 days (excluding weekends of course), although on many, many occasions we have repaired the rig and returned it the same day as received, making the total elapsed time 48 hours. This service is a result of years of experience of Yaesu, years of experience in communications equipment generally, top quality test equipment and an extensive stock of spare parts. This service is, we are convinced, the best in the country and it is for OUR customers. If you bought gear elsewhere, we don't like to see you stuck but quite clearly OUR customers MUST come first.

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Bill G3UBO, Alan G3MME, John G3PCY. Hours : Tuesday to Saturday 9-5.30 (closed for lunch 1-2 and all day Monday).

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I.C.'s. 7413N 40p, SN 7474N, 45p, 7490N 86p, 7400N 22½p, 7473N 55p, 7414IN £1.12, 72710N 46p, 7475N 55p. NEW TEXAS
HOLDERS for 14 way and 16 way 15p each

DECADE COUNTER BOARD 12 way ·15 uses 7490 and 7414N 37½p
DECADE COUNTER BOARD with fitting for Quad latch, 16 way ·1 60p RS Type.
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PRINTED CIRCUIT BOARDS. £1.50 each, post 5p.

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Uses : 7-SN7490, 1-7413, 3-74141, 1-C407.
Board size : 5" x 4½".

READOUT BOARD. 4 Digit.

Uses : 4-7490, 4-7475, 4-74141. Ideal for Frequency Counter
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Board size : 4" x 3".

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Uses : 7400 Osc. (1Mh) 6-7490 Divider chain. 7474 Dual D.
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ALL BOARDS HIGH QUALITY PRINT ON FIBRE GLASS BOARD.

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post 15p.**

MODULATOR, TYPE 105. Ex-TR 1986 series. 2-6C4 in push
pull. EF92 Mic. amp. EL91 driver, with circuit, 75p, post 25p.

CONTROL UNIT, TYPE 384. This unit contains : 3½" desyn
indicator. 5 mA right hand zero meter 1½" dia. 6-var. res.
with gear drive on 2:2 DP push buttons. 2-1-pole 12-way,
1-8-pole 5 way, 2 bank switches. 3-62, 2-42 ohm 5W res.
Excellent value, 87½p, post 27½p.

DIECAST BOXES. With fitted lid. Post 10p per box.

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Cat. No. 6357P 7½" x 4½" x 3", £1.13

Sizes shown are approx. internal dia.

Denco COILS. All ranges in stock. 32p each, post 5p each
coil. Please state valve or transistor type when ordering.

CATHODE RAY RUBE. 3BP1 with base and shield. Tested
before despatch, £1.75, post 25p.

FINNED ALUMINIUM HEAT SINKS. 5" x 2" ready drilled
for TO3, 25p. 5" x 4" undrilled, 37½p. 5" x 8", undrilled, 65p,
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PTFE holders. Sealed relay twin 500 ohm coil. 12-pin plug and
socket, 50p, post 20p.

CONVERTER 20 to 90 MHz. 7.5 MHz IF. Ex 3673 Rx. 2/EF91's.
1-616 Osc., £1.25, post 20p. Some less valves, 75p, post 20p.

TRANSFORMER. Specially wound for Digital instruments.
200 volt 40 mA HT. 6 volt 1A. Two windings LT. Will supply
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centre, ½" brass insert with grub screw. 1", 1½" and 1¾" dia.,
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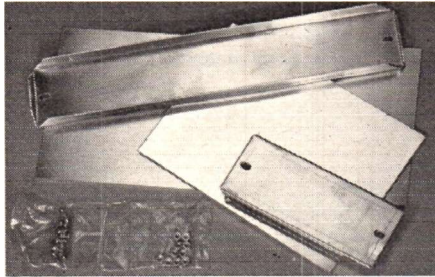
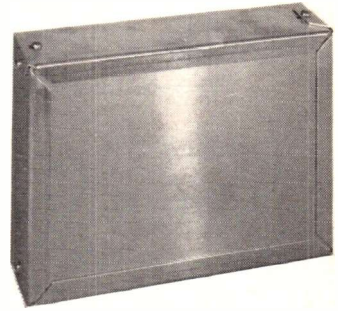
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TEN-TEC RX-10 — COMPACT, PORTABLE, 4-BAND RECEIVER

The Ten-Tec RX-10 is a rugged, solid-state receiver for 80-40-20-15 metre Amateur Bands. Dependable synchrondyne circuit converts signal directly to audio with dual gate MOSFET mixer. Assures freedom from "images and birdies". Sensitivity is high and frequency drift is negligible. The RX-10 features a built-in oscillator for code practice. Also makes a fine CW monitor when used with a suitable transmitter. Audio output drives high impedance headphones only. Rear switch for 230v. A.C. or 12v. D.C. operation.



£32.50 (postage 30p extra)

SPECIFICATIONS ;

Frequency range : 80 3.5- 4.0 MHz
40 7.0- 7.3 MHz
20 14.0-14.6 MHz
15 21.0-21.9 MHz

Modes of operation : USB, LSB, CW, AM.

Size : 230v. A.C. 50-60 Hz 1/8 A. or 12v. D.C. 35ma.

Size : 10 3/8" w. x 4 1/2" h. x 6 5/8" d.

Controls : Band Selector (push-button).
Audio gain, Antenna tune, Main tune.
Power ON-OFF.

Rear panel connectors : Antenna—phono socket.
Key—phono socket.
12v. D.C.—phono socket.

Shipping Weight : Approx. 2 1/4 lbs.

PERFORMANCE ;

Sensitivity : Less than 1 uv provides readable signal.
Stability : Less than 100 Hz drift. No warm up.
Audio Output : 3 volts across 1000 ohm load.

Antenna impedance : 50-75 ohms—unbalanced.
Circuit : Direct conversion. Synchrondyne.
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MEMBER OF THE AMATEUR RADIO RETAILERS ASSOCIATION

First we must apologise to all concerned for failing to maintain our "from stock" policy for a short time in September. Usually the delay in delivery was only for a week or so and we have now considerably increased the production capacity and should be safe in saying that when you need this we'll have a good stock again. Perhaps we should clarify one point—all the gear we advertise except the Yaesu and components is manufactured here in Huddersfield.

Another fact worth pointing out is that we have over a dozen Amateur Radio retail shops selling our equipment—this speaks for itself. Our equipment (mostly converters and pre-amplifiers) are in use by professional organisations, Government departments, laboratories, Educational establishments, etc., not only in this country but around the world. Modified to cover non-amateur frequencies of course. We do however regard the amateur as our main market first and foremost. Perhaps we should thank all the "professional" amateurs who think of us to help with their professional problems.

Still not convinced? How about G3 - - - who ordered a pre-amp and was sent a converter in error. He was so pleased with this converter compared with the one he had been using that he kept it, sent another cheque for another converter and another pre-amp G3MXG.

NEW! 3CG. CRYSTAL CONTROLLED CALIBRATION GENERATOR

1 MHz, 100 kHz, 10 kHz outputs, all easily received at 2 metres. No unwanted outputs. Internal stabilised mains p.s.u. or external battery operation. Size: $4\frac{1}{2}$ " x $1\frac{1}{2}$ " front panel. $3\frac{1}{4}$ " deep. Ideal for H.F. or V.H.F. use. Price: £16.00.

SPECIFICATION COVERING ALL OUR V.H.F. CONVERTERS

- ★ Noise figure 2 dB. Gain 30 dB.
- ★ Dual gate MOSFETs in RF and mixers for excellent overload and cross modulation characteristics.
- ★ All housed in aluminium cases, stove enamelled silver hammer with black trim.

NEW—THE SENTINEL M.F. Primarily for mobile use with a car radio but ideal for use with any B.C. receiver with an aerial socket. I.F. output 0.5-1.5 MHz it covers 144 MHz to 146 MHz in two switched bands with a third position for "OFF" with the MW aerial switched straight through. Double conversion design with no oscillator multiplication. Size: 5 " x $1\frac{1}{2}$ " front panel 4 " deep. 12v. operation, polarity unimportant. Price: £18.75.

THE SENTINEL 2 METRE AND 4 METRE DUAL GATE MOSFET CONVERTERS

By far the most popular converter. Stock I.F.'s for 2 metres: 2-4 MHz, 4-6 MHz, 9-11 MHz, 14-16 MHz, 18-20 MHz, 23-25 MHz, 24-26 MHz, 28-30 MHz and 27.7-29.7 MHz for receivers that only tune up to 29.7 MHz. 4 metre I.F.'s: 4-4.7 MHz, 25-25.7 MHz, 28-28.7 MHz.

PLEASE NOTE that we have started using the circuit we developed for the Sentinel M.F. in our low I.F. Sentinels (2-4 MHz and 4-6 MHz) i.e. they are now double conversion. Size: $2\frac{1}{2}$ " x 3 " x $1\frac{1}{2}$ " except the 2-4 MHz and 4-6 MHz, $2\frac{1}{2}$ " x 4 " x $1\frac{1}{2}$ ". Price: £13.75.

63 WOODHEAD ROAD, SOLID, LOCKWOOD, HUDDERSFIELD, HD4 6ER

THE SENTINEL X DUAL GATE MOSFET 2 METRE CONVERTER

This new 2 metre converter is a de luxe version of our well established Sentinel converter. Contains internal mains power supplier but can be used with external batteries. It features an RF gain control to reduce cross modulation and overload of the main receiver and may be switched between mains and battery. Size: 5 " x $1\frac{1}{2}$ " front panel $4\frac{1}{2}$ " deep. It uses fundamental crystals on the required frequency i.e. no multiplication. I.F.'s from stock 28-30 MHz and 4-6 MHz. Price: £19.50 including p.s.u.

Want to pep up your present 2 metre receiver?

THE SENTINEL LOW NOISE FET 2 METRE PRE-AMPLIFIER

- ★ Low noise figure 1 dB. Transistors selected for low noise figure.
- ★ Gain 18 dB. 12v. D.C. at 5mA. Isolated supply lines.
- ★ Very good for bringing converted business gear up to scratch. Also helps I.F. breakthrough by increasing the wanted 2 metre signals. Price: £6.50.

Want to receive 70 cms. cheaply but well?

SM70 70 Cm. CONVERTER

- ★ Low noise figure 4.5 dB.
- ★ IF output 144-146 MHz. By using the 70 cm. converter with a 2 metre converter you can have a high performance 70 cm. unit at a low price £13.75.

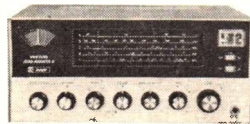
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ICs in stock and other components listed below:

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- ★ Erie discoidal feed throats, 6p each, 55p per doz. Tubular ceramic trimmers 6pF, 12p each, £1.20 per doz. 18pF, 17p each, £1.80 per doz. KYG 9MHz crystal filters. XF-9A 55B, £11.00. XF-9B 55B, £15.00. XF-9C AM, £15.00. XF-9D AM, £15.00. XF-9M CW, £11.50. XF-9E FM, £15.00. Carrier crystals, £1.50 each.

We believe that all units and components advertised will be ex-stock, but you can always ring for confirmation.



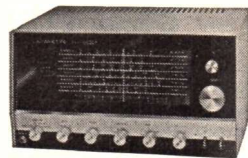
SKYWOOD CX203 COMMUNICATION RECEIVER

Solid state. 5 bands 200-420 kHz and 155 to 30 MHz. Illuminated slide rule dial. Bandspread: Aerial tuning. BFO. AVC. ANL. 5 meter. AM/CW/SSB. Integrated speaker and phone socket. 220/240v. A.C. or 12v. D.C. Size: 325 x 266 x 150 mm. Complete with instructions and circuit. £28.50. Carr. 50p.



UNR-30. 4 BAND COMMUNICATION RECEIVER

550 Kc/s.-30 Mc/s. Incorporates variable BFO for CW/SSB reception. Built-in speaker and phone jack. Metal cabinet. 220/240v. A.C. brand new, with instructions, £15.75. Carr. 37p.



LAFAYETTE HA.800 SOLID STATE AMATEUR COMMUNICATION RECEIVER SIX BANDS 3-5.4, 7-7.3, 14-14.35, 21-45, 28-29.7, 50-54 Mc/s.

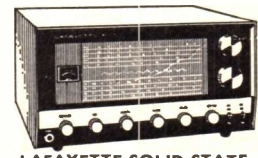
Dual conversion on all bands. 2 x 455 Kc/s. mechanical filters. Product detector Variable B.F.O. 100 Kc/s. crystal calibrator. "S" meter. Huge slide rule dial. 230v. A.C. or 12v. D.C. Size: 15" x 9 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ ". Complete with instruction manual, £57.50. Carr. paid (100 Kc/s. Crystal £1.97 $\frac{1}{2}$ extra).

TRIO 2 METRE FM TRANSCEIVERS 144-146 Mc/s.

TR7100 Car Transceiver 10 watt output £99.75 each.

TR2200 Hand Transceiver 1 watt output £62.50 each.

Full details on request.



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5 Band AM/CW/SSB amateur and short wave 50 Kc/s.-400 Kc/s. and 550 Kc/s.-30 Mc/s. F.E.T. front end. 2 Mechanical filters. Huge Dial. Product detector. Variable BFO. Noise limiter. 5 Meter. 24 $\frac{1}{2}$ " Bandspread. 230v. A.C./12v. D.C. Neg. earth operation. RF gain control. Size: 15" x 9 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ ". £50. Carr. 50p.

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Impedance 52 ohms. Also operates as field strength indicator, complete with telescopic aerial, £4.25 each. P.P. 17p. PL259 plugs to suit 37p each.

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TRIO 9R59DS

4 band covering 550 Kc/s. to 30 Mc/s. continuous and electrical bandspread on 10, 15, 20, 40 and 80 metres. 8 valve plus 7 diode circuit. 4/8 ohm output and phone jack. SSB-CW - ANL - Variable BFO - 5 meter - Sep. bandspread dial - IF frequency 455 Kc/s. - audio output 1.5w. - Variable RF and AF gain controls 115/250v. A.C. Size: 7" x 13" x 10" with instruction manual, £49.50, Carr. paid.



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JR310, £75.00 ; JR599, £185.00.

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Thirteen valves, 31 IC units, 34 transistors, 82 diodes.

Dimensions : 350 x 160 x 292mm. Weight : 10.5 Kg. FP 501 power supply. 100–234v. 50/60 Hz, with speaker.

SOMMERKAMP FT-505

This top-class station has all the extras, one cannot want more than that! The transceiver is equipped for operation on the amateur bands 80–10m. (to 30 MHz) and includes the 11m. band and 10 MHz (WWV). Modes : SSB, AM and CW. Power supply unit for 110/240v. is built-in. Tx power 560 watts p.e.p. input. Equipment includes 25 kHz crystal calibrator, independent Rx tuning, CW sidetone monitor and BK-circuitry ; transistorised linear VFO, provision for external VFO ; AVC delay switch ; new noiseblanker circuit ; fan cooled PA ; SSB crystal filter with 1.6 shapefactor ; 600 Hz crystal CW filter as standard.

Accessories : External VFO, Type FV-401.

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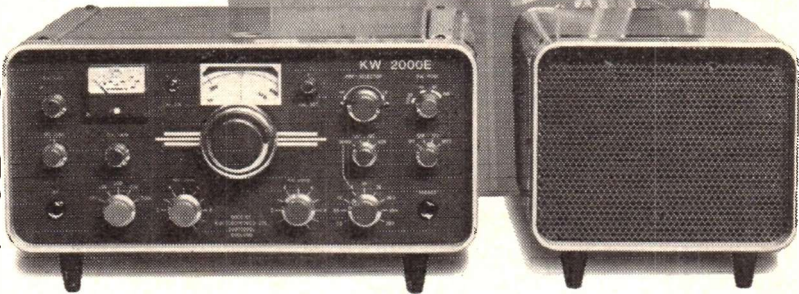
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A KW 2000E with 500 kHz VFO COVERAGE 10-160 metres

Complete with AC PSU **£265-00** (carriage extra)

Includes the following features:
TOP BAND with switch to legal limit.
Reliable 6146's in PA.
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The KW 2000E continues in production as some customers still prefer the excellent "Bandspread" of the 200 kHz VFO.
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Our used equipment stocks may be somewhat depleted by the time this appears in print due to the fact that although the items listed below are available at the time of going to press we shall, in the interim, be exhibiting at the National Amateur Radio Exhibition. However, fresh items come to hand practically every day and an S.A.E. will bring you our latest used equipment list by return post.

Please note : We URGENTLY require good used equipment of all types for outright purchase. When writing please give fullest description of what you have for disposal with the price required.

All items listed below are priced to include carriage unless otherwise stated.

- Racal RA17L Receiver. Superb condition, fabulous performance **£280-00**
- Hammarlund SP600JX Receiver. An excellent specimen of this very fine professional communications receiver. Complete with case ... **£105-00**
- Eddystone 940 Receiver. First-class and unmarked ... **£115-00**
- Eddystone EA12 Receiver. Again, in exceptional condition ... **£145-00**
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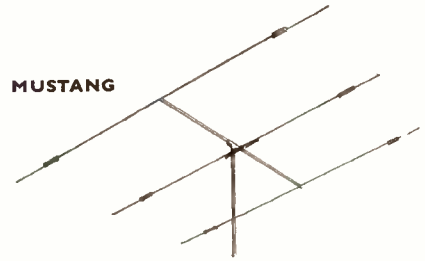
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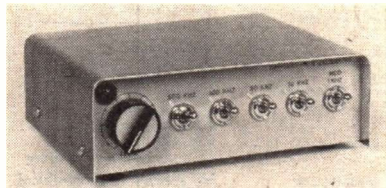


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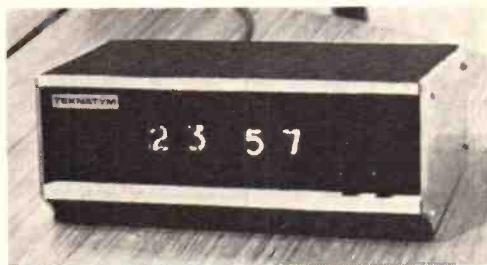
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SHORT WAVE MAGAZINE

(GB3SWM)

Vol. XXX

NOVEMBER, 1972

No. 349

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E. & O. E.

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The SHORT WAVE Magazine

EDITORIAL

ITEMS OF INTEREST

Licence Point: Even if you are QRT and the fee seems a waste of £3, keep your AT-licence going. You never know, the bug having once bitten, when it will bite again and you find yourself anxious to get on the air once more. If you have allowed your ticket to lapse, you will have to go through the R.A.E. and the Morse Test to re-qualify—which takes time, even if you know it all. . . .

* * *

VK Note: It seems, from a recent issue of the Australian *Amateur Radio*, that the W.I.A. (Wireless Institute of Australia, the VK radio amateur society) is also finding itself in the deep morass of financial instability. The immediate need, they feel, is more membership—otherwise, it will have to be an increased subscription, the cover price of *Amateur Radio* itself being the criterion on which the latest appeal to VK members is being made.

* * *

Morse: The article on pp.482-483 of our October issue, "On Learning Morse", has brought some friendly and understanding comment. (Actually, it was based on a piece written originally by the Editor about 35 years ago, because he himself learnt Morse that way back in 1925). One reader makes a valid point: In buzzing the Code to one's self, the dot, *dit*, should be said more as *dee*, or *di'*, with the *tee* just not sounded. This will help to give the correct rhythm when sounding, say, F, *di'-di'-dah-dit*. Well, we hope you've got the point.

* * *

Small Advertising: It may come as a surprise to many readers to know just how sizeable is the total value of the Small Advertising in the Readers' "For Sale" columns in SHORT WAVE MAGAZINE each month—for instance, in the October issue the for-sale items totalled about £6,000. This can only be to the advantage of both buyer and seller. Our columns offer, at one time or another, every conceivable kind of apparatus, equipment, com-

ponent or part in the Amateur Radio context. There are those who say that access to such a buoyant monthly market is alone worth the 25p cover price.

* * *

Obit: The death is announced, recently, of Brondum Nielsen, OZ7BO. He was the originator of the valve-actuated semi-automatic key, first published in SHORT WAVE MAGAZINE, July 1952. This was the successor to the famous Vibroplex, the first hand-operated swing CW CW key ever invented, the mechanical design of which has never been bettered. All you had to do was to learn how to use it! An original presentation Vibroplex is, these days, worth a good deal of money. It is about the only hand-operated auto-key that can be adjusted to send perfect Morse at any speed.

* * *

TVI: We have been informed, by an unimpeachable authority, that the "High-Pass Filter for UHF/TV", published in the June 1971 issue of SHORT WAVE MAGAZINE, is about the best design yet offered when you have to contend with neighbours' TVI. It goes in the aerial lead of the offending TV Rx. We pass this on for those afflicted, who may have a copy of this issue to which to refer.

* * *

Warning: As this issue goes to press we are told that during the next month or so there could be serious power cuts because of another "industrial confrontation" (*sic*). Should this take effect, immediately the mails will be slowed and essential production held up on a selective basis—just as on the last occasion. It may not happen. At this time of writing "the talks", as they are called, still go on. But don't blame *us* if, during the next couple of months or so, our service becomes erratic, the delivery of your copy is not certain and SHORT WAVE MAGAZINE is not available on the due date at your local newsagent—it will not necessarily be all *our* fault!

Austin Forsyth
G6FO

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

As your conductor sits down to write this piece, the autumn lift in conditions has manifested itself, at the moment attended by another sort of autumnal noise, namely an S9 rain static in the receiver and nearly as loud a noise on the roof above from the rain. Farewell, summer!

The presence of the Mauritius beacon, 3B8MS, has done a lot to validate the beliefs of those who for long have said the weakness of Ten as a DX band was rather lack of activity than sunspots, insofar as it has been audible on almost every day of the period; so we will once again make our start by looking at Ten.

Another member of the Penzance DX-wallahs writes in this time. (We hesitate to call them the Pirates of Penzance!) G4BKI is blood brother to G4AMJ and lives at the same QTH; Paul at the moment has an HW-101 which he feeds into a long-wire, although this should be receiving attention ere long. Ten contributed G3MUL/CE3, CN8CG, ZC4BJ, 9J2RA, JA2JW, EP2TW and VK6JJ to Paul's total of 66 countries worked in his first month.

Brother G4AMJ offers CR7FM, FOAHY/FC, 4X4VE, VU2AAN and JA on CW, plus SSB with 5U7AX, UA9's, JY9GR, UG6, CR7IZ, ZE1BL, ET3GK, UD6, CR6, 5H3MT, MP4TDM, G3MUL/CE3, ET3USA, 3B8AD, MP4TEE, KA6TO, VS6FB, ET3USF, YA1GNT, VK6HE, VS6AI, VK9XW (Christmas Is.), RA0ABE and Europeans. We scent some rivalry here!

The drive on the Tx at G4ALG (Twynford) varies from band to band, with Ten a good one; as a result, Stephen pushed his key to work 4X4YM and VO1AW, and spoke to CT2BK, CX2BBH, LZ2EE, LU3DTV, PY1ZAE and YB0CJ.

G3USF (Keele University) found DX on the band from as early as 0800, and round to as late as 2115, the coverage in terms of area being world-wide, saving VE and Central

Pacific, with the West Coast W's a bit scrappy; but it all added up to VQ9R, UL7BA, RA0ABE, VS6DO, 9M2DQ, VK9EM (New Guinea), KA6VI, KA6OH, MP4TEE, VK6NM, XW8EV, FB8XX, HS4AGZ, FL8HM, YA1AH, YB0AAL, ZD9GG/MM (off Tristan da Cunha), 3B8CV, HP1XYZ, 8R1N, HK1CIW, TI2CAP, CE3AOF/Q, PZ1CU, ZP5DV and TG9DX.

Stephen Cole, GW4BLE (Newport, Mon.) was for long an active participant in our "SWL" piece, which implies he has served his apprenticeship as a listener. So far, he has booked in 92 countries and is aiming at the target of "100 worked in a month", although an attack of TVI has limited his activities, to put it mildly, the neighbours concerned having proved somewhat uncooperative. The rig is FL-DX400 and FR-DX400 into a Hy-Gain 18-AVT /WB with the base at 15 feet and a full suit of radials. SSB gave CE3AOF/Q (Easter Is.), CP1EU, CR6NO, CR7IZ, CX1BBR, CX2CN, CX9BT, HC1JB, HC2YL, HK0BKX, HP1XYZ, LU1DAB, PT2EYO, SV0WJJ, TG9DX, TU2DO, UW6DY, XE1IJ, YN1AL, YV5TN, 5B4AD, 9G1WW.

G3DCS (Ipswich) has been having fun with aeriels again, and this time has a vertical for Twenty, which can be loaded up on the higher bands, to check against his single-element Quad. Ten is a very unusual band for Enver, but this time he relaxed there on SSB, after the rigours of working CW on other bands, to raise ZD8RW and ZC4HC.

News from Martin, G3ZAY (Petts Wood), who confirms the rumour that was buzzing around on the grapevine that they had pranged the car on the way to Geneva; fortunately, although the car was a write-off, no serious bodily injury was done, even though the gang's enthusiasm for operating 4U1ITU suffered somewhat. Between this and a short rest-and-recuperation period in Torquay, only four days of

operating G3ZAY were available, and only 9M2DQ was worked on Ten. By now, Martin will be back in Cambridge, and it is to be hoped all's well that ends well.

G3RFG (Henlow) has been busy outside Amateur Radio this part month, so Stan has only spent time on Ten and Eighty. Ten CW yielded him contacts with HC3JL, K2BZT, K3AV, K4GSS, K5RFJ, LU's, TG9NJ, UK4, UK5, UK6, VO1AW, W2, W3, W4, W8, W0, ZS2AG, plus hearing DL0IGI and 3B8MS, the beacon stations.

Quite the most pleasing report G2DC (Ringwood) has ever sent in for Ten appears this month. Jack's CW led him to ET3USE, ET3USF, FR7AL, PY's, LU's, PW1HQ, JA's, UD6DFD, UI8AL, UI8AP, UL7FG, UL7GE, UL7LBE, UW0CNE, VK6HE, VK6SA, VK8HA, ZE1DX, ZE3JO, ZD9BM, W1-6, W8, W9, 3D6AX and 8P6BU. Time-wise, signals from VK's start to come in around 0730, then 0900-1230z sees Africa and the Far East, Western VK's about 1100, and on many days W's are workable with a marked peak around 1830z.

With a long business trip coming into the period, ZS6ZE (Pretoria) not only was not able to be very active, but indeed all but missed the mail—and he writes from South Africa. SSB showed all W call areas, YV5CFV, WA3AAJ/KH6, VU25HH, GD5DZ, Europeans, VK's and all JA areas, with Europeans and all W call areas booked in on the key.

Top Band

The lack of band reports over the last few months does seem to be a fair reflection of the activity—at the time this was being written, your scribe took a quick spin over the band, and found evidence of the American Loran around 1850 kHz, lots of Hi-Fix beacon noises, DHJ, a couple of AM nets so far down in the noise as to be unresolvable even by exalted-carrier methods, one CW signal calling CQ, a couple of slow-



Bit of real nostalgia—the very neat (for those days) station of Brian Warren, G6CI, 1 Crackley Crescent, Kenilworth, Warks., as it was in 1929. Old-timers who go back as far as that will recognise most of the gear, like the 0-V-1 Rx at lower left (with its carefully controlled reaction); above this Rx a TPTG transmitter for 10m. using an L55D (the "hard" version of the LS5); up on the right another TPTG for 20m. with a UX-210 oscillator; centre right a PSU and, alongside, a 20-40m. CC Tx running a DET-1 (one of those lovely, real bottles with its glowing filament) in the PA; and at bench level a 4-valve speech amp./modulator. The aerial was a 66ft. inverted-L, very much end-fed—it was tapped straight on to the anode coil of the Tx in use. On this rig WAC was made. The cards shown are all DX-chosen. That one above the 10m. Tx tank coil is from "India, Y-DGR", none other than G2DC as now is, worked by G6CI in February 1927 on 45 metres! Nowadays, G6CI, still as active and as keen as ever, keeps almost exclusively on VHF.

Morse chaps, no CW DX, no SSB of any amateur sort, and an S9 cross-modulation noise level. *Not* very inspiring.

However, WIBB writes in to remind us of the event that every year galvanises the band into activity, namely the Trans-Atlantic Tests, which this year are on November 19, December 24, January 14, and February 11, from 0500-0730z. A change in the calling routine is that each five-minute period is occupied half by CQ'ing and half by listening, as follows: W's lead off in the first five-minute period by calling CQ from 0500 to 0502½, listening 0502½ to 0505; for the second five-minute period, 0505 to 0507½, the EU's call, listening 0507½ to 0510z; third period as the first, fourth as the second, and so on, keeping rigidly to the times by setting watches to WWV or time-signals, unless a

QSO results. W/VE as always 1800-1807 kHz, Europeans 1825-1830 kHz. Anybody forgetting to work split-frequency in accordance with the rules of the game gets shot!

In between, on November 18, December 23, January 13, and February 10, from 1330 to 1600z come the Trans-Pacific Tests; here it is W/VE using 1800-1807 kHz, JA's 1907-1912.5 kHz, VK's from 1800-1805 kHz, ZL's 1875 kHz and the rest 1800-1805 kHz; the calling form to be as indicated for the *Trans-Atlantics*, with W's leading off for 2½ minutes of the first five minutes, DX having the first 2½ minutes of the second five minutes for their call, and so on. If you like your DX tough, these Tests are the way to try for it. But remember, the *Trans-Atlantics* cover all the western half of the world, and the *Trans-Pacifcs* the rest, so the odd

surprise QSO can be expected.

A boob last time resulted in the call sign ZS6ZE appearing as "ZS6KE"—sorry! In the meantime, the LF band noise level out there has risen with the arrival of the storm season, which has resulted in S9 noise on Forty, unbearable on Eighty, and impossible on Top Band, with even the BC stations disappearing under it. However, John perseveres with his checking on 160 metres, detailed last month, hoping for a quiet-night some time—and some signals to reward him.

G4ASV (Knaresborough) has sent in a new entry for the Top Band Table, thanks to expeditions and holiday trips; however, Mike is by now back at University, and so he will again be inactive until Christmas.

GM3YOR (Kirkcaldy) has had another successful month, his CW making contacts with GW3YTL

for Carmarthen and GW3ZES/A in the Skerries, not to mention OK1JMP, OK1ZN, OL1APC/P, OL4APR, OL4AQA, OL5APX and OL5ANJ, the last under his new call of OK1MCW.

G3PKS (Wells) writes to say we made a report of him working GM3YOR but giving the call as GM3PJS/M in Peebles—this is the second time he has been reported as GM3PJS/M so John reckons he will have to check his sending! G3PKS has been out mobile in Scotland this year and last, with a CW rig consisting of a valve Tx and

a homodyne receiver to a mobile whip. Probably the best DX was a contact with G3VYF (Basildon) from near Fort William, over some distinctly bony country. On every evening there appeared a marked "lift" in conditions around the sunset period, and then a trough of about an hour before resumption of normal night-time conditions. Jack occasionally used AM phone, but the homodyne receiver needs to hear a good strong signal with a stable carrier to be of much use on AM although it works very well on CW and SSB. As examples of the work the /M whip can do, consider QSO's with Bletchley from Meantwrog; Cambridge, Wells and Cannock from Carlisle; Sevenoaks from Peebles-shire; and London, Redcar, Leicester and Birmingham from Aberdeen, all despite the normal level of static—it should encourage those who have no Top Band aerial facilities to try a loaded whip arrangement. And it can be said that a good earthing system would improve these sort of contacts considerably, as some of the big signals around on the band have been able to demonstrate.

Indeed, our very next reporter, G2HKU (Minster) says that in a recent QSO with HB9CM (back on Top Band again) the latter told Ted he has a new 60ft. loaded vertical, put up to work the Top Band DX this winter.

CQ WW Contest

We have previously mentioned the date, October 28-29 for the Phone leg, and November 25-26 for the CW, starting at 0001 on the Saturday, and ending 2359z on Sunday. Exchange RS(T) plus Zone as the indicator, contacts with your own continent being worth one point, and different continents three points. The multiplier is the sum of the total Zones worked and the total number of countries worked. Contact with your own country has no QSO point value but can count in the multiplier. There are 27 trophies to be won, not to mention place-winner certificates for each country. Logs to be in GMT, with Zone and country multipliers shown the first time they appear in the log, checked for duplicate contacts and correct points and multiplier claims, plus a Summary Sheet, showing all scoring

information, the category in which you are entering, your name and QTH clearly written, and a signed declaration that the station has been operated in accordance with licence conditions and contest rules. Mailing deadline is December 1 for Phone logs, January 15 for CW, to CQ WW Contest Committee, 14 Vandeventer Avenue, Port Washington, L.I., N.Y., U.S.A., 11050.

Eighty Metres

There is DX to be worked, but most months we hear little about it. G3KMO (Ash Green) put in a 3.5 MHz list for CW, commenting that it was hard work amassing them on the key, even if the sideband wallahs at t'other end of the band make a habit of it—Mike has ideas about another 65-foot vertical for the band, to make a driven array, once the nettles in the garden die down and the existing radials can be recovered. For the mement he is still doing well enough—this month his CW connected with ZL2LA, ZL3IS, ZL4IE, WA9OTH/TF, VE's, VO's, W1-4 and OH2BGM/OH0.

G3YYD (St. Albans) also comments on the dearth of reports on 3.5 MHz—his SSB has so far gone out to 145 countries on Eighty, and in the current month he has logged CN8HP, CP1EU, CT2BG, FM7WE, HK3LT, KL7HEE/W8, KP4AN, PY1HA, PZ1AE, PZ1CU, PZ1DF, UW9WR, VP7WD, VS6DO, W1-4, W8, WA4WRW/TF, WA9OTH/TF, WB4RJK/TF, XE1IJJ, YV4AGP, ZC4BJ, ZC4DS, ZL4KE, 9G1KE and 9Y4MN.

G2DC has been making a habit of checking over 80m. around 0600-0730z but has found the static a little too much for comfort—nonetheless, ZL4IE is usually there and workable, peaking S7 about 0630z and then rapidly declining.

For G3RFG the only contacts on Eighty CW Stan booked in were with K1LWJ, K1LBB, K3JH, SM4ASJ and W2HUG.

In his massive total of DX worked in his first month on the air, GW4BLE did not neglect Eighty, on which band his SSB accounted for EA6BJ, UK4YZZ, VO1BT, W3MFW and 9H5D.

Up On Forty

Let us first look at the band as noted by ZS6ZE/G3LZQ (Pretoria,

BRIEF DX DATA

Call	Details
A35LT	21315 kHz, 1010z. Bill Toussaint, Box 49, Nuku' Alofa, Tonga Republic.
"FO8M"	"Maria Theresa Reef" does not exist. U.S.N.S. Survey Ship <i>Bartlett</i> has covered the area, and "Maria Theresa" is not to be included on future maps.
XZ, Burma	Understood that Amateur Radio activity not allowed at present. Ignore phoney stations, and don't send QSL's to <i>Call Book</i> addresses. QSL's sent to one station have already resulted in loss of gear and jail sentence.
GB2LC	Lincoln Club commemorating 9th centenary of Lincoln Cathedral; three stations, covering Top Band, HF's and VHF; all QSL's via G3XYP, QTHR.
SY1MA	October 13-16 from Mount Athos—see CDXN, text. QSL's via WA1HAA; all SSB operation this trip.
VQ9FOS	"Festival of Seychelles" station. QSL's via PO Box 188, Mahé, Seychelles.
VR1AA	14193, 0548z for Europe; 21320 kHz 1900z.
VR4BS	14050 kHz CW, 0620; 14225 kHz, 0845. Has been audible after 1000z. QSL's to ZL4NH.
YO0XPO	From International Fair, Bucharest, by YO3RF. QRV afternoons and Sundays, 25 kHz from lower band-edge on CW, or 3650, 7050, 14150, 14250 kHz SSB. A new prefix.

S.A.). John managed to find VK6CT, G3JAG at 1800z, ZD9GG/MM, ZS2MI and VU25KV, all on SSB, while CW accounted for FB8XX, JD1YAA (Marcus Is.), UA0FAM, OH2BO, SK5AL, HS4AGN, VE3GNB, LU2DKG, all JA districts, all VK areas, all W call areas, PY's and other such stuff. This activity was all on a triangular full-wave loop, with the apex 32 feet high, the bottom only four feet above ground and fed against 600ft. of radials, as a test of the G6LX theories on odd-shaped aerals.

G2NJ (Peterborough) reports only on 7 MHz; his /MM foraging is interesting in that he was able to work G3ZXH/MA and G3TZL/MA, who together are the only two amateurs to be licensed to operate /MM from the same ship, the m.v. *Sugar Producer*. On a different tack, Nick managed another contact, 100%, with G3DOP running two watts, after which G2NJ had a call from ON4NU, near Ghent, who was crystal-controlled with *one* watt—this also was a solid QSO. (Years ago, we used to run a regular QRP feature, the *QRP* being defined as not more than one watt D.C. input. Some of the results recorded were extraordinary. Seems that we might think about doing the same again—*Editor*).

GW4BLE naturally concentrated on the HF bands for most of his time but filled in the coverage by working SSB with UA2EC, UK5MAF, UK9ABA, 4U1ITU and 5Z4KL.

To G2DC 40m. has looked quite fair, especially at the end of September and the beginning of October in the morning, 0600-0730z, period, when VK and W6/7 have been coming in quite well, over the EU QRM and the splatter from a big "thing" just outside the band. One very good signal was W9EXE, who has a kilowatt to a rotatable dipole at 120 feet. CW DX worked looks to be CM2JO, KL7HTZ, LU3AU, UA0CNI, VK2EO, VK3MR, VK3XB, all W call areas, VE7IZ/VE8 and ZL1BHQ.

By running some tests on a model aerial range of scale models of his four-band Quad—running at 70, 140, 210 and 280 MHz—G3KMO has been finding out lots of interesting things. His 7 MHz Quad is 2/3



Station of G3OIB, Keith Younger, B.Sc., East Riding College of Agriculture, Bishop Burton, East Yorkshire, where the recent Hull Mobile Rally was held—and where he has about 640 acres to set out antennae! Licensed in 1960, G3OIB runs a Trio TS-500 into a 4/6HF5 linear and an Eddystone 888A receiver, with gear also for two metres. Though he says he has not yet realised, as a radio amateur, the full potential of his acreage—the antennae are a TA-33Jr. and multi-band dipoles for LF—as a farmer himself and a lecturer at the College he is always very glad to QSO anyone with an interest in farming.

full size, linear loaded on the vertical sides, and spaced about 0.15 wavelength, and some of the model tests are to find out whether Yagi-type parasitic elements are better than Quad parasites as directors, the argument being that they should be best because of their higher Q. Whichever way it goes, the Quad on Forty gave G3KMO contacts with C31FQ, ZL1AIR, VK2, VK3, VK5, UF6CX, CX4AQ, VP8LR, XW8EV, KS6DY, EA6BU, CR7IZ, all W call areas and VE1-7 on CW, plus SSB with 7X7Y, IH9JT and CE6EZ—which proves something or other!

Comments and Ideas

G3DCS has found an extra interest—he has got himself one of those surplus Portable Trainer Mark I Geiger counters, to try to correlate the radio-activity level with propagation. Enver feels this, if adopted widely, would be a lot more useful in the study of propagation than the usual habit of telling the other chap what the temperature is. Incidentally, in the course of swotting-up his background on radio-activity, G3DCS was astonished to read that Brazil nuts are radio-active—no pleasures left in life, are there!

G5IK writes in on behalf of VU2GV, who is trying to collect and collate details of VU activity in the Amateur Radio field over the

years—the first three licences go back to 1923. Whatever information is received will be acknowledged, and copies of the articles sent. What is wanted is a brief account from all ex-VU stations, of their activities, and if possible a photograph. The gen can either be sent to VU2GV, 4 Wireless Quarters, Nizamuddin East, New Delhi-13, India, or to G5IK, *QTHR*, for Ted to pass on. (G2DC might be interested in this.)

Eric Rogers, 9H4G is now the Gozo QSL Manager, and cards for 9H4 stations should be sent to him, to relieve the pressure on the 9H1 bureau. The address is: 9H4G, Dar Ghall-Kwiet, Ghajn Melel Street, Zebbug, Gozo, Malta, G.C.

It is a pleasant change to hear of TVI being given a sensible airing in publications dealing with other aspects of electronics. The September issue of *HI-FI Sound* carried a letter from a Mr. M. Perkins, of London SW7, who had been unlucky enough to experience TVI from a local four-metre station who also broke through on the Hi-Fi gear. Mr. Perkins had it explained to him by the amateur concerned just why TVI occurs, and was convinced by the fact that the filters fitted cured the interference to TV, and the Hi-Fi trouble was cured by shortening the screened lead from pick-up to amplifier; he now says other Hi-Fi addicts should sym-

pathise with radio amateurs in our sufferings due to design shortcomings in TV's and other electronic equipment.

G3GKA is the custodian of a parchment offered by the "Bristol 73 Group," to commemorate the 600th anniversary of the granting of Bristol's Royal Charter. G3GKA is *QTHR* for details.

Many people will have heard "buzzes" about a possible Athos operation. We have a flash that the call will be SY1MA, that the expedition has obtained ARRL approval for DXCC country status, and that the operators will be DL1CU, SV1DB, SV1GA, WB4USR and WA6BWB. Furthermore, we hear that there is a possibility of SV operation on Eighty—if anyone wishes for a QSO on Eighty with Greece, he should drop a line to DL1CU, Box 585, D-7, Stuttgart, saying that he wants a contact on this band and a QSL from SV. These will be shown to the authorities who have, we gather, indicated that if there is some sign of international interest they would be prepared to grant a permit for a period of 10-14 days. Thanks to DL1CU for taking the trouble to work on these points and for keeping us informed.

G3LEQ (Knutsford) writes to advise that members of the Thorn group in that area are setting up a station under the GB2ZY call, primarily to commemorate the opening of 2ZY, the Manchester BBC station of fifty years ago. Operations

Reporting the HF Bands

will be on as many bands and modes as possibly through November, and QSL's should go to G3LEQ, whether from licensed stations for QSL's, or SWL reports.

W4WFL/1 has some trenchant comments on the antics of the callers in the pile-ups, whose behaviour, he feels, has become of late even worse, particularly among the SSB clan; indeed, Morgan (who is on the ARRL staff) heard several DX stations close down because of the revolting behaviour of some stations in the pile-up. Heaven help us, isn't it about time the National Societies went to their country's licensing authority with some names and callsigns for revocation—effective cleansing of this particular Augean stable, your conductor feels, is an act which will have to be initiated *from within*, and old-fashioned ideas about telling-tales-out-of-school just do not apply—although great care would need to be taken to differentiate between the unintentional behaviour of the uneducated and the vitriolic manners of the guy who knows the form but deliberately chooses to misbehave. Even to start a published black list might be a good thing?

Fifteen

G3KMO (Ash Green) fired up on Fifteen CW to work 9G1HE, TG9NJ, DU1JX, VP8LR, FL8DS, 5R8AP, SM2AGD/CE0, plus SSB contacts with CR6, CR7, 9H5D, HM1AJ, KX6BQ and VP8LR.

At G2DC the assessment for 15m. was that it was doing just about what one would expect from it at this time of the year. Despite the afternoon QRM over the CW end of the band, Jack made his number with DU1CL, CR6AL, CR7IZ, UI8HF, UL7GE, UL7GW, all W call areas, PY's, LU's, VE1-7, ZS1RM, ZS6KE, ZE3JO, 3B8CF and 5Z4LW.

That 18-AVT at GW4BLE seems to have been doing its stuff, and Stephen worked SSB with CE6EZ, CX4VA, EL2W, HH2JT, K0YVR/HR2, IH9JT, JY1, KX6MD, UK0AAB, VE8ML, VP8MS, YB3AAY, YJ8DS, ZD3M and ZL's.

Contrast this with the haul for ZS6ZE, where K6ZNH/KH6, KH6CKJ, common (to us) Europeans, ZL4BO and LX2CQ formed the SSB take, plus all W call areas and Europe, and JA's the CW bookings.

The transmitter at G3ALG lacks drive on Fifteen, so that only 9HIR was raised—but no doubt the constant chopping and changing of bands, as Stephen has been finding his way around his station, will now be succeeded by a period where he settles down on one band and makes time to sort these little snags out.

For W6AM (Long Beach) life was mainly on Twenty, but the short excursions on to *Fifteen* were all to the point, by way of CW with LG5LG, GW2RV, I2ZGA, DL0JK, a couple of others which have smudged but look to be TZ, and SV1FT—interesting how DX looks different from other parts of the world.

Fifteen for G3ZAY was represented by TL8LI, VK9GO, CE3AOF/CE0, KC4USP and VS6FB. More active because he had more time was G4AMJ (St. Ives) with IK8IAA, WN1-5, WN8, WN9, TU2DD, JA's, UA9's, all W call areas, VE's, CX1JM, ZE1BR, UJ8AR, WA90TH/TF, 9V1MS, TA1MB, 9M2FK, C31FQ, 5H3MT, SV's, UA0FAM (Sakhalin Is.), UM8DZ, PY5CFK, UM8FM, CR7TJ, ZD8RR on CW, plus SSB to PY1BOL, ZS6MP, LU, CR6HZ, 9Q5JM, 6W8YL, VQ9MC, VP9AT, 5T5DY, 5N2ABG, DU2EL, FL8HM, FL8DJ, MP4TDM, 9G1HE, PW's, ET3USC, CR6's, EP2WB, HS4AGZ, VU2AAA, JA's, EA9EA, VE's, W's, VS6FB, ZS5FE, ZD8RR, VU25TVA, ZL1-3 *in mobiles*, ZS6ZE and VK's.

G4BK1 at the same address is more restrained, his selection being SSB to 6W8AL, EP2WB, HS4AFZ, HS4AGN, DU1EJM, 5Z4KC, ZS6ZE, JW8IL, VS6FB, JA4HCR, KG6JBO, 9M2DQ, VK9RY and others, with CW practice in the form of a string of W novices. (Those WN, U.S. novice, stations are always worth attention—they can work CW

COUNTIES TABLE

Callsign	TOP BAND		Total Score
	Counties CW	Counties Phone	
GM3YOR	69	41	110
GW3ZQN	29	57	86
G3VLX	33	41	74
G4ALG	44	25	69
G4ASV	3	65	68
GW3WSU	—	57	57
G3YPT	44	8	52
G4AXP	—	43	43
G3DCS	14	—	14

This Table will run till December 31, 1972. Starting date January 1, 1972. Any mode goes.

only, are low-powered and are always delighted with any QSO that can be rated DX. They QSL with enthusiasm and should be encouraged).

An enormous list from G3ZPF (Dudley) shows CW with VE's, ZS, W's and WN's, plus SSB with PW's, PY's, JA's, CR6's, CR7's, 9E3USA, 9K2BQ, 9J2HI, 5H3MT, 9X5VA, 5Z4KL, 5N2ABG, ZD3D, FH0DL, FL8HM, 3X1P, EP2WB, 6W8AL, KV4AD, 4M7AV, CX5BR, CX5BT, FB8XX, VU25DK, XE11IJ, HS1AHM, DU1DJM, YB3AAY, ZP5JX, HC4JE, HS4AGZ, KT0NEB, SV1FT and SV0WU.

On the other hand, a short list from G2HKU, who has not been able to do so very much, other than keep up his skeds; ZL1VN, ZL3RS and ZL3SE have been joined in the log by EP2WH, SU1MA and SV1KB.

G3DCS has spent much of his limited time at home over the weekends, playing wireless on *Fifteen*, to raise 9H1CV, UJ8BQ, JA6MJV, JA10AQ, 9M2FK, PY2ASI, 4Z4NLP and various W's and VE's—especially W6's, for some reason. Enver seems to have a problem on CW—he has bought a squeeze keyer, and in the process of learning how to use it finds himself at a stage where he can neither work the squeeze keyer nor the ordinary el-bug, the latter knack having also disappeared!

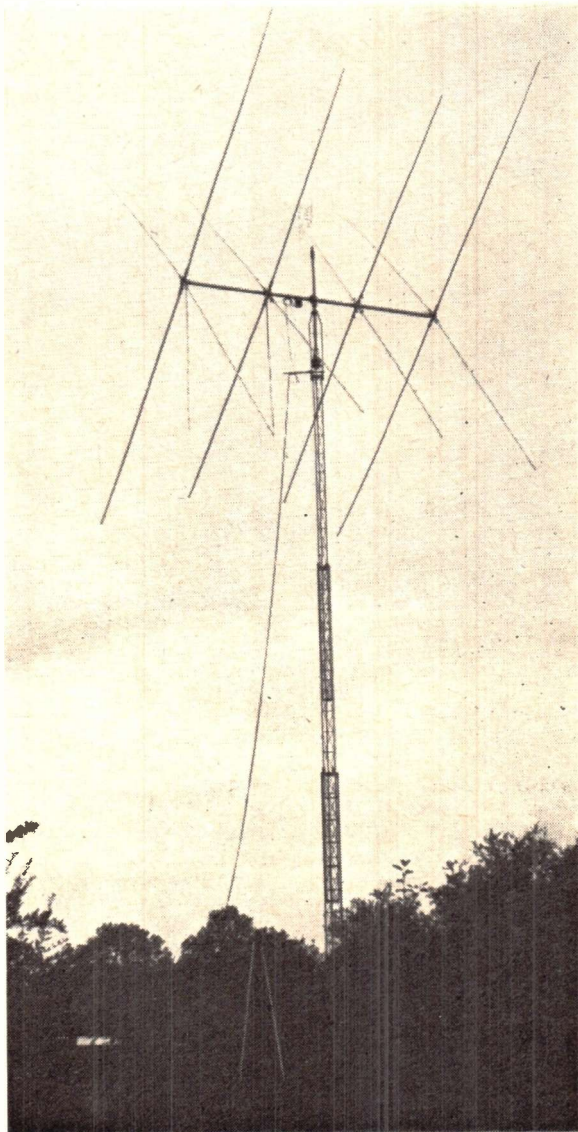
Twenty Metres

ZS6ZE/G3LZQ seems to have split fairly evenly between SSB and CW, the former to deal with Europeans, W's and JA's, which left the CW for KX6JS, OA4AHA, A51PN, YB0BS, XW8EV, UA3YH/M in Antarctica, plus, as John puts it "the standards!"

GM3YOR does not live entirely on Top Band; occasionally he creeps up to Twenty, and this time landed a couple of new countries with F0WV/FC and UK7LAH.

Twenty for G4ALG and his clutch of parallel dipoles was represented by EA3UR, SV1AI and ZL3JO on SSB.

W6AM as usual spent most of his QSO time on 20m., where the action can be expected, and in the process made contact with EP2YL, TL8LI, F8LX, ST2SA, SV1AE, 7X7Z, AC3PT and HS4AGN on SSB.



Mike Birch, G3KMO, Sorrento, Ash Green, Aldershot, Hants. has a four-band Quad (7-14-21-28 MHz) on a 60-foot tower, all home-built, with remote aerial switching and control, running out to 200ft. of feed-line. G3KMO is a well-known CW man and builds all his own gear, including the Rx side.

The short-list from G3ZAY comprises VK9KE, VK9AJ, VE7BQF, all SSB. A similar list from G4AMJ, who found the weird noises too much for him, and settled for UF6QAC, VP9's, OH0AL and PY's before exploring other areas. These were all on CW.

Brother G4BKI was not very impressed by the G4AMJ efforts! His own came to CW with VP9EK, EA8IG and Europeans (in the con-

test) although SSB accounted for VP9GE, VP9EK, 4U1TU, KL7FAF, 9H5D, VO1JC, FC2CH and, as a trial, G4AMT and G4AMJ!

Perhaps the chuckle of the month fell to G3ZPF, who in the course of his SSB activities met with a character signing "ZA1B," who sounded somewhat Ungood; when asked for his address the laddie had the nerve to ask for cards "via the Albanian QSL Bureau!" Other



During his recent trip out to the West Coast, G3KPO (right) met, among other W6 top-liners, famous DX-man W6AM, at his ranch near Los Angeles. In the background is the W6AM Cadillac fitted /M and armed in the boot with a kW linear—it draws 115 amps at full puff!

SSB included UAØTA, 9Y4VV, JX3EN, YB3AAY, IH9JT, EA6BG, CR6QA, JA3OPQ, IH9MCP, ZD7SD, 3A2CP, DU1FH, FPØVX, 9K2CI, VE2ADL, HV3SJ, FL8DJ, VO1CU, EP2WB and HS5AFJ.

As on most bands, it was mainly CW for G3DCS, by way of FPØVX, JA1JRS, PY7SO, PW2GGO, CE3ED, UD6AX, UAØCBR and an assortment of W/VE contacts.

G3KMO, while being a CW exponent, is not averse to the odd Sideband QSO. His CW raised JA's, CR6, CR7, 7X7Y, HC2HM, TI2PZ, TI2WR, VP5RF, VU25UR, JW4EL, VR4AA, UN1BC, VP9HF, VK's, ZL's, ZS's, VE's and all W call areas; SSB was reserved for IH9JT, XE11J, FR7ZG, FY7AG and 7X7Y.

Although the band seemed to have great promise at the start of

the period, it fell off towards the end, avers G2DC, and the hoped-for Central Pacific openings have not materialised, even if VK/ZL can be worked over the long path at breakfast-time. His CW again, with KL7FBI (Shemya Is., in the Aleutians), KL7GPS, KH6IR, KH6RS, JA's, LU, PY, UAØKAN, VK1-8, including VK1AG, VK8HA and VK8ZZ, ZL1-4, all W call areas, and VE1-7.

QSL Addresses

An enormous list has come in from W4WFL/1, to whom we are much indebted—it is so long we will have to take some in next time round. However, here are a few to be going on with: C21DC, by W2GHK; C29ED, Box 32, Nauru; ET3USA, try W1NJF; FK8BQ, by way of

I1PQ; FM7WW, through K2KGB; HK4CRB, PO Box 52378, Medellin, Colombia; HK6JF, PO Box 189, Pererira, Colombia; JTØAE, by OK1AQW; PZ1BK, to PO Box 160, Paramaribo, Surinam; VP2GI, PO Box 421, St. Georges, Grenada; VQ9NLB, Box 234, Mahé, Seychelles; XW8DV, to PO Box 829, Vientiana, Laos; YBØZZ, PO Box 2761, Djakarta, Indonesia; ZS2MI, through ZS6LW; 9M8WUW, to JA2KLT; and for 7P8AC, W2LGU.

And In Conclusion

Yes, it's now time for G3KFE to pull what is known as "the big switch", meaning to wind up once again. By when we next meet in print your conductor, and his colleagues, will hope to have met in person at the Leicester Exhibition some at least of our 100's of correspondents.

For the moment, we must set the next deadline for this feature as November 7, latest, with your news, views, arguments, disagreement and Table claims.

And for the issue after it will have to be December 2—because by then we will be contending with the inevitable Christmas mail delays, the unavoidable slow-up in the production schedule due to the Holiday and the present threat of power-cuts to bring everything to a standstill.

Keep to November 7 and December 2, and we will do our best from this end—but don't, please, immediately blame *us* if your report is not covered or you do not get your copy on time. You can be assured that we always do all we can to cope with these disruptions (usually with no thanks from anybody!) And the address is: CDXN, SHORT WAVE MAGAZINE, BUCKINGHAM.

OUT OF PRINT

The following Foulsham (American) titles are temporarily out-of-print—they are being reproduced but at the moment it is not possible to say when they will again be available. They are: Amateur Radio Construction Projects; Transistor Transmitters for the Radio Amateur; Short Wave Listeners' Guide; SWL Antenna Construction Projects; Building Your Own Novice Station; and Transistor Fundamentals, Vol. III.

GB2BBC and GB3BBC

These are special-activity stations, to be on the air during the week November 12-18, in celebration of the BBC's 50th anniversary and the 25th year of the Ariel Radio Group (the BBC's own Amateur Radio society). GB3BBC will be on the HF bands with all modes, and GB2BBC on VHF/UHF, both operated by BBC personnel holding amateur licences. They will be specially interested in working BBC staff and retired members.

SIMPLE TWO-BAND VHF CONVERTER, TRANSISTORISED

FOR TWO OR FOUR METRES

F. G. RAYER, A.I.E.R.E. (G3OGR)

THIS converter will enable a start to be made on one of the VHF bands, 70 MHz or 144 MHz, or will allow either band to be investigated without the need to build a completely separate converter for each. The unit does *not* provide instant change from one band to the other, by switching, or some similar means, but it can be changed from one band to the other in a few minutes.

In the development some time was spent on what could be more immediate forms of changing from one band to the other—such as the use of 144 and 70 MHz coils which would plug into miniature sockets, or using circuits which would resonate at both 70 and 144 MHz by re-trimming of the parallel capacitors. These methods are by no means absolutely unsuitable, but did bring in their wake other difficulties.

The result of these experiments is that *Veropins* are fitted for the crystal and three tuned circuits, and the converter is set up for either 70 MHz or 144 MHz by lightly soldering on the appropriate crystal and inductors. No coil changes are necessary in the oscillator-multiplier chain.

When moving to a VHF band, the decision whether

to start on two or four metres may not be too easy. There are those who would look upon Four as the band to choose. On the other hand, Class B licensees cannot use 4m., so that one result of this is found in terms of the increased two-metre activity by the G8/3's. Ideally, of course, both 4m. and 2m. can be covered by having separate converters or other suitable equipment for each band. There is then no problem. But if a converter is wanted for either 2m. or 4m. or, if after sampling one band for a time, it is wished to change to the other only by a few moments' work with the soldering iron, then the converter described here will be found practicable.

(over)

Table of Values

Fig. 1. The Converter Circuit

R1 = 56,000 ohms	C7 = 1000 $\mu\mu\text{F}$
R2 = 5,600 ohms	C8 = 0.02 μF
R3 = 100 ohms	C9 = 1000 $\mu\mu\text{F}$
R4 = 39 ohms	C10 = 1000 $\mu\mu\text{F}$
R5 = 150 ohms	C11 = 100 $\mu\mu\text{F}$
R6 = 3,300 ohms	VC1,
R7 = 470 ohms	VC2,
R8 = 270 ohms	VC3 = <i>Jackson Tetfer</i>
C1 = 1000 $\mu\mu\text{F}$	2-10 $\mu\mu\text{F}$
C2 = 10 $\mu\mu\text{F}$	trimmers
C3 = 1000 $\mu\mu\text{F}$	TR1 = 2N706
C4 = 18 $\mu\mu\text{F}$	TR2 = ZTX108
C5 = 0.01 μF	TR3 = MPF102
C6 = 10 $\mu\mu\text{F}$	TR4 = MPF102

Notes: Senator crystal, 33 MHz for 70 and 35 MHz for 144 MHz. 0.015in. matrix plain *Veroboard* 2½ x 2½in. and 2½ x 1in. *Veropins*. Universal Chassis flanged member 3 x 8in. (*Home Radio*). Screen and cover. Two co-axial sockets. On-off switch. Two 1½ x ½in. formers with cores. L8/L9 *Denco* IFT17 (modified) or 4.6 MHz coil.

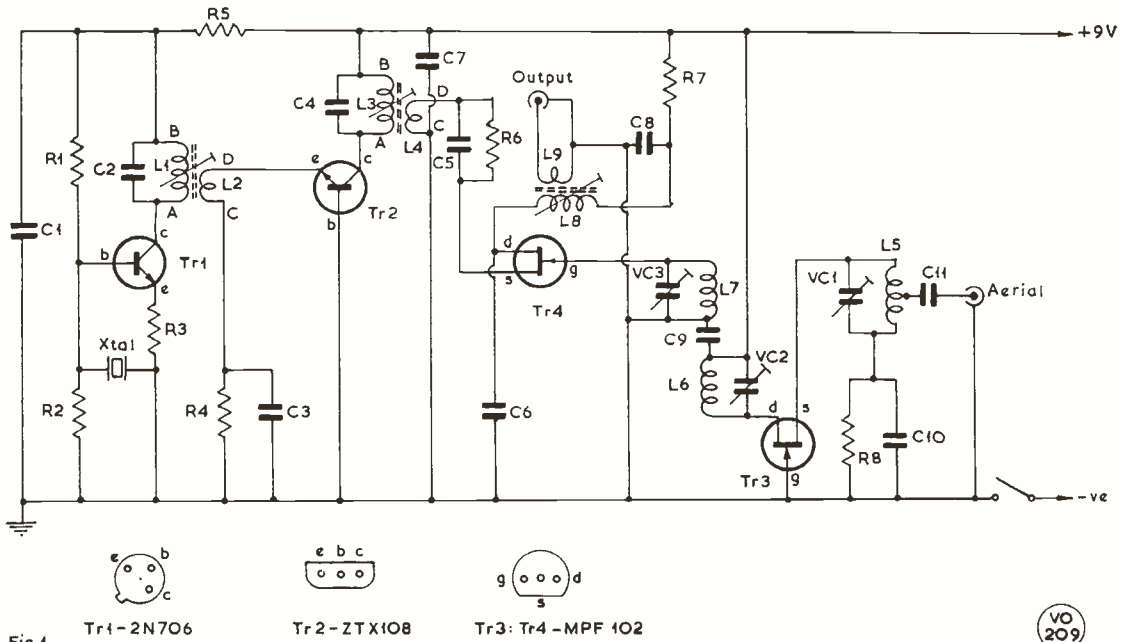


Fig.1

Fig. 1. Circuit of the Two-Four Converter.



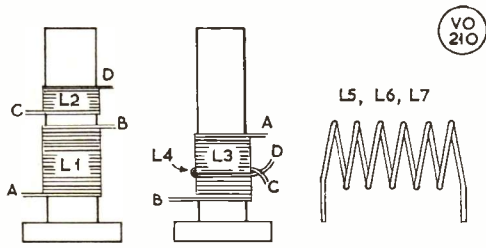


Fig. 2

Fig. 2. Coil details for the Converter.

Oscillator Chain

Fig. 1 is the complete converter circuit, and Tr1 and Tr2 are the oscillator and multiplier.

When operating on 70 MHz, a 33 MHz crystal is used. L1 is tuned to about 33 MHz, the coupling winding L2 driving the doubler Tr2. L3 is tuned to 66 MHz, winding L4 feeding this to the mixer source (Tr4). A signal on 70 MHz would thus come out on the receiver at 4 MHz, while 71 MHz would come at 5 MHz. So 70:1 MHz is 4:1 MHz, and tuning up the band to 4:7 MHz brings reception via the converter to 70:7 MHz.

When on two metres a 35 MHz crystal is fitted. This is sufficiently near 33 MHz for L1 to remain unchanged. Drive to Tr2 is at 35 MHz, and Tr2 doubles to 70 MHz. This is near enough to 66 MHz for the same winding L3 to be suitable. Mixing in Tr4 is then by the 2nd harmonic,

or 140 MHz. This type of mixing is not unusual in relatively simple converters. A 144 MHz signal would thus come out at 4 MHz on the receiver, while tuning up to 6 MHz gives coverage up to 146 MHz.

As the IF (receiver) range falls in the 4-6 MHz band in each case, the broad-banded coupler L8 remains unchanged. Most receivers, including some of the older surplus items which do not include the higher frequencies, work very well around 4-6 MHz. This segment can also be relatively free of signals which may break through over the tunable range.

Probably a pointer not to use this tunable IF range is when the main receiver has its bands so arranged that operation of the band-switch is required for complete tuning across the scale to cover 4-6 MHz. In this case, tuning can be a bit of a nuisance, unless most interest is on one segment of two metres.

It will be noted that with the 33 MHz crystal, the 2nd harmonic of 66 MHz comes out at 132 MHz, so that 144-146 MHz would be found at 12-14 MHz on the receiver. Unfortunately, this would make it necessary to change L8/L9, in order to tune 2m. with the same crystal.

RF Section

Tr3 is the RF amplifier, and with the JFET gate grounded no neutralising is needed. L5 is tuned by the trimmer T1. There is a best tapping point for the aerial. However, while a little under-coupling soon spoils results, some over-coupling does not have too severe an effect, so the tapping is not very critical and is better a bit too far from the earthed end of L5, than the reverse.

L6 and L7 are both tuned to around the working

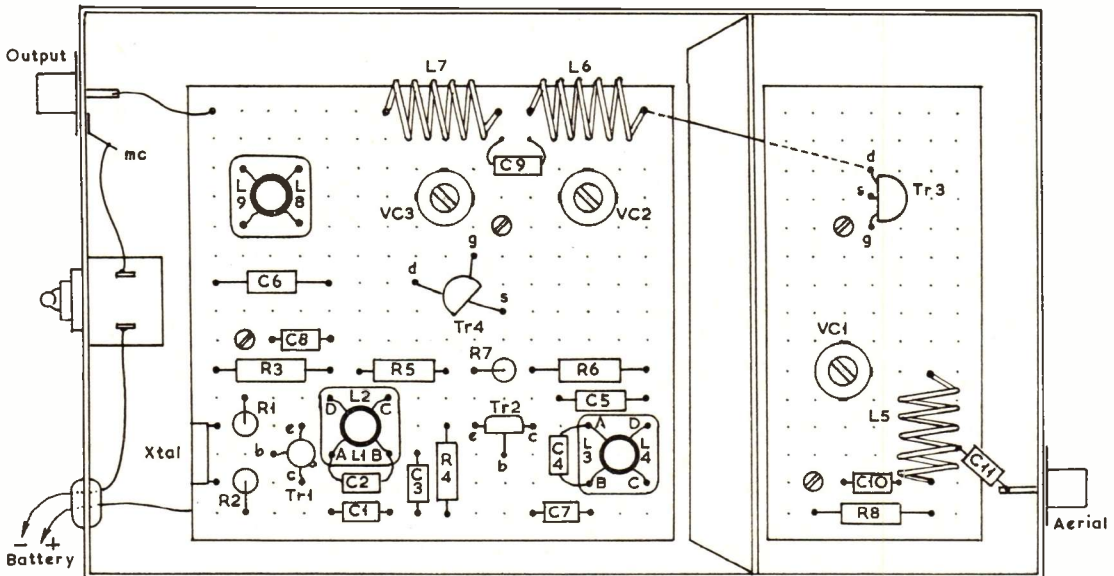


Fig. 3

Fig. 3. Circuit boards in metal chassis.

frequency, and are closely coupled. Output from Tr4 is in the region 4-6 MHz, and L8 is tuned to this with its core, L6 feeding into the receiver.

Inductors

These are shown in Fig. 2. L1 is 15 turns, beginning at "A" and finishing at "B". Then "C" begins immediately after "B", with no actual space, and L2 continues in the same direction to "D," and is of 5 turns.

L3 is 9 turns. L1, L2 and L3 are of 24g. enamelled, with turns side-by-side. L4 is a single turn of thin insulated wire, near end "B" of L4.

70 MHz: L5, L6 and L7 are self-supporting, wound so that they have an outside diameter of 7/16in. L5 is 9 turns and is $\frac{3}{8}$ in. long, the tapping being $2\frac{1}{2}$ turns from the earthed end. L6 is 10 turns, $\frac{3}{8}$ in. long. L7 has 9 turns, and is $\frac{1}{2}$ in. long. All are of 20g. wire.

144 MHz: L5, L6 and L7 are each of 5 turns of 20g., and are 5/16th in. outside diameter and 7/16th in. long. The tapping on L5 is at 1 turn.

There is no need for the coils to be exactly as described, provided they are adjusted for the wanted frequencies. If surplus formers are pressed into service for L1 and L3, the core material must be suitable for these frequencies, otherwise the cores should be removed and parallel pre-sets used for tuning.

It might also be necessary for L5, L6 and L7 to be stretched or compressed slightly, if the parallel trimmers reach the limit of their movement. These coils have straight legs about $\frac{1}{8}$ in. long which can be tinned and soldered to the *Veropins*.

L8/L9 is a *Denco* IFT17. The can is removed and the 250 $\mu\mu\text{F}$ capacitor across L8 is taken away, and the can replaced. Core adjustment will then tune about 4-6 MHz. If a home-wound coil is used, L8 should be around 40 μH , while L9 has about one-fifth the number of turns on L8.

RF Board

Wiring is shown in Figs. 3 and 4. All leads must be very short and direct. Earth returns go to the bolts "MC." Begin by placing the blank circuit boards in the metal chassis and drilling these holes through boards and metal.

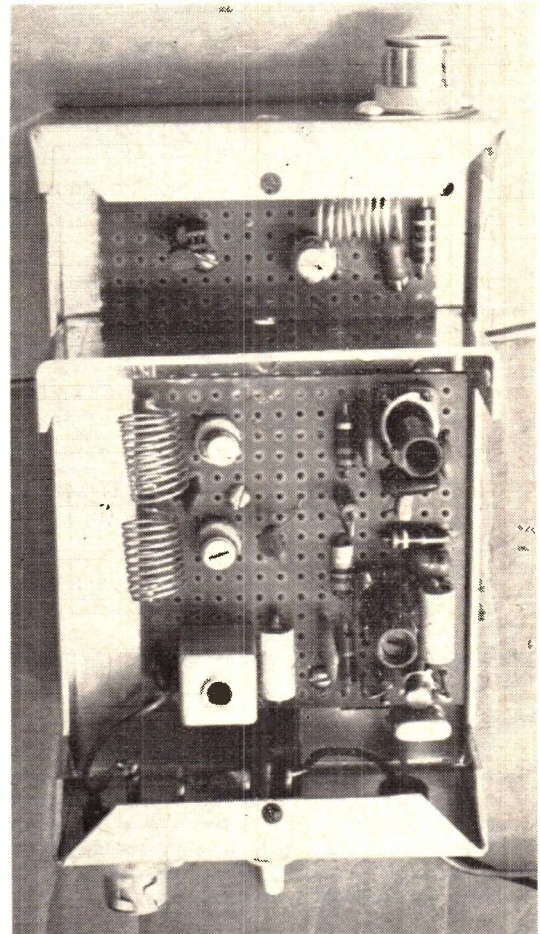
The chassis is a 3 x 8in. "universal chassis" flanged member. A piece is cut out of each side runner $1\frac{1}{2}$ in. from the ends. The member can then be bent to form a flanged chassis 5 x 3 x $1\frac{1}{2}$ in. (A sharp bend is best made by putting a piece of wood about $1\frac{1}{2}$ x 3 x $\frac{1}{2}$ in. inside the flanges, clamping the whole level with this and the cuts in a vice, and then bending over).

The screen is 3 x $1\frac{1}{2}$ in. and can be cut from a further flanged member. It has a hole or slot to pass the drain lead of Tr3.

Extra nuts are put on the 6 BA bolts, so that the circuit board can be locked in position, with leads and joints clear of the metal.

Oscillator and Mixer

The larger board is also wired as shown, not forgetting to insert *Veropins* for L6, L7 and the crystal. Flying leads are left for battery positive and the output circuit from L9. When wiring is complete, the lead coming from Tr3 drain can be cut to length and soldered to the



General appearance of the Two-Band converter, aerial input socket at upper right. Compare Fig. 3 for placement of parts and mounting layout.

pin supporting L6. This board can then be adjusted into position and locked in the way described.

An on-off switch is fitted at one end of the chassis, and the battery leads pass through a grommet. Wiring is completed by soldering the load to the output socket.

Main Receiver

This Rx, of any usual type, should have terminals or sockets for a dipole input or co-axial lead, to run from converter to receiver. Any stray pick-up here will result in the break-through of fundamental 4-6 MHz signals. With a sensitive main receiver it is not easy to prevent *all* leak-through of these signals, but with a screened Rx and coax lead, they should be almost negligible.

A piece of metal 5 x 6in. is bent into a channel 5 x 3 x $1\frac{1}{2}$ in. to fit round the chassis enclosing the converter circuits, and is held with self-tapping screws. It is fitted after adjustment. Six holes may be punched to

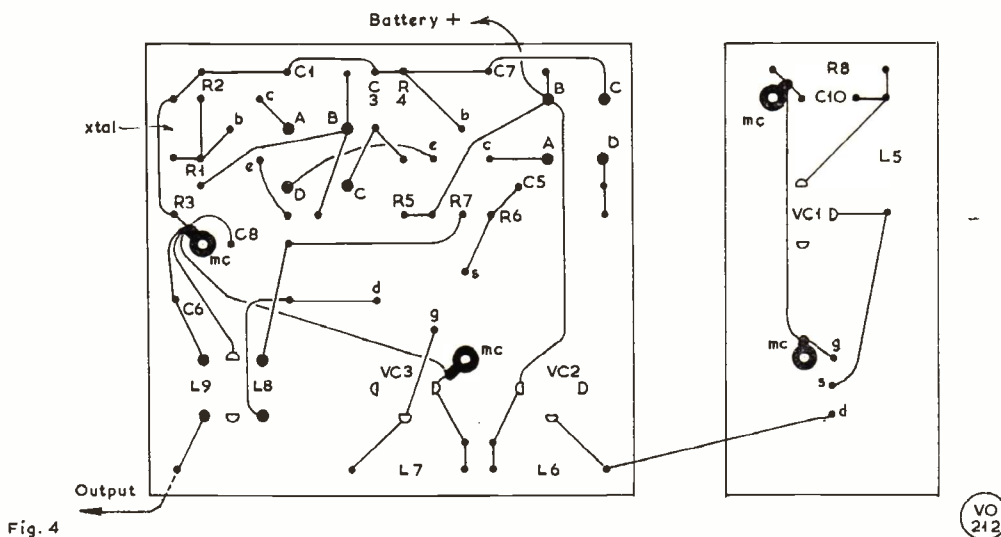


Fig. 4. Wiring layout under circuit boards.

allow the coil cores and trimmers to be touched up with the cover in position.

Osc. Adjustment

The core of L1 is set up for maximum current on a meter in one battery load, and is then backed off slightly, in the usual way with a crystal oscillator, to give reliable starting when the converter is switched on. If the core is just on the peak, the oscillator will probably not start, if the converter is switched off, and then on again. This is where the oscillator adjustment comes in.

Other Trimming

L8 can be peaked with a received 70 or 144 MHz signal, or by using a signal generator, or at 4-6 MHz by switching the converter off and placing an aerial lead near Tr4 drain, and tuning in any signal head. For 70 MHz, L8 is peaked around 4.3 MHz or so—but for 144-146 MHz efficiency is best if it is peaked for that part of the band where most interest lies.

Trimmers VC1, VC2 and VC3 are adjusted for best reception when a signal is tuned in, or can be slightly staggered to increase the bandwidth of the converter. The core of L3 is also adjusted for best reception.

If L5, L6 and L7 are all much off tune, no signals at all may be heard. If a signal generator is available, this will be of great help in making provisional adjustments. Should the generator not go up to 70 or 144 MHz, it should be possible to use a harmonic, such as 35 MHz or 23.3 MHz, for 70 MHz. It may also be possible to peak these circuits for maximum noise, but this can be a bit difficult initially if all the circuits are badly out. Once a 4m. or 2m. signal has been received, tuning up on this is of course perfectly straightforward.

It ought to be remembered that if Tr1 ceases to oscillate, no reception at all is possible. Also, that two-metre and four-metre activity is very much a matter of

local circumstances, day, time of day, etc., and varying the whole way from plenty of activity to almost complete silence. But in most parts of the southern area of the U.K. the main beacon GB3VHF, Wrotham, should be coming through on 144.50 MHz—and there are others, such as GB3ANG, Angus, 145.96 MHz; GB3CTC, Redruth, 144.13 MHz; GB3DM, Co. Durham, 145.98 MHz; and GB3GM, Thurso, 146 MHz. These can serve both as tuning-up signals and as calibration markers. All are in continuous (24-hour) operation.

PETER PENNELL, G2PL

We very much regret to have to record the passing of Peter Pennell, G2PL, of Wallington, Surrey, on 14 October, 1972, after a long and painful illness, borne with great courage and stoicism. Professionally an electronics engineer and one of the pre-War OT licensees, he was a very fine CW operator, his main interest being DX on the HF/LF bands, of which he was an outstanding exponent; he was also active on VHF and took part in many of the activities, indoor and outdoor, of his Club, the Surrey Radio Contact. He was president of the F.O.C. for the year 1971-'72 and was an unfailing supporter. His last days were made a bit happier by a bedside rig designed and installed for him by his friends; he learnt to send Morse left-handed and to deal with a large mail by tapping a typewriter with one finger. To all who knew him he set a fine example, not only as a radio amateur but by his bearing in adversity.

AN SWR BRIDGE

DESIGN AND CONSTRUCTION

J. S. CUSHING (G3KHC)

THIS SWR bridge is another very simple one made up by the author. It has proved itself useful on the LF bands and of some value at the higher frequencies.

As the design is so straight forward and since the Bridge is uncalibrated it may be questioned whether such a device is worth building. This can be answered by two points: Time and effort involved are small, secondly, it was found by using this bridge to adjust ATU's on 160 and 80 metres, optimum results were obtained, no better signal reports being obtained subsequently however much juggling was tried with the ATU. It is also worth remembering tuning up with a bridge is far easier than by watching three meters at once—PA current, aerial current and field strength meters!

Circuitry is shown in Fig. 1 and needs no description. There are, however, a few practical details which must be mentioned.

The coax sockets are not marked in the diagram, nor are the positions of switch S1—it is easier to determine these when the finished bridge is tested. RF line and pick-up lines are made from an unmodified length of coax cable, arranged so that RF passes through the *outer* braiding of the cable, the *inner* being used as the pick-up. Employing coax "inside out" does mean the bridge impedance is not 70 ohms. This is a valid criticism, but practice has proved the bridge reliable, at least on the LF bands.

A length of about 10in. of coax for L1 and L2 is right for Top Band, using a 0.5 mA meter. A greater or lesser length will result in increased or decreased sensitivity, but varying the value of R2 is a far easier way of altering sensitivity.

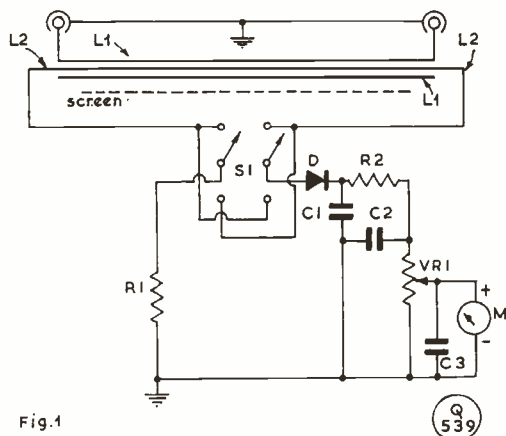


Fig. 1

Fig. 1. Circuit of the Bridge discussed in the text. Values can be: C1, C2, C3, .001 mF disc ceramic; R1, 100 ohms; R2, 1000 ohms; VR1, 5K, carbon (all resistors rated 1w.); D, small signal diode; L1, L2, ten inches of coax cable (see text); S1, DPDT wafer-type switch; meter, 0.5 mA f.s.d.

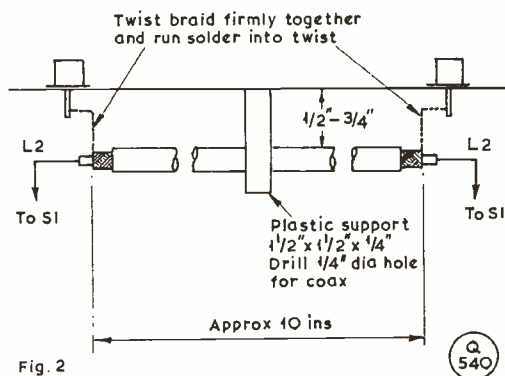


Fig. 2

Fig. 2. In this view, screen and other components are behind the L1, L2 line.

Of the components indicated in Fig. 1, only the diode is unspecified. This may be any small signal diode.

Fig. 2 shows in detail how the cable is soldered to the pins of the coax sockets, forming a fairly rigid assembly at each end. One or two supports along the cable run may be needed and can be improvised from a scrap of plastic anchored with *Araldite*.

Fig. 3 shows the coax mounted along one side of the chassis with a screen between this line and the remaining components, the approximate position of which is indicated. A chassis 12in. long by 2in. deep is suggested. A width of 5 or 6in. will allow for a built-in meter, but a narrower chassis can be used if external metering is preferred.

Setting Up

Checking the finished bridge is done as follows: It is assumed a 10-watt 160/80 metre Tx is used. See that the transmitter is correctly loaded into a 70-ohm dummy load, then place the bridge in circuit between Tx and load. If S1 is moved backwards and forwards and the same time VR1 is slowly advanced, a position will be found for S1 where no meter reading is seen, but when S1 is reversed some meter indication will be found. Leaving S1 in this position advance VR1 until meter f.s.d. is registered. Finally, reverse S1 to check that the meter still reads zero. (A reading of a few micro-amps may be ignored).

Now mark the bridge as follows:

- (i) Coax socket joined to Tx—In or Tx.
- (ii) Coax socket connected to load—Out or ATU.
- (iii) S1 to give meter zero—*Reflected*.
- (iv) S1 to give meter f.s.d.—*Forward*.

In use the bridge is placed in the coax line between Tx and ATU, with S1 at its "reflected" setting and the transmitter tuning correctly adjusted into a 70-ohm aerial feed. All that is done now is methodically to adjust the ATU until the bridge meter reads a *null* which is only a little above zero. ATU adjustments are usually so easy there is no need to outline a procedure, but it helps if the ATU coupling is slacked off and only tightened to optimum after other settings are found.

The author is not equipped for all HF bands but a

Fig. 3. This view shows lid of chassis inverted. Parts are mounted on underside.

fellow amateur assisted with the load of an HF-band Tx and with a dummy load the bridge behaved normally. A 20-metre and 15-metre dipole (both of which were known not to give a perfect match) were also tried and a meter reading a little above zero confirmed the slight mis-match. It would seem, then, that this bridge could be of some use at higher frequencies, though R2 should be increased in value.

Regarding calibration, this has not been considered. On the LF bands the bridge is used as a tuning aid, and in that capacity performs very well.

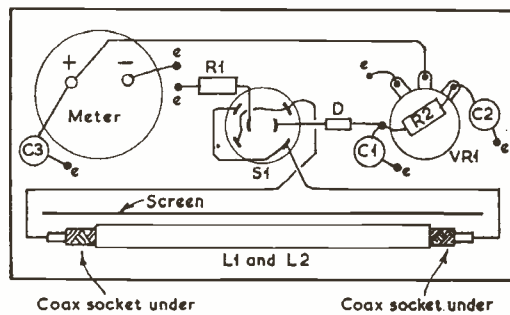


Fig.3

TERMINAL UNIT IN SOLID STATE FOR RTTY

USING TRANSISTORS AND IC UNITS THROUGHOUT—NO AF TUNED CIRCUITS—FAST, CLEAN OPERATION—ANY T/P CODE, FREQUENCY SHIFT OR SPEED ACCEPTED

Part I

J. M. OSBORNE, M.A., F.Inst.P. (G3HMO)

THIS TU uses transistors and IC's. The phase-locked loop principle is exploited to give a versatile performance and avoids the need for tuned AF circuits.

When I had the urge to explore what was for me a new field, RTTY, I acquired the standard equipment, a Creed 7B printer, a perforator and a tape reader. I then read the standard amateur handbooks on RTTY. Although the principles remain unchanged, solid-state devices have come a long way since this literature was published—the techniques described involve valves and polarised relays. I decided that rather than start looking for valve holders, transformers with filament windings and so on, I would, as an exercise, design and build my own TU. As I am a complete novice in this field, the reader must treat this as a report rather than an optimum design; the TU, however, has proved itself and there seems no reason why similar units should not be equally satisfactory.

The first problem to strike one is that of switching the current in the printer magnet. The magnet supply is around 100 volts and, if not suppressed, peaks of several times this can occur on switching the inductive load. As it was felt that the conditions would kill any transistor instantly, the reed relay was considered as it is compatible with transistor equipment in general. However a test showed that the relay contacts could not cope. Apart from producing RF hash the contacts ran for only a few minutes before becoming intermittent and finally welding themselves together! This led to a search for a transistor

which would stand the conditions. But first let's look at the printer circuit.

Driving the Printer Magnet

The printer magnet drives the mechanical selector mechanisms from the electrical switched supply outlined in Fig. 1. The coded information coming in operates the key which switches the current through the magnet one way for "mark" (M) and the other for "space" (S). This key can be the direct contacts on a keyboard, relay contacts or, of course, switching transistors. It would be

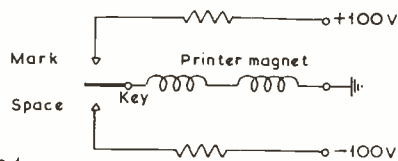


Fig.1

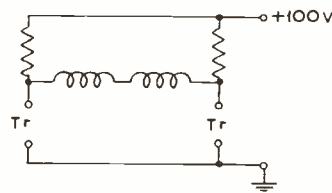


Fig.2

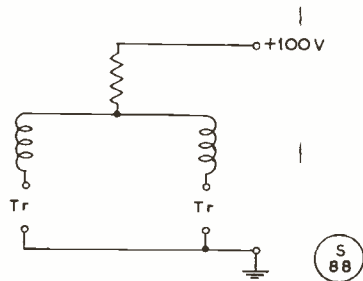


Fig.3

Fig. 1. Conventional circuit for mark/space keying of the printer magnet. Fig. 2. A possible way of keying using transistor switches. Fig. 3. An alternative to Fig. 2 in which advantage is taken of the split winding of the magnet.

G3HMO DE G3WMQ OK THERE I HAVE FORGOTTEN YOUR NAME BUT MINE
 MICHAEL I WILL SEND YOU A TEST TAPE JUST TO EXERCISE YOUR
 PRINTER ONE MO

G3WMQ OF AND CLEAR WITH G3HMO AND NOW ON A/S ON 144.600 MHZ.
 AT 1800 Z

*Piece of actual printer copy, untouched, as
 obtained over the air with the Terminal Unit
 described.*

necessary to use complementary transistors in order to reverse the current in this circuit and suitable complementary pairs do not seem readily available. Fig. 2 shows a circuit which uses two of the same type of transistor. It will be seen that whichever transistor is on, current flows through the magnet coil. The direction is changed by changing the transistor. Now, the magnet coil has two windings (all ends accessible) and Fig. 3 shows a further possibility, which was finally adopted. Roughly twice the current through half the coil, i.e., the same ampere turns, should produce the same drive. A vital factor which must not be overlooked in making alterations of this sort is the time constant. The current through an inductor builds up to 63% of its final value in a time determined by dividing the inductance in Henries by the series resistance in kilohms, the time constant being in milliseconds. The mark/space operation of the magnet occur at 20 mS per change. If the magnet is going to respond to a square wave of the mark/space pulses, the time constant of the circuit must be about one or two milliseconds. The inductance of the magnet is around 4 or 5 Hy, which gives a suitable resistor value of 2.4K. By halving the turns, one quarters the inductance and so R must be reduced accordingly. In fact, a standard mains dropper makes an ideal high wattage resistor, an 800-ohm 0.3 amp. rating being used although the current through is only 100 mA approximately.

The search for a suitable transistor type ended when *Birkett's* advertised a high voltage n.p.n. power transistor, RCA type 40546, at 20p. These have proved very robust, having survived being subjected accidentally to a prolonged spell of several hundred volt surge-spikes when suppressors were omitted from the circuit. The same transistors are still going. It has been suggested that a BFX85 is also a suitable type, but I have not tried it myself.

Circuit for the Magnet Drive

The collector-base voltage rating of any transistor is greater than the collector-emitter voltage rating and so the common-base circuit is used as shown in Fig. 4. The current gain in this case is close to unity and so the emitter current requirement is, like the collector, about 100 mA. The Ferranti ZTX500 (or most other GP p.n.p. silicon transistors) will switch this emitter current drawn from the 9-volt negative supply through a suitable resistor R13. A wire-wound is used as it gets hot; 56-ohm value allows for the drop across the transistors. To switch on fully the ZTX500's 2.2K bias resistor to the negative supply is used.

The mark/space comes from the level detector output (see later) as a change from plus 3-volt to minus 0.5-volt. This signal has to switch the bias resistor of the two ZTX500's. The circuit to achieve this is a long-tailed pair also using ZTX500's, as shown in Fig. 5. A current from the positive supply set, more or less, by R8 divides between transistors Tr2 and Tr3. The bias control VR5 is set to about 1 volt positive. If the input to Tr2 is +3, then the transistor is off and R9 is connected to Tr4 to bias it on. At the same time Tr3 is on and all the R8 current flows through it, bringing the collector to a slightly positive potential. The end of R10 is held above ground and Tr5 emitter likewise, so that Tr5 stays off. If the input to Tr2 goes to -0.5 volt, the complete mark/space situation is reversed.

The Discriminator

The mark/space information for RTTY comes over the air as FSK in the HF bands and as AFSK on two metres. It was decided to plan for the latter. By judicious

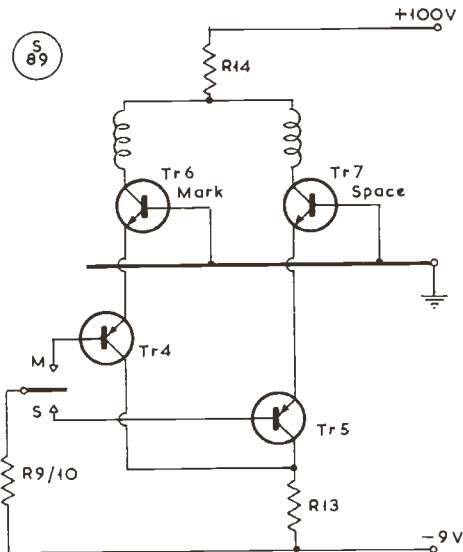


Fig. 4

Fig. 4. Showing how the Fig. 3 state is achieved with switching transistors Tr6 and Tr7 in common-base configuration. With about unity gain, emitter and collector currents are nearly equal, provided by the two small p.n.p. silicon transistors, Tr4 and Tr5.

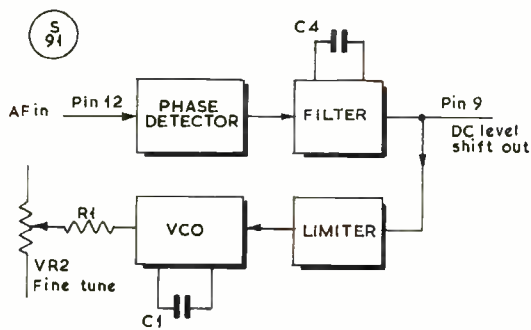


Fig. 6

Fig. 6. The four boxes represent the internal functions of the phase-locked loop integrated circuit used as the discriminator in the TU. The essential external connections and components are shown. C1 sets the VCO free-running frequency, while VR2 and R1 give fine control. C4 is the low-pass filter to remove HF components in the output of the phase detector. Fig. 7. This shows how the PLL IC is interfaced with the level detector. The inputs to the 710-OPA level detector should be nearly at earth potential but the output of the PLL is at a mean of several volts positive. Both IC's run from +12v. and -6v. supplies.

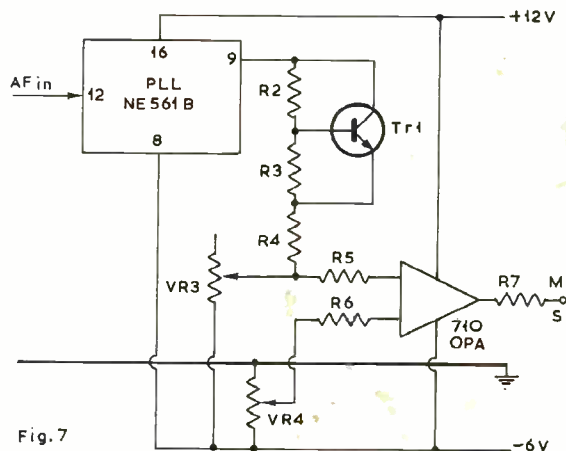


Fig. 7

low-pass filtered, limited and used to control the VCO so as to bring it into lock with the audio from the receiver. The PLL will lock over the range 2 to 3 kHz.

The DC level out of the PD varies according to the frequency locked to. Over this range the level shifts less than 0.1v. about a mean value of several volts positive. This shift is transferred to a mean value slightly negative to operate the shift level of the 710-IC shown in Fig. 7, which in turn drives the long tailed pair of Fig. 5. The mean level is transferred by the transistor Tr1. This behaves like a zener diode the voltage of which can be set by R2 and R3. The output of the 710 is either +3 or -0.5 volts, according to the polarity of input (1) with respect to the input (2) bias level. It switches on a very small input level change. In the absence of an audio input to the PLL, VR3 is set to make input (1) slightly negative. VR4 is then used to set input (2) to the same value. The mark/space frequencies will take the input (1) above and below input (2) and so switch the level detector.

(To be concluded)

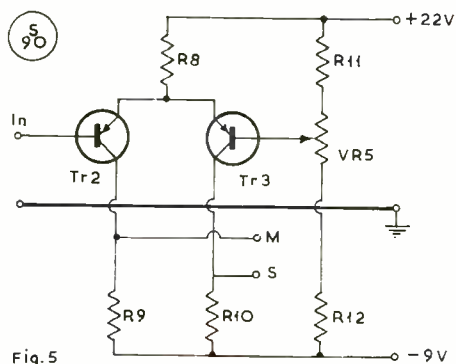


Fig. 5

Fig. 5. The level detector in Fig. 7 switches this long-tailed pair which in turn switch Tr4 and Tr5. The collector loads for Tr2, Tr3 are the bias resistors for Tr4, Tr5.

use of the BFO on the HF bands, the audio output frequencies of the receiver can be made compatible with this unit and so receiver modifications are unnecessary in either case; the receiver audio output can be fed direct to the TU.

The standard used for amateur AFSK is 2125 Hz for "space" and 2975 Hz for "mark." Being impressed with the potentialities of the phase-locked loop principle (PLL), the Signetics NE-561B was used to do the discrimination. Briefly, the voltage controlled oscillator (VCO) shown in Fig. 6 is set to free run at about 2.5 kHz. The audio from the receiver is compared with the VCO frequency in the phase detector (PD). The output voltage from the PD is

F.O.C. ANNUAL DINNER

This was the Club's silver jubilee occasion, for which there were about 180 present, at the Lords Banqueting Suite on October 7—again with a strong U.S. contingent and several European visitors. In the much-regretted absence of Peter Pennell, G2PL, due to illness, the chair was taken by Bill Craig, G6JJ. Tom Littlemore, G8AX, of Wolverhampton, was inducted as president of F.O.C. for the coming year. The event has been described as "a very good show, one of the pleasantest F.O.C. Dinner occasions yet"—though tinged with sadness because of the circumstances surrounding the absence of G2PL. Station GB2FOC has been specially licensed and installed in the ante-room for the day and was successful in working, in a long on-the-air session lasting until midnight, a large number of F.O.C. members the world over. Len Berger, G3JLB, who had served for many years as secretary, received a commemoration plaque. The present hon. secretary of the First-Class CW Operators' Club is Capt. W. H. Windle, G8VG, 121 Laburnum Avenue, Dartford, Kent.



SHORT WAVE LISTENER
FEATURE

By Justin Cooper

WHY MORSE?—MORE ABOUT ATTENUATORS—
POINTS FROM THE MAIL —
READER QUERIES — LATEST POSITIONS
ON THE LADDERS

A TOPIC that crops up often enough in the mail, one way or another, is that of Samuel Morse's code—and why should an SWL learn it for an HF band licence when he will never use anything more than SSB? Perhaps a fair question, but one that pre-supposes a certain lack of background knowledge of the game. In the first place, the Morse standard laid down is an I.T.U. requirement and not just a fiendish invention by our MPT. Basically, we have many of our bands on a shared basis, with the other sharers having priority—and this is quite legal, unlike the position of an intruder into an *exclusive* amateur band. The sharer has to be able to ask the operator to QSY if interference develops, and may have to use CW to do so—*ergo*, we have to learn Morse to a specified standard. However, we do not have to take a driving test annually, and the same goes for Morse as long as we keep a ticket going; but if we drop our licence for a year, we have to re-sit the Morse. It's fair enough, and, after all, the authorities could interpret the requirements laid on them in connection with licence issuance a *lot* more stiffly. We should be thankful the Morse Test requirement is so lightweight, and shut up.

Newcomers

D. Harris (Telford) has a Trio 9R-59D, an aerial 45ft. long running round the bedroom floor, and a Joymatch unit to tune it up with. He has made the mistake of assuming the starter of 200 was a sort of free gift as an inducement, so his total claim had to come down by that 200 number! Never mind, David is well on the way to hearing his first 200 for an entry next time, possibly. On the question of prefixes, he (and others, too) wonder about the odd chaps sporting a number after their call, as WIBB/1 for instance. It is a common method of denoting what we in this country call /A or /P operation, away from the home base, where the suffix indicates the call area from which the portable operation is taking place.

A query from *this* end now—who is it who lives in Bexleyheath, has an R.1155 and a Codar receiver, is ISWL G-14000, and forgets to sign his name to his HPX first entry? First correct solution opened gets his entry entered in the list next time!

On to R. Sharpe (Orpington) who has a Trio 9R-59DE, used with an RQ-10X Q-Multiplier and a 35-foot aerial; he finds the lively hours to be from about 2300 to 0100z, when he has heard all sorts of Asian and Central/South American countries at good strength.

R. MacLeod (Glasgow W.3) uses Codar gear to an

end-fed fifty-footer, with an ATU, as it were, on the stocks, as well as an R.A.E. course—however, the latter tends by the sound of things to be pressed a little by the demands of "career" evening-classes.

A long and interesting letter from J. L. Burd (Llanelli) raises among others the question of the use of a tape-recorder in winking out DX prefixes on the bands. Difficult to say, really—some people swear by them, and make a good case for their faith, others claim they are just too much bother to have to set up. Transmitters often find RF gets into them. There *is* one in the J.C. set-up, and it is used fairly frequently—when more can one say?

R. Pullen (Crawley) has a Skywood CX-203 to a gaggle of assorted aeriels, and since the beginning of the year he has made a total of 330 prefixes come out of the speaker and into the log-book.

M. Cornwall (Harefield) seems to have stepped into that very good spell on Twenty just a few weeks ago, and logged some quite interesting DX—he is acquainted with our old friend H. M. Graham, so is doubtless being shown the "right way" to go about DX-chasing.

Sheffield is the next call, where S. Hurst has a nice list, despite his UR1A receiver having a fault in the alignment of the HF range, so he can either tune Ten, Fifteen or Twenty, to choice, by twiddling at the "innards" of the Rx—sounds as though it needs proper re-alignment on that range.

W. Stallard (Cardiff) has an AR-88D, Coupled to a Joystick, for his SWL station, and seems to get lots of fun out of it. He enters a first list for HPX, too.

Years ago, back in Birmingham, P. G. Jerromes (Torbay) used to listen-in with his father, and they had a total of upwards of 600 prefixes booked in. Then came girl-friends, followed by marriage, and it was all forgotten till a few months ago—now there is a Mosley CM-1 receiver on HF, plus a Hallicrafter S.38-E for Top

NEW HPX LADDER

(Starting January 1, 1972)

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
A. West (Herne Hill)	465	P. G. Jerromes	253
R. Pullen (Crawley)	460	(Newton Abbot)	252
N. Gerdes (Baskinstoke)	458	A. K. Milner (Grantham)	247
M. North (Bath)	434	R. Sharpe (Orpington)	243
P. Newman (Thame)	424	W. McFaul (Londonderry)	230
P. Barker (Sunderland)	382	M. Winiberg (Penzance)	229
Mrs. R. Smith (Nuneaton)	372	S. Hurst (Sheffield)	226
R. Philpot (Shenfield)	364	R. McLeod (Glasgow)	212
B. Stowe (Penzance)	358	W. Stallard (Cardiff)	211
J. Gravell (Burry Port)	338	D. Harris (Telford)	210
K. M. Rogers (Ullesthorpe)	305	R. Jones (Reigate)	302
R. Smye (Parkgate)	302		

Listings include only recent claims. Starting score 200. Rules as for HPX—see Panel, p.420, September 1972.

Band—aerials are a dipole on Twenty, plus a random-length wire in the loft; the R.A.E. course is also in progress.

Attenuators

A. E. Townshend (*Fowey*) has a letter in which the history of your conductor's (and G3KFE's) advocacy of the attenuator is brought to light—it seems the point possible requires re-examination. The reasoning is a bit like this: Back in the old days, when the HRO and the SX-28 and similar receivers were first designed, the limitation on the sensitivity of a receiver was the gain needed to overcome the noise of the mixer, at least above about 10 MHz; RF stage valves were, in themselves, noisy by modern standards, and so two RF stages were usual. Then, along came SSB. Now you have far more "communications power" in the signal than before—our G, for instance, can put out 400 watts *peak*, against a peak sideband power on AM of about 30 watts from 150 watts input; add to this that you have lost the carrier as a source of AGC. So signals have become far stronger, across the board.

On the receiver technology, we have some more factors such as the increase in the use of transistors, and the reduction in the noise of valves, both RF pentodes as such and mixer types too. If you take a 7360, for example, in mixer service, its noise figure is far better than most RF valves, and low enough to make aerial-induced external noise the limiting factor in design. This being the case, the only justification for keeping the RF stage—let alone *stages*—is as an aid to avoid the local oscillator signal being radiated.

Now consider a receiver having a gainy RF stage—the majority of SWL receivers are still of this type—in the presence of a big interfering signal. If one turns the RF gain down, one desensitises the receiver, true enough, but you also degrade the receiver's best signal-to-noise figure. If on the other hand, you leave the RF gain where it is and attenuate the signals before they reach the receiver, then you retain the best possible signal-noise ratio. How important is all this, you may ask? Suffice it for J.C. to say that the receivers of the 1950's were better by far in this respect—cross-modulation rejection—than the modern receivers are, generally; and to add that the top manufacturers, like Yaesu and K.W., to name but a couple, fit RF attenuators as standard equipment, even though they call them "gain controls."

Does anyone know anything about LA9FB/AR, located 100 km. north of Bergen, wonders *A. West (Herne Hill)*. Probably connected with some special-activity event, one would think, to judge by the call; but perhaps someone has more detail.

A nice turn of phrase arises in the course of the letter from *L. A. S. Poole (Winchmore Hill)*, who says, of his new KW202 "a selective receiver and a *directional* aerial go together like Coca and Cola!"

On a different tack altogether, we have a note from Joy Boatman, producer of the BBC World Radio Club, to say the BBC will be giving away QSL's in exchange for reports on the programmes of the club on November 9, 10, or 12, as part of the BBC 50th Anniversary series. The address for details is World Radio Club, BBC Bush House, London.

A contest falls to be mentioned now—the ISWL DX Contest, which is on 14-21 MHz over the period 0800-2000 *local time* on December 10. Details from C. Tooke, 6 Chelmer Avenue, Rayleigh, to whom also the logs must go, to arrive not later than January 19, 1973.

M. North (Bath) has just moved there from his old home in Bristol, and finds *Aquae Sulis* to his liking radio-wise, both on Top Band and VHF. He wants to know just what a GDO is, and what it is used for? The letters stand for Grid Dip Oscillator; the instrument itself is just an oscillator, valve or transistor, with its coil sticking up out of the box, and its circuit so adjusted that the slightest change in the surroundings is shown up as the biggest possible change of grid current. Such a device can be used first—though with care—as an unshielded signal source, or, possibly more important, as a means of checking the resonant frequency of a coil-capacitor network—at the resonant frequency the GDO will show a dip in the meter current. Then, from this, one can use it to find the value of an unknown capacitor, or an unknown inductor, by substitution methods; also to find the resonant frequency of an aerial or the electrical length of an aerial feeder by itself. In fact, after you have owned a GDO, you usually end up wondering how the blazes you ever managed without one!

For *J. H. Sparkes (Trowbridge)* the main event in an otherwise inactive month was the Brazilian contest; on the shack side, a new aerial came in the main from the scrap-yard—the masts made of water-pipe slipped over existing washing-line posts.

On the prefix front IA5TAD puzzled *E. W. Robinson (Bury St. Edmunds)* a little, as IA5 does not appear in his Prefix List—ah, but it *does* appear in the latest one, as Tuscan Archipelago!

G3XTJ would probably be flattered to know that *J. Fitzgerald (Gt. Missenden)* uses him as an indicator of conditions, for when he himself puts in time on the LF bands—and John may well be on from his /A place in Enfield with an RA-1 by the time we come to read this piece.

Like John Fitzgerald, *Bruce Thomas (Pontefract)* spends much of his time on the HAB/WAB scene, an area where he is well on into the award region. A secondary interest is in overtaking father *Les Thomas (Castleford)* in the HPX ladder.

P. Barker (Sunderland) is thinking of moving shack out into the garden shed—must be some QRM indoors to make the cold outside attractive! He is active /P on Top Band, Eighty and Two now, as well. In the line of prefix queries, he offers WP2, which sound like a misread WB2; JF—Japan; ID9PFR, who gave his QRA as Volcano Is., ties up quite nicely as the prefix is for Eolie Is., and Vulcano is one of the group. For the rest, along with most people, SWL Barker queried the PW prefixes for the Brazilian contests—quite OK and they have been used before if memory serves aright.

A KW-77 now graces the operating table of *S. Wessely (Sheffield)* and works for its living, too; this is one of the best of the amateur-bands-only receivers to have been on the market over the years—your conductor rues the day he disposed of his own specimen, especially as far as CW reception is concerned.

Like so many others, *A. R. Holland (Malvern)* starts the R.A.E. course—one gets the feeling that there are



The subject of our picture is SWL H. Alford, now in his 83rd year, of 5 Parsonage Road, Berrow, Burnham-on-Sea, Somerset, who has more than 230 countries logged, phone only. He runs an Eddystone EA-12 with his main interest in the 10-15-20m. amateur bands, having a resonant vee-dipole for each band, selectable by a switch unit which also earths down the aerials not in use. His second receiver, to the right of the EA-12, is a home-built general coverage job, completed last winter. We wish SWL Alford, who started in 1930, many more years of successful DX listening.

more people than ever who write to this column going in for R.A.E. this year, including some long-time SWL types.

* * *

It is often said that the aerial is the most important part of the mechanics of an Amateur Radio station, although it is not quite so important for the SWL whose keen ears can resolve signals the transmitter dismisses as too weak to work; nonetheless, C. K. A. Verstage (*Old Basing*) is only about the third SWL your scribe can recall in years who runs a beam—in this case a TA-32Jr.—on the HF bands, although of course on VHF a beam is common; reader Verstage himself has a 14-ele. Parabeam on Two.

Oh dear! A. W. Nielson (*Glasgow*) has finally made up his mind about moving, and will soon be in his new abode—now he finds his new home is in reputedly the worst part of the area for TV reception, which augurs ill for his prefix-hunting!

A whole string of prefix-queries appears next, from C. Lancaster (*North Ferriby*). However, we can sort them out quite easily by saying the "E4TAJ" is probably a misreading of a legitimate callsign, while the 13MNC with a string of letters and numbers after his call counts

as what he is—an 13.

N. Gerdes (*Basingstoke*) is pleased with himself. He saved his operating table from collapsing under the weight of the CR-100 by a few quick modifications, and since then has completed a bench power-supply (which worked straight away) as his first attempt at a complete design-and-build job, with the handbooks giving only general guidance. Good! !

Sad to say, there is some more revision to be done by K. Plumridge (*Southampton*) before the next R.A.E., Keith having had the misfortune to dip the second part of the paper—but keep at it is the only helpful advice we can offer! Seriously, though, if circuit diagrams are to be memorised, it is as well to know just what purpose each component serves—then when the circuit is drawn to check it by seeing that it works as you intended at each component you have drawn; most of the errors seem to be of the "silly" variety which a moment's checking will invariably reveal.

M. Kitchener (*Hitchin*) has been going through some of his old logs, back to 1965-time, and dug up some prefixes to hoist him up into the All-Time list. He queries the validity in the HPX sense of the VU25 calls that are currently about—if they are genuine, and they

are, they become countable—even though we suspect lots of SWL's are cussing the two-number call allocations for the dent they make in what was once a good recording system for prefixes in the shack. Alas, progress was aye a sore business!

SWL award-hunters could well patronise *S. Foster* (Lincoln) with their trade, he being custodian of the Lincoln Century award. Stew would be highly pleased to accept requests for details, at 24 Dunston Road, Metheringham, Lincoln LN4-3ED. As for his own score, despite the calls of married life (the paint-pots!) he still contrives to find the odd one or two to keep him moving.

An interesting point crops up in the letter from *G. Raven* (Lewisham), who asks what other hobbies do SWL's go in for—his own choices being Music, Mathematics, Speedway racing and SWL. Most amateurs and SWL's above teen-age seem to list photography as an interest—what else is offered?

M. Williams (Sleaford) returns to the fold—we had all but given him up for lost!—having now disposed of his Trio 9R-59DE, leaving only the old faithful AR88 in the shack; thoughts are going out towards a Codar T28 for use in the car to listen on Eighty, there being times when Maurice has to spend time, in the way of duty on the road.

It is a bit of a surprise to your old J.C. to hear *D. Rodgers* (Harwood) say his 132ft. end-fed, tweaked-up by an ATU, is more responsive than the 14AVQ on the HF bands. Personally, J.C. finds that while more actual noise comes out of the 'speaker from his L/W, the 14AVQ produces more DX'y signals.

Lots of people, among them *D. Harris* who has already been mentioned, have questioned the 9H4 calls; they are from Gozo, which is a sort of "satellite" island off Malta. Incidentally, those who like their history will find the account of the siege of Malta, written up by *Ernie Bradford*, quite interesting, Gozo being mentioned in that story—strange how Malta should have been the scene of two of the greatest sieges in history, the second one of course being the one by air power during Hitler's war.

An old friend returns to the lists after quite a period of relative inactivity—U5ARTEK, heard by *H. Stephenson* (Newcastle-on-Tyne) and queried. Yes, Howard, U5ARTEX is for real, and has been around at least as long as your J.C. has been punching this typewriter. As for Market Reef, it is, as with so many of these "countries", a bit of land that dried out at low tide and has a lighthouse perched on top. Creep up the Baltic to the point where you are debating whether to go up the Gulf of Bothnia, or the Gulf of Finland, and seek around there on a good atlas, or better, a chart of the area. You won't find it in the minor atlases—even Bartholmew's Edinburgh atlas doesn't show it.

Congratulations to *W. Edwards* (Tadworth) on his becoming G8GHD—SWL'ing at the moment is being held up by the demands of building a VHF transmitter, and a garden-shed shack.

J. Dunnett (Mons.) re-appears from about his fifth starting-point for HPX since he has been entering, due to postings from place to place. Jim has a query in the shape of FHØDL—Moroni, Comoro Is., and name of Uli.

M. Peters (Newbury) seems to be one of our younger

HPX LADDER (All-Time Post War)

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
S. Foster (Lincoln)	1269	E. Parker (Hove)	685
R. Shilvoek (Lye)	1240	B. Thomas (Pontefract)	648
T. Rootsey (Ilford)	1169	D. A. Shepherd	
A. W. Nielson (Glasgow)	1130		(Brierley Hill) 647
J. Singleton (Hull)	1129	S. Wessely (Sheffield)	638
J. Fitzgerald		A. Judge (Bishops Cleeve)	621
	(Gt. Missenden) 1080	C. Lancaster (North Ferryby)	618
K. Kyzor (Perivale)	979	W. Taunton (Meopham)	618
W. Edwards (Tadworth)	966	Mrs. S. Singleton (Hull)	615
I. Brown (Newtownabbey)	954	C. K. Verstage (Old Basing)	607
G. S. Taylor (Rugeley)	950	J. Woods (Woodbridge)	590
R. Carter (Blackburn)	940	H. Stephenson	
A. Mercer (Wigan)	914		(Newcastle-on-Tyne) 569
H. Alford (Burnham-on-Sea)	892	J. R. Cowan (Rochford)	565
M. J. Quintin		O. L. Cross (Bexleyheath)	562
	(Wotton-u-Edge) 882	K. C. Webb (Reading)	556
B. Hughes (Worcester)	856	M. Cuckoo (Herne Bay)	552
D. Rodgers (Bolton)	847	L. Thomas (Castleford)	518
N. Hembrey (Northiam)	806	J. Dunnett (Luton)	541
N. Askew (Coventry)	798	J. W. Jarvis	
G. W. Raven			(Rickmansworth) 533
	(London, S.E.23) 791	M. Kitchener (Hitchin)	500
S. Proud (Letterston)	741		CW ONLY
K. Plumridge (Southampton)	787	A. Glass (Plymouth)	865
J. H. Sparkes (Trowbridge)	787	G. Proud (Letterston)	640
M. Fisher (Bradford)	778	T. Rootsey (Ilford)	546
M. Williams (Sleaford)	723	W. Taunton (Meopham)	539
H. M. Graham (Harefield)	713	J. Halden	
A. R. Holland (Malvern)	712		(Newcastle, Staffs) 492
W. Bingham (Carrickfergus)	708	A. Rowland (BFPO 53)	438
E. W. Robinson		D. Rogers (Harwood)	355
	(Bury St. Edmunds) 703	R. Mortimore (Cardiff)	324
P. L. King (Emsworth)	693	J. Dunnett (Mons.)	272
L. A. S. Poole (London N.21)	687		

Starting score 500 for Phone, 200 for CW. Listings include only recent claims. Rules for HPX—see Panel, p.420, September 1972. DX Zone Map and latest Prefix List 85p post free, from Publications Dept., Short Wave Magazine, 55 Victoria Street, London SW1H-0HF.

readers at 12½. Martin has his doubts about C31FV—seems OK to us, although we have no data on his QSL'ing procedure. Has anyone any notes in their log to help a would-be QSL'er?

A length of coax given to *R. Carter* (Blackburn) has, all 80 yards of it, gone up in the loft and made a great improvement in the amount of signal pick-up—the outside aerial was getting to be roofed over by telephone wires apparently acting as screens.

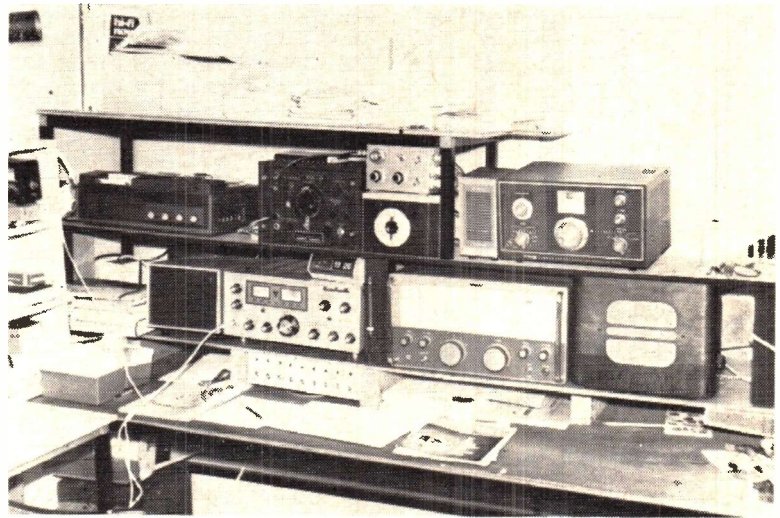
For *K. M. Rogers* (Rugby) the summer has brought out competing pursuits, to the detriment of SWL'ing, not to mention the calls of the paintbrush, but Ken has by no means lost interest—he is currently chasing counties and countries on Two Metres for an award.

Meeting the R.A.E. course lecturer at the Canterbury rally was the thing that finally decided *M. Cuckoo* (Herne Bay) to have a shot at R.A.E. himself—let us hope it works out well during the winter.

* * *

P. L. Newman (Thame) mentions in his letter how much help and encouragement he has had from G8EWF who used to be a "regular" to this piece, and G8FMK, who helped with some alignment problems; a Mosfet converter for Two has just been finished, but will now have to be modified so as to move the IF from 2-4 MHz, which used to be used with the BC-348R, to 28-30 MHz for operation with a Heath RA-1.

C. K. A. Verstage, Roundhead Cottage, Old Basing, Basingstoke, Hants., has a Yaesu FR-DX400 (left), an Eddystone 840C (centre) and a JR-500SE (upper shelf) as spare rig. Antennae are TA-32Jr. for the HF bands and 4-ele. Parabeam for two metres, complete with rotator control and indication. His station also includes a BC-221 freq. meter (immediately above the FR-DX400). The score of PX's logged is now 607.



H. Alford (*Burnham-on-Sea*) goes along with us on the question of the usefulness of Pre-selectors ahead of good receivers. He does not use one, but as his hearing is beginning to "go" a little—J.C., too!—finds it is vital to balance RF, IF and AF gain controls on the EA-12, and even on occasion to detune the aerial trimmer a trifle to obtain clear reception. As he says, the *proper* thing to do is to improve the aerial system, although this is not always possible or practical.

H. Glass (*Plymouth*), chuckling over his "21 kHz" slip last time, says it reminds him of the days back in the 1920's, when he used to receive GBR on 16 kHz out in the China seas; one guesses this is one reason why Bert is so much a CW addict, unusual in an SWL.

For K. C. Webb (*Reading*) absence has not meant loss of interest—far from it, but accountancy examinations have been proving to be hard work, though worthwhile in that Keith is now through to his finals. And we can predict that the final year will be the toughest of 'em all!

The brace of "oddball prefixes" starred in red in the list from A. Rowlands seem to be quite OK, and ZC4BI has put Alan right on at least one other, as well as coming up with a design for a four-band trap vertical using only one trap which could be the answer to the aerial problem—if the bits can be obtained in *Cyprus*.

A final-final which will be of interest to listeners as well as the transmitting fraternity is contained in a letter from m.v. *Sugar Producer*. This 14,000-ton bulk carrier is possibly the first case in G Maritime Mobile history where two stations have been licensed for /MM on the same ship. G3TZL/MM, Pete Bowen, and G3ZXH/MM, Leslie Anderson, have entirely different rigs, the former being Yaesu FT-101 and long-wire, the latter an FT-277 with a Hustler Trap vertical aerial. They have six spot frequencies, in kHz in from the LF end of each band, at 013, 020, 053, 138, 141, 198-5, and 276, giving a nice spread over the phone and CW areas of the bands. As usual in such cases, the suffix /MM means actually at sea, and /MA in port or at anchor.

Sign-Off

Only one or two people this time did not send a letter with their scores—though they have not been mentioned in the text, they have been taken into the Ladders, *if* they managed to meet the deadline—for various reasons, this time letters arriving even one post adrift have had to be put back for next time's SWL—see list below. Till then good hunting, and send your letters to reach us by first post on **24 November**. The address, as always, is "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM. 73 and, dare we say it so early, a Happy Christmas, too.

Letters and/or claims from the following were received too late for taking into the text this time. They are being held, where appropriate, for the next "SWL", in January.

M. Stringer, *Southend-on-Sea*; W. B. Taunton, *Meopham, Kent*; J. Cowan, *Rochford, Essex*; W. McFaul, *Londonderry, N.I.*; R. Shillock, *Stourbridge*; B. F. Hughes, *Worcester*; S. J. Proud, *Letterston, Pems.*; G. C. Bond, *Letterston, Pems.*; A. Mercer, *Wigan*; J. Woods, *Woodbridge, Suffolk*; E. Parker, *Hove*; H. M. Graham, *Uxbridge*; A. K. Milner, *Grantham*; J. Whittington, *Worthing*; R. Smye, *Shrewsbury*; T. Judge, *Bishops Stortford*; P. L. King, *Emsworth, Hants*; and B. Stone, *Penzance*.

HOW NOT TO DO IT

A letter from a keen reader has just reached us in spite of the fact that it bore the address "Short Wave Magazine, Buckingham, Kent"—perhaps he was thinking of "Beckenham, Kent" (!). Anyway, it is to the credit of the Post Office that this strange envelope came in with only one day's delay.

The correct address for all editorial matter is, of course, simply SHORT WAVE MAGAZINE, BUCKINGHAM no more and no less—unless you are writing from outside England, when you should add that word.

VHF BANDS

A. H. DORMER, G3DAH

THERE is little doubt that the opening of the year occurred at the end of September and during the first week of October. Reports from all over the country suggest that it was equally as good as that at the beginning of October last year, although, in the South at any rate, there was no LA and very little SM to be captured this time. HB9 was worked by many operators, but nothing was heard of OE on any band. SP and OK were worked from the North, albeit with difficulty, although SK6AB and SK6AW were very strong, both there and in the Midlands, early on in the opening.

First indications that good propagation at VHF might be expected coincided with the arrival of a high pressure system (1030 mB) which extended over most of the British Isles and through into Germany and the low Countries around September 20. The night of September 21 brought good conditions on 70 cm., which were not quite matched by those on 2m. and 4m. PAØ, ON and DL were all good signals in the South and East, with the Northern Europeans better in the Midlands and the North. The following day, a check on the Durham and Angus beacons showed them to be some two S-points up on normal at intervals during the day, and by evening GM/South Coast contacts were being made on 2m. SSB, with GM3ZBE/A as one of the strongest, 5 & 9, signals. September 23 brought excellent propagation all over the

country from areas as widely spaced as Scandinavia and Switzerland. The HB9HB beacon was well up on normal at around midnight, and many stations worked HB9ADJ/P in the early hours of the 24th. By mid-morning, GM8FFX/A, to the North West of Aberdeen, was a tremendous signal on 2m. and both GB3DM and GB3ANG were well up, as were GB3GEC and GB3SC on 70 cm. During the late evening, conditions improved still further, and GI3GXP and EI4AL were both making contacts with EU stations. Four was slightly up on normal, but activity was low.

During the next few days, the DX axis moved further South to give a lift down into France, until the second high (also 1030 mB) stabilised over the U.K. around October 3. The Durham beacon was 30 dB above noise at Herne Bay, although the Angus beacon was inaudible, and appeared not to be radiating, since it must surely have been heard under these conditions.

At severe risk to his constitution, G3DAH got up early on the mornings of the 4th and 5th in order to check propagation at this unearthly hour of 0600z. Sure enough, all beacons were well up on normal, including GB3GW and GB3SU, although both GB3GEC and GB3ANG appeared to be still off the air. A careful check was kept on the beacons on all bands during the day, and all exhibited enhanced reception, with Durham in particular reaching 45 dB above noise at times. Propagation was good all round in the evening, with GI and EI again workable in the East. At 0800z on October 5, GB3DM was stronger than ever previously recorded here, with beacons on all bands showing similar increases in signal strength above normal, including HB9HB, but excluding DLØER and DLØPR, which were not logged once during the whole of the opening. By late afternoon on the 5th, the North/South path was really wide open, with GM8FFX/A, GM3DIV, GM3FRI and GM3FVX, all from the Aberdeen area, and all good signals in Herne Bay, 420 miles to the South.

The evening of the 5th produced some of the best DX ever heard on 70 cm. OZ, GM, PAØ and DK were all worked from the South at signal

strengths between 7 & 9, and the Sutton Coldfield beacon was at 599+ for long periods. Two metres exhibited the same phenomenal rise, the OZ and DK stations being particularly to the fore. SM, SP and OK were reported as heard in the Midlands and North, and indeed, as mentioned elsewhere, GM8FFX/A worked an OK on that band. These good conditions persisted through until the early evening of October 6, but there were signs then that they were deteriorating—signals levels generally were falling and deep QSB appeared on most of the DX, although it was still to be had. 70 cm. was good enough for 150-mile contacts, but QSB was a problem here also. By October 7, the "high" had moved away, the pressure in the South was down to 1023 mB, beacons were all at normal levels again, and the band had returned to the mediocrity we have come to accept as the norm in this year of exceptional, poor propagation at VHF/UHF.

Individual Comments

GM3ZVL: I worked six OZ, six DL and one PAØ during the opening with 40 watts of NBFM. All contacts were co-channel and, with the exception of two, were also on FM.

GM8BRM, operating /P with GM8EYW from Cairnorrrie: Worked 107 stations over October 5-6, including G, DL, OZ and PAØ, and contacted PAØLSC while mobile on the way home. XYL now agrees that "if you can't beat 'em, join 'em!"

GM8EYW: I worked 60 G stations from Cairnorrrie on September 25, mostly at 5 & 9 on 2m. and on Saturday, October 7 raised LA1MB, LA5UG and SM6CSO among other Continentals. Was able to give many operators their first-ever GM.

G8FIH (Gloucester): Raised OZ, DL and PAØ on 2m. with my VXO, but must get more xtals to cover the whole band.

G3NHE (Sheffield): September 29 brought my long-awaited HB9 who appeared to be a better signal in the North than he was in the South-East. No other DX heard from that direction at that time. On October 3, had a DM/P in Rostock, and SM, several Northern DL and GC2FZC. October 4 worked GI3GXP which illustrates the extent of the opening

on 2m.

G8BKR (Bristol): GD8EXI was putting in a regular signal here, and GM8FFX/A was logged on September 24.

GW8FKB (Anglesey): GM8FFX/A was a very good signal over September 24—27. Also worked GM8CDV/P near Aberdeen and subsequently from near Glasgow.

General Comment

September 23: G3EKP (Blackburn) worked GM3TNT/P near Castletown, Argyllshire, on 70·26 MHz.

September 24: G8BHH (Wolverhampton) made it with F5NS on 2m. No other French were reported audible in the Midlands at the time. GW3NNF (Anglesey) contacted PA0EZ, PA0PRY and an HB9. G3BW (Cumberland) and G8BCG (Manchester) made it with F1AVG. GM3JFG worked G3BA, G3NEO and G3NAS, among others, from Ross & Cromarty. GM3ZVL and G3NEO made it on CW on the SSB channel. GM3ZBE/A, near Aberdeen, contacted an HB9. HB9AMK/P was 5 & 9 with G3DAH while he was working F1AJW. G4BKP (Mildenhall) worked F6BJP/P in the South of France. F8SH in Brittany was copying GM3ANG at up to 579 with some QSB. (QRB about 1,000 km.!!) Also reported that GB3GM was copied by French stations.

October 3: G4AGE (Chesterfield) worked SK6AB, SK6AW and 20 other EU stations during the evening.

October 4: G3KEU (Hants.) worked SK6AB, but was having difficulty in copying the Midlands stations.

October 5: While in contact on 70 cm. with G3DAH, OZ5AH stated that he had worked 50+ G stations on the band that evening. G4BEL (Ely) worked a DM on 70 cm. and GM8FFX/A made it with G3BHW and G3DAH. The Angus beacon reappeared on 2m. around midnight. G3JHM (Worthing) worked HB9 on 70 cm.

October 6: GM8FFX/A raised OK1MBS at 5 & 6 on 2m. and was hearing an SP. The German repeater on 145·75 MHz was causing QRM to the U.K. repeater, GB3PI, late afternoon and early evening. G4BEL (Ely) worked a DK on 70 cm. Pressure falling slowly

THREE BAND ANNUAL VHF TABLE

January to December, 1972

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL pts.
	Counties	Countries	Counties	Countries	Counties	Countries	
G5DF	50	5	59	9	31	2	156
GD2HDZ	32	4	75	13	25	6	155
G3DAH	33	2	58	16	32	7	148
G3OHH	51	6	55	6	16	2	136
G8CUT	—	—	63	14	35	7	119
G3NHE	—	—	67	16	27	2	112
G3YRH	2	1	61	10	24	6	104
G8FU1	—	—	65	8	21	3	97
G3BXX	—	—	54	7	30	2	93
G2AXI	28	2	42	8	12	1	93
G3BW	—	—	79	12	—	—	91
G8CIW	—	—	66	12	10	2	90
G3FIJ	11	2	42	6	14	3	78
GW8FKB	—	—	63	14	—	—	77
G8BKR	—	—	48	6	18	2	74
G4ALN	—	—	39	5	22	3	69
GM8BDX	—	—	44	9	4	4	61
G8ERM	—	—	53	5	—	—	58
G8DWT	—	—	48	5	4	1	58
G3PQF	5	1	42	9	—	—	57
G8DYK	—	—	47	9	—	—	56
G4AVX	—	—	48	8	—	—	56
G4AJE	—	—	44	11	—	—	55
G3EKP	23	6	16	5	2	2	54
G3RAF	—	—	46	6	—	—	52
G3DAO	—	—	39	12	—	—	51
G8FIH	—	—	43	8	—	—	51
G8FKL	—	—	46	4	—	—	50
G8EMS	—	—	42	4	2	1	49
G8COG	—	—	34	5	7	1	47
G8AGL	—	—	40	5	—	—	45
G8FAG	—	—	41	4	—	—	45
G8CBU	—	—	35	6	—	—	41
GW3CBY	3	1	22	5	6	2	39
GM3ZVL	—	—	30	7	—	—	37
F6BQH	—	—	24	7	—	—	31
G8BBV	—	—	26	3	—	—	29
G8GJN	—	—	24	5	—	—	29
G8GJV	—	—	25	3	—	—	28
GM3ZVB	—	—	24	4	—	—	28
G8BMD	—	—	23	4	—	—	27
G8GBH	—	—	23	2	1	1	27
G3MEW	—	—	20	4	—	—	24
G8FNH	—	—	20	2	—	—	22
GM3IBU	—	—	19	2	—	—	21
G8BBP	—	—	16	4	—	—	20
G4AZK	—	—	14	2	—	—	16
GW3FTQ	—	—	13	2	—	—	15
G8FVI	—	—	11	1	—	—	12
G8FSO	—	—	6	3	—	—	9
G8DBX	—	—	6	2	—	—	8
GW8CGH	—	—	5	2	—	—	7

This Table goes through to December 31st, 1972. It shows claims to date for the year commencing January 1st, 1972. Claims should be sent to "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM.

(1028 mB at 1800z and 1022 mB by 2200z).

So it looks as if a good time was had, if not by all, at least by many.

The lessons to be learned from this experience are: Have a VFO, use CW if you can and watch the beacons. If you can stand the strain, get up early to work the DX.

Contest Reports

The IARU/RSGB UHF/VHF contest over the weekend of October 7/8 was not blessed with particularly good propagation conditions, the really good opening on VHF having dissipated itself a few days earlier, as we have seen. However, some Continental contacts were made by the East Coast stations, mostly into PAØ on 70 cm. and inter-G contacts, at 50 miles or so, were not too difficult to come by on 23 cm. There appears to have been little 13 cm. and above activity anywhere. It is still difficult to understand why when conditions are not all that good, more contestants do not use CW. Although activity did not seem particularly high, there were many weak carriers audible with unintelligible modulation which could have been resolved quite easily into scoring contacts if they had been keyed. All right, some of them were probably Class-B licensees, but certainly a number were not, and apparently just because it's 70 cm. and not 2m. there is some built-in reluctance to go to this mode.

Results

The July 432 MHz contest was not particularly well supported, the winner of the fixed station section, G3NEO of Sheffield, making only 36 contacts, although G3OXD/A made 44 and G2RD, 42. The portables had a rather better time of it with two stations, G3ACB/P and G3WDG/P both logging over 50 QSO's. However, the winner in this section turned out to be G8APZ/P from Devon, and most of us will be very pleased to see that result in view of all the effort Robin and his associates have put into working up activity on 432 MHz.

The July 144 MHz Open saw more activity and better conditions than last year, with the team of G3PSH, G3SKT, G3TPF and G3VXK, operating as FØLG from Northern France, the winners of the

portable section, with GD2HDZ leading the fixed-station field.

Coming Shortly

The 144/432 MHz CW event is scheduled between 2000z, November 4 and 0800z, November 5. This should be an interesting contest, taking in as it does the optimum propagation period around dawn without the tedium (for some) of a 24 hr. stint.

The 70 MHz Cumulatives run from 1000-12000 clock time on October 15 and 29, November 12 and 26, December 10 and January 14 and 28, 1973.

Beacons and Repeaters

GB3DM and GB3ANG are both back in service after a spell of intermittent operation. GB3VHF is still not keying, but at least the tone is now T9! GB3SU on 4m. remains a good signal in the South, but the report last month on the GB3XS transmissions has been confirmed in the Midlands—the signals are a bit down. GB3GW and GB3SC continue to radiate, and GB3CTC is back on. Signals from GB3GEC have not been heard for a week or so, but no information regarding the cause, or the duration, of the stoppage is to hand.

HB9HB was copied in GM and GW during the last week of September and first week of October. DLØER seems to be off at present, as does DLØPR—neither was heard during the recent opening. F3THF is still *hors de combat*, and has been so since June 27. The trouble lies with the exciter which has been radiating *spuri* in the 136-138 MHz satellite band, and the Tx has now been returned to F8TD, who designed it, for modification. The opportunity is being taken to change the old, mechanical keying system for an electronic device, and to place the xtal circuits in an oven for greater stability. PAØVD is still not ready for air test, but will be on 432·025 MHz when it is.

The Cambridge 2m. NBFM repeater seems to be working out well. Your scribe had the opportunity to make a few QSO's through it recently and, in spite of the cross-polarisation loss due to the horizontal antenna at the Kent end, was impressed with the performance over this 70-mile path, signals with

mobiles G3USB, G3SXX, G3VEH and G3WKW all being around the RS 5 & 7/9 mark. For those who missed the information given previously in this Column, the following should bring them up-to-date. Input frequency—145·15 MHz with output on 145·75 MHz; e.r.p., 6 watts with vertical antennae spaced 50ft. apart for reception and transmission. Access is by 1700 Hz tone, which must be repeated ever 20 seconds to hold the channel open. With the co-operation of a station who *can* access the repeater, it is possible to conduct a QSO, even if you do not have a tone-burst generator yourself. The repeater identification, GB3PI, is superimposed on the carrier at regular intervals.

Our Stop Press last month reported the failure of *Sonde N5* to realise its full mission, in that the translator failed at 5,000 metres. Having regard to the appalling Wx conditions at the time, it is surprising that it got off the ground at all. The German radar stations, which were assisting in tracking the balloon, reported that it was travelling at 100 km./hr. at one time. The gear was finally recovered at 0200z the next morning some 50 km. east of Strasbourg, lodged in the top of a 90ft. high pine tree.

Anjou 2, due to be launched on Sunday, September 24, fared even worse. After two balloons had been destroyed on the ground, and trouble had arisen in the translator gear, the launch was called off.

Oscar 6 was due off on an *ITOS* satellite at 1714z on Friday, October 13. Once again, for those who missed the previous announcement, the up-frequency is 145·9-146 MHz and the down-channel 29·45-29·55 MHz, with a beacon at the lower end of the band. The 70 cm. beacon on 435·1 MHz should also be in operation, although the 2m./70 cm. and 70 cm./2m. translators have been deleted from the programme.

VHFCC Awards

G3ZXXN (*ex-G8CXN*, Newcastle-on-Tyne) joins the ranks of the members of the VHF Century Club with a two-metre claim which gets him Award No. 164. Ernie runs 120 watts input to a blown QQV06-40A with NBFM. The beam is a 6/6 slot at 45ft. He finds FM to be vastly superior to AM for DX working,

which is contrary to the general experience, but notes that so few stations are fitted as yet with the appropriate detector. He has had a go on 4m. but finds contacts difficult to come by. He beams South with a fixed aerial, but in six months' operation from the rare county of Northumberland, he only made two contacts, both with locals, so perhaps it isn't so rare after all! He also has an 8-ele. beam vertically polarised, and hopes with this array to be able to get into the German repeater system.

From up in West Bromwich, Staffs., G8ESY comes up with a claim for the 2m. VHFCC, and obtains Certificate No. 165. All his contacts were made with a 6-ele. antenna *inside* the bedroom/shack, which makes armstrong rotation pretty easy! Gear was a Pye Ranger Tx and reception with an FET converter to an HRO. Plans are in hand to increase power with a 4C2150 PA and to place the beam outside at 30ft. or so. Bernard is also on 70 cm. nearly every night, and is looking for contacts to the North, his best direction.

Dave Cogman, G3ZOZ, operates from North London on 2m. and gains Award No. 166 for his efforts on that band. He was first licensed in 1969 as G8CHZ, but passed the Morse Test in September, 1970, at (he says) the ripe old age of 50. He uses an Emsac TX2 for transmitting and a JXK converter into an Eddystone 830/7 for reception. The aerial is a 4/4 at 30ft., and the QTH 250ft. a.s.l. with best take-off to the East and South. He seems more fortunate than many in that, although he uses the Bureau for all his QSL's, he finds the return rate to be about 48 per cent, but much patience is required while waiting for them all to come in.

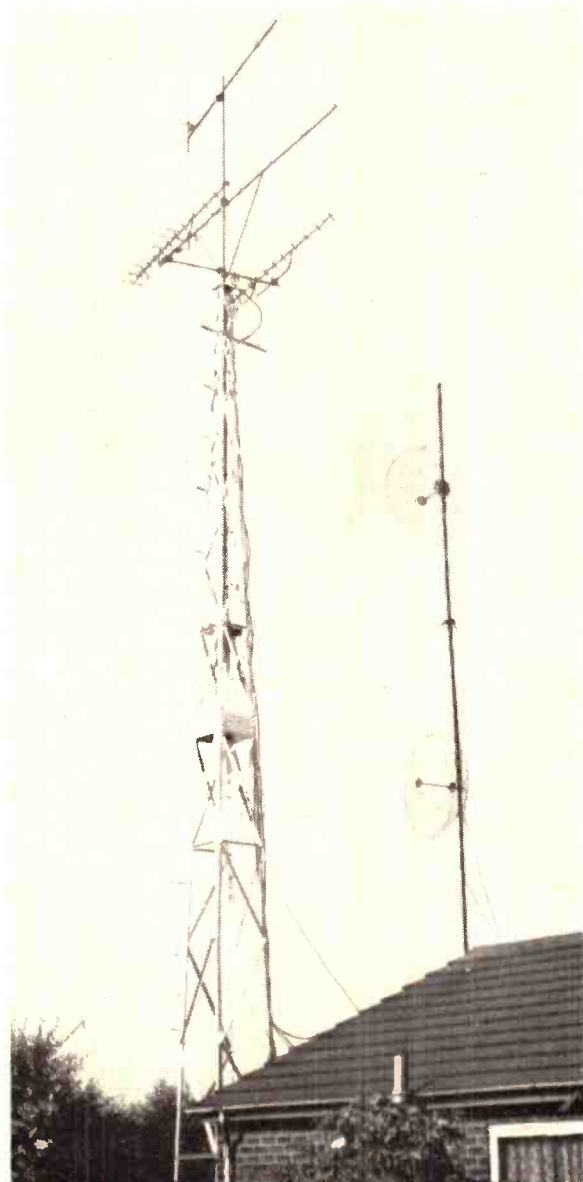
Congratulations to them all.

Three-Band Annual Tables

The extended tropo. DX available during the end of September and early October has helped many of the scores along this month, although part of the increase is due to contacts made during VHF/NFD. Catching up on G5DF and GD2HDZ is going to be a bit of a problem, in spite of the five other scores over the 100 mark. With 75 counties on 2m., 'HDZ must be reaching saturation point! The 22 *countries* on 2m.

entered last month for G3YRH seems to have been in error, as several readers have suggested, and this has been rectified. G8GBV and G8GJN are two late starters in the Tables, but are nonetheless

welcome for that, and one supposes that next year their scores will more truly represent their activity. G8COG joins the 70 cm. Table and G8BBP that for two metres. It is significant that, of the



Another very interesting and well-engineered amateur VHF aerial installation—that of K. Parkes, G3EHM, 41 Golborn Avenue, Meir Heath, Stoke-on-Trent. Total height is 50ft. at a site 850ft. a.s.l. and the array covers 23/70 cm. and two metres. The dishes are 4ft. dia. made of (baling) wire mesh and $\frac{1}{4}$ in. copper tube. Beams on the main mast are 14-ele. and 2/46-ele. for 70 cm., with a 10-ele. array for two metres. Except for the tunable IF/AF strips, all this and the gear at the equipment end is home-built—20w. in a 3/CX100A5 tripler for 23 cm.; 100w. on 70 cm. to a 4CX250 coax cavity PA; and 300w. SSB with a 2/4CX250 linear on two metres. G3EHM might well be proud of this comprehensive VHF installation.

top 12 stations, seven operate regularly on SSB.

The Scottish Scene

Great credit is due to the organisers of the Glasgow (Scottish VHF) Convention, which must rank as one of the best attended in Scotland, and to be personal for a moment, full marks go to Tommy Hughes, GM3EDZ, for his masterly chairmanship, which enabled a very full programme to be completed on schedule. Harry Mackie, GMFYB, one of the speakers at the Convention, dealt in detail with "Getting on 70 cm. Easily and Quickly", and the obvious interest shown by his audience must have given him a great deal of satisfaction. The emphasis that he placed on the *correct* setting up of Varactor multipliers, and the revelation of the traps into which the unwary might fall, made the contribution from this modest expert the more valuable. Geoff Stone, G3FZL, devoted much time in his presentation to various aspects of NBFM repeaters. When, at the end of his talk, he called for a show of hands from those who supported the installation of these devices in the U.K., it became abundantly clear that the majority did *not*, which is a reversal of the situation at the Edinburgh Convention last year when considerable support was evinced and, be it noted, is contrary to the expressed opinion of many Club and Society members in the South, to whom the choice had been presented.

After the dinner, which was attended by some 130 people, the "Jock Kyle Award" was presented to GM5VG, Bill Miller of Glasgow who, although not born a Scot, has, over the last 18 years, firmly established himself among the VHF fraternity in the country of his adoption.

A very good show!

Personalities: It was with considerable regret that many Scottish and English operators learned that George Burt, GM3OXX, has put aside his VHF gear and is now concentrating almost entirely on 20m. CW. His trips to the more inaccessible mountain tops with both 2m. and 70 cm. gear will be sadly missed by many a DX-chaser.

Jimmy Hunter, GM6ZV of Glasgow, is reported still active on 2m.

after many years of VHF operating. He is said to possess one of the finest collections of receivers in GM but, let it be firmly added, if anyone has any funny ideas about relieving him of same, his son is a member of the Scottish National Rifle Team!

G3BRA (Berwick-on-Tweed) is a regular visitor to Scotland, but the rumour that he is thinking of applying for nationalisation, supported though it would be by many Scots, is not true! He does put out a fine signal though, to both North and South, when he goes there, and between trips maintains his lively interest in astronomy.

GM6XI is now feeling much better after his recent indisposition and is up on 2m. again. He has much praise for GM3SAN, who recently serviced, within the space of a few hours, the FR-400DX receiver for him. In these days of delay and, regrettably, inefficiency in dealing with members of the public, it is pleasant to know that someone cares. (Your scribe has no shares in Lowe Electronics!)

GM DX News: The recent good propagation conditions were described as the best for years, and there must have been few who did not share in some of the "goodies". A notable achievement was that of GM8FFX/A, operating from the new GM3ZBE QTH, White Rashes, near Aberdeen, who, when last worked, had made 84 contacts on 70 cm., of which only 12 were G and the remainder Continental. His 2m. signal in Herne Bay was just about the most consistent heard from the North, and his contact with OK1MBS on SSB is near the record for tropo. DX from GM—although the GM3UAG/DL7QY (Berlin) QSO at 1,100 km. must top the list. GM3UAG worked more stations on 70 cm. on October 5 than during the previous three years, the list including 10 German, eight Dutch, two English, one Dane and one East German, DM2CBD, which looks like a GM/DM "First".

GM8BRM, portable in Cairnorrie, north of Aberdeen, was another fine signal gladdening the hearts of many an EU operator. GM3EOJ in Aberdeen called, and worked, G3DAH while mobile using a 2m. Ranger and a quarter-wave whip, a contact which surprised them both! GM3JFG up in Inver-

gordon was much sought after and raised by many in the Midlands and a few in the South after being enticed on to CW by G3BA. GM3OLK was portable in the Lomond Hills and filled many pages of log during this, his first experience of a good 2m. opening, as did GM3BQA in North Berwick. GM6XI (Edinburgh) worked six countries on 2m. SSB using a 4-ele. indoor beam, and even made it with a DK6 using a "Two-er" on AM with one watt output! He comments that the spread of the German repeaters at the top end of the band had to be heard to be believed.

General: The Tuesday night sessions on 70 cm. in the Edinburgh area have attracted more participants—no fewer than six stations have recently been operating regularly, which must gladden the hearts of GM3FYB and GM3BCD.

GM3BCD, GM8EWQ and GM8BPL are running radio clubs at George Watson's, Daniel Stewart's and Mary Erskine's Colleges respectively, and would welcome lunch-time skeds.

News Items

Congratulations to G3OHH and G3TEY on the birth of Angela Louise on September 12. Pat wasn't off the air for long though, as she took a 4m. portable into hospital with her, and was able to contact the OM in Mow Cop, G3TSJ in Oldham, G3SMU in Manchester and G3RLE/A, also in Oldham, using a quarter-wave spike. A plan to use the hospital TV antenna was frustrated by her early departure for home! Roger didn't waste any air-time while she was away. He worked GM3JFG and GM8AGU on 4m. while they were on Arran in Buteshire, and found the GM3JFG signal even better on two metres.

Guy Denman, G3MEW of Portsmouth, is still looking for daytime skeds during the week, but finds contacts very hard to come by in spite of the fact that there seems to be plenty of activity on the HF bands. He notes also what he calls the "Sunday morning" effect, which manifests itself as a number of contacts between local stations who depart from the band as soon as the one contact has been completed, and suggests that a quick "QRZ" after

signing off from a net would be productive. GW8FKB (Anglesey) was in a 2m. net on Sunday, September 24, when HB9ADJ/P broke in, an indication that there may be something in the practice of pausing from time to time to see if there are any breakers, even if one intends to go QRT as soon as the local contacts are completed.

G3BW (Whitehaven), still top of the 2m. Annual Table, is finding the going harder now that he has worked all the English counties except Rutland, but his countries total continues to mount. He has now worked nine French, six Dutch, three German, three Danish and one Belgian station from Cumberland with not a single QSL card to show for it to date. However, he now has his 60 counties confirmed on 2m., the last being Ross & Cromarty via GM3JFG. He bemoans the existence of the billions of tons of iron ore and other screening material between Cumberland and the Continent which makes such contacts very dependent upon extended tropo. conditions, and we have not had too much luck in that respect this year! He is favourably placed, of course, for auroral contacts, and reports that there was a 2m. aurora on September 13 between 1820-1855z with a repeat at 2200-2300z. Optimum beam heading was 5° East of North, and Bill logged two SM (working each other), two GM, one EI and G3LTF—but was unable to make contact with any of them.

G3EHM (Stoke-on-Trent) is now on 23 cm. with a 3CX100A5 and a 3ft. dish. He has been trying out the path into Bolton with G3KMS, but it is one-way only at present, with 'EHM unable to copy the other station, although G3OHH in Mow Cop can hear them both. '3KMS has had contacts with G3LTF in Chelmsford on 1296 MHz. G4BEL (Ely) and G8BYV (Dereham) both made it with OZ9FR on October 5.

Two short comments on SSB: From G8COG—Will SSB stations please note that 145.41 MHz is the SSB calling channel, and until it is used as such, they have no cause to complain about AM/FM stations close by. From SWL David Noakes (Cranbrook, Kent)—Why do SSB bds. as well as suppressing their carrier and one sideband also

suppress their callsigns? No comment!

G5YK is now G4YK and G8DYX has become G4BKP.

The IARU has appointed two coordinators for the study of unusual propagation conditions on the VHF bands. They are Charlie Newton, G2FKZ, QTHR, who is responsible for the collation of auroral reports, and Serge Canivenc, F8SH (6 rue du Pont Hele, Kervoalan, Perros-Guirec, Dept 22, France) who collates reports on Sporadic-E propagation, and is interested in this phenomenon on 28, 70 and 144 MHz. Without a steady flow of basic data the work of these coordinators becomes less complete, and the results less accurate, which in turn means less consideration and help from Scientific Societies. We should all do all we can to help them.

Vale

Old timers and newcomers alike will wish us to express deepest sympathy to Mrs. Allen on the death, on October 5 in Lisbon, of her husband Bert Allen, G2UJ. He and his wife were starting what he described as the holiday of their lives, made possible by his recent retirement, when he died suddenly, far from home. Bert will be remembered by so many to whom, for so many years, his ready help and advice, by both the written and the spoken word, has been an inspiration.

We also much regret to have to record the passing, at the age of 70, of W. J. (Bill) Thompson, G2MR of New Malden, Surrey, on October 4. He was for many years a partner with Bob Munday, G5MA, and the late Ernie Dedman, G2NH, in the Quartz Crystal Company. Always a keen VHF operator, Bill spent much time on the old five-metre band and later was to be heard frequently on Two—indeed he was operating on that band up to October 1.

It was saddening to learn, too, of the death—after an operation on September 27—of Tom Spencer, G3ILO, Durseley, Glos. A very active amateur on the VHF bands, he leaves a widow and two sons, the elder of whom received his G4/3 licence on the day his father

was admitted to hospital.

Deadline

Deadline for the next issue is November 3. The address for news, views, claims and comments remains "VHF Bands", SHORT WAVE MAGAZINE, BUCKINGHAM. Cheers for now and 73 de G3DAH.

Stop Press: There was a remarkable tropospheric opening on Friday, October 13, between about 1500z and midnight. It was on a broadly south-easterly axis and brought in OE, HB9 and southern DL—but no sign of distant F's nor of North German stations, and only weak PAØ, suggesting a pronounced ducting effect or something like it. The barometer was not high nor was the general Wx situation very promising.

During this interesting and unexpected opening some very long-haul DX contacts were also made on 70 centimetres. We hope to have more to say about this manifestation in the December issue, due out on November 24.

A.H.D.

Late Flash: Amateur satellite *Oscar VI* was successfully launched at 1700z, Oct. 15. Its 70 cm. beacon on 435.1 MHz is a good signal, though at the time of writing nothing had been heard of its own 29 MHz beacon. However, the transponding is working very well, strong signals having been heard (in Herne Bay) from EA, OH, HB, DL and SM, coming back on 29.45-29.55 MHz, the up-freq. being 145.9-146 MHz. Though this area has been busy with FM's trying, in fact the only real chance for a QSO is by CW or SSB. Because this is being written within 24 hrs. of the take-off, it has not yet been possible to determine orbit parameters because of launch inaccuracy, though the period appears to be about 115 minutes.

There should be ample time during the next 12 months or so for everybody to get a result and for operating procedures to be worked out. We shall be regularly monitoring and reporting as the months go by.

A.H.D.

NORTH-WEST AMATEUR CONVENTION

LANCASTER UNIVERSITY,
SEPT. 23-24

The Committee of the North-West Amateur Radio Convention set a high standard for their first weekend Amateur Radio gathering. Well over 200 enthusiasts, many with their wives and families, arrived during the Saturday morning, some 150 having booked to "live-in" for the weekend. They were shown to their study/bedrooms by the University porters. After a reception ceremony the delegates consulted their programmes to see which lectures they would like to attend. There was a wide variety of subjects covered including VHF, Microwaves, Aerials and Propagation, RTTY, SIC, Slow-Scan A/TV, nine subject-headings in all including G6CJ with his famous Aerial Circus, and one intriguing title "Japanese Morse". The organisers had brought together a competent panel under the chairmanship of G3JIP to deal with interference queries. The lecturers described some extremely interesting devices, including a simple transceiver for microwaves using a Gunn-diode, and an IC giving 10w. on 432 MHz. Many also had their first chance to get their hands on the latest Racal receiver. Some 150 actual callsign holders were registered, several having come long distances, *e.g.*, GD, GI, GM, GW.

It might be thought that the weekend was crammed with items of high technical interest. This was not so for there was a small exhibition of communications and allied equipment, and a demonstration station organised and manned by members of the Furness Amateur Radio Society, G4ARF. One item of interest to disabled amateurs was the demonstration of "Possum" equipment by David Hyde, G3OFU. Many of the distaff side opted for the lakes trip on the Sunday, which took them around the Lake District and to Levens Hall.

The high spot of the weekend was the excellent dinner on the Saturday night, and catering arrangements were first-class throughout the period.

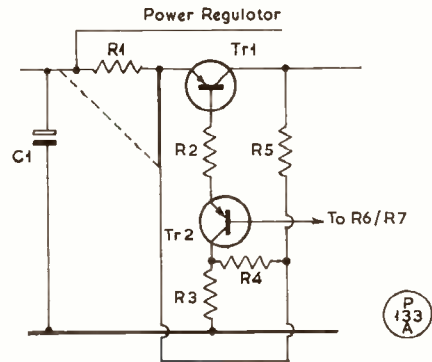
There was a large entry for the home constructors' competition, which was won by G8ENN with an outstanding pair of personal walkie-talkies for two metres. The judges praised the high standard of workmanship and design among the entries.

The organising committee are to be congratulated on the success of the venture. All the comments heard were in praise of the weekend, and many expressed the hope that the Convention would become an annual or biennial event.

This convention got right away from the usual Mobile Rally or regional meeting concept and shows what can be done when the right facilities are available—in this instance the premises, accommodation, catering arrangements, staff assistance and other amenities of a modern University Campus out of term-time. Very different from anything similar that could be laid on even at a good hotel.

CORRECTION NOTE

Reference the article on a PSU on pp.152-153 of our May issue, the main circuit diagram on p.152 should be corrected as shown herewith, *i.e.*, the lead from R3, R4 goes to R1, Tr1 and not as given in the original.



VK RECIPROCAL LICENSING

It is announced in the August issue of the Australian *Amateur Radio* that the PMG's Dept. out there has agreed to the principle of reciprocal licensing in favour of visitors or temporary residents (maximum period 12 months) provided the applicant holds a valid, current licence from his own administration. The class of VK licence issued will depend on the category of permit held by the applicant.

DID YOU NOTICE?

That the October issue of *SHORT WAVE MAGAZINE* was made up to 72 pages? This was to ensure that there would be no loss of text matter by reason of the extra pages of advertising carried in that issue. (And we'll bet you didn't notice!)



" . . . Calling CQ and changing from high to low . . . "

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for December issue: November 3)

(Please address all reports for this feature to "Club Secretary", SHORT WAVE MAGAZINE, Buckingham.)

LAST month saw publication of the Rules and Ident. Code list for the 27th MCC—this time we have a short list of the additional codes allocated and no doubt someone will ask for a code after this has gone to print. This being so *please* don't "invent" a code if you are one of the late types; it makes things extremely difficult for the checkers, and in any case could result in disqualification at the discretion of the invigilators.

This is again going to be a fast and well-fought short Contest, in which you compete with other Clubs in the same Zone area and have fun in the process—what more can you ask of a contest?

The Rules (p.503, October) must be fully and carefully observed, *e.g.*, this year we will *not* accept logs on sheets ruled other than exactly as laid down in Rule 6. Logs reaching us should be "fair copies" and not the original scribbled entry made at the time! In fact, the log as entered should be neatly written up after the Contest is over.

It is essential to start each session with a time-piece set accurately in GMT. Contacts claimed with wide time discrepancies will be disallowed, which means that both ends of the QSO will be penalised.

The invigilators will be watching for transgressions of Rule 9, and also for contacts made and claimed before or after each session.

We allow ample time for entries (incidentally, far more than we give ourselves for the writing of the Report) and as we cannot accept late entries, to be on the safe side posting should be by first-class not later than Wednesday 15th.

We will be glad to have photographs of MCC stations to illustrate the Report, and any we can use will be paid for at usual rates. Please annotate photographs on a sheet *separate* from the picture itself and *not* on the back of the print, which should only have a lightly pencilled reference.

As the boxing referee always say "Now, boys, you know the rules, we want to see a good, clean fight".

* * *

Turning now to our Club Reports, we must ask all Club Secretaries to please note that we are no longer able to accept period reports covering, say, three or six months at a time. We do realise how much work it saves the hon. secretary but it adds an enormous amount at this end, and there is really no time to devil through a mass of paper. So *please* send your reports in each month on or before the specified deadline—Thanks!

New Groups

Before we get into the meat of the piece, we have a couple of letters concerning new formations. The first one is from Willenhall—if anyone within striking distance likes the idea of a local club will they please get in touch with G4AHK at the address shown in the address panel on p.566.

The other one is from SWL Mercer of Wigan and advises that anyone interested and within reach in that area should get in touch—the address is shown in the Panel.

The Reports

Seriatim—as they fall out of the file-box, this time. Star write in to report on the success of their recent Junk Sale, the proceeds of which (£100, no less) were to be devoted to the RAIBC funds—a magnificent sum indeed, thanks to all who supported the venture, in

MORE CLUBS IN MCC

SUPPLEMENTARY IDENTIFICATION LIST

Zone B, Northern		Zone F, Southern	
North of England		Purley "B"	L85
Field Operators	B87	Purley "C"	L86
Bradford Univ.	B88	Shirehampton "B"	L87
Doncaster Tech.		Horsham "B"	L88
College	B89	Horsham "C"	L89
Solway	B92	Lymington	L92
		Sutton & Cheam "B"	L93
		Sutton & Cheam "C"	L94
		Reigate "B"	L95
		Dyno Contest, Kent	L96
		Wimbledon "B"	L97
		Fareham "B"	L98
		Fareham "C"	L99
		Crawley "B"	F54B
		Crawley "C"	F54C
Zone C, Midlands			
Leicester Poly.	C76		
Eddystone Radio	C77		
Zone D, Eastern			
Eliot College			
Canterbury	D34		

These identifications are additional to those appearing on pp.506-507 of the October issue. The "B" and "C" notes refer to second and/or third stations being entered by the Clubs concerned. Though further identifications can be issued on request—to "MCC", Short Wave Magazine, Buckingham, with an s.a.e.—before the Contest date, November 4-5, such allocations cannot, of course, now be published. Hence, Clubs operating in the Contest may encounter ident. numbers not included in the published lists.

whatever way. The Club's programme is not mentioned in this letter, but to the best of our knowledge they foregather on Wednesdays at the New Inn, Bramley Town Street, Leeds 13.

Surrey live in the Swan and Sugarloaf, Brighton Road, South Croydon, where they will be on November 21 to hear the Plessey people talking about Integrated Circuits. They seem to be having a good year, if the new member applications coming in are any yardstick.

A change of programme is advised by G3FZL of Crystal Palace; on November 18, G3IIR will take over, to talk about Microphones and their Applications. The venue is, as usual, Emmanuel Church Hall, Barry Road, S.E.23.

Over to Maidstone where the local club has strong affiliations to the YMCA, with the result that their club boasts facilities probably unequalled in the U.K. Their bookings at the Y-Sportscentre cover November 3, with all sorts of things, from beginners' talk to a briefing for MCC; November 10, Beginners tuition again, under

G3XUN; November 17, the same; November 24, a talk on Contest Operating Techniques by, G3ORP. By the time this has come to hand, they will probably—weather permitting!—have done with the task of the month, which was to overhaul and refurbish as necessary, all the aerials and the rigs for the coming winter season.

Torbay have finished the shack alterations and have a thriving R.A.E. class running with 15 students. On November 25 they have the tape-and-slide lecture on ARRL Headquarters to look at, at their Hq., Bath Lane, 94 Belgrave Road, Torquay.

We gather that Wirral have just had their AGM, so we can hardly expect to have full details on the immediate programme. However, we can say they get together on the first and third Wednesdays of every month at 1945 clock, the venue being the Sports Centre, ex-Drill Hall, in Grange Road West, Birkenhead.

At Northern Heights they have started to put out a good Newsletter, although, sad to say, the programme data do not go as far forward as will give us the dope for

Names and Addresses of Club Secretaries reporting in this issue :

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London, W3-8LB.
 A.R.M.S.: N. A. S. Fitch, G3FPK, 40 Eskdale Gardens, Purley, Surrey, CR2-1EZ.
 BASINGSTOKE: P. Sterry, G3CBU, Ashley, Orchard Road, Salisbury Gardens, Basingstoke.
 BRIGHTON (Tech. Coll.): R. J. Henley, G2CMH, 35 Wilmington Way, Brighton, BN1-8JH.
 B.A.R.I.G.: G. P. Shirville, G3VZV, 2 Bradford Way, Toddington (2470), Dunstable, Beds.
 BURY & ROSSENDALE: F. S. Burnett, G3RSM, 13 Rhiwlas Drive, Bury, BL9-9DD. (061-764 7554.)
 CANNOCK CHASE: T. A. Mitchell, G8EHY, 78 Farmdown Road, Stafford.
 CARLISLE: A. R. Harper, 23 Roman Way, Stanwix, Carlisle, CA3-9DL.
 CHELTENHAM (RSGB): E. Janes, G2FWA, Hillside, Bushcombe Lane, Woodmancote. (Bishops Cleeve 2229.)
 CHILTERN: M. I. Connell, 38 White Close, High Wycombe (3134), Bucks.
 CHIPPENHAM: B. Gibbs, G3MBN, 15 Moor Barton, Neston, Hawthorn, Wilts.
 CONWA VALLEY: K. Simpson, GW3RQY, Gwreiddyn, Moelfre, Abergele, Denbs.
 CORNISH: P. King, G3WKP, Nirvana, Comprigney Hill, Truro (4788), Cornwall.
 COVENTRY: C. Jaynes, 20 Belgrave Road, Wyken, Coventry.
 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.)
 DUNSTABLE DOWNS: C. G. Powell, G8BPK, 1 Wenwell Close, Buckland Wharf, Aston Clinton (600), Aylesbury.
 ECHELFORD: V. W. Higgs, G3VWJ, 205 Commercial Road, Staines (57201), Middx., TW18-2QT.
 EDGWARE: A. J. Masson, G3PSP, 62 Coldharbour Lane, Bushey, Herts., WD2-3NY. (01-950 6827.)
 EXETER: A. W. Bowden, 232 Exwick Road, Exeter, EX4-2BA.
 HARROW: L. Light, G3KDL, 22 Chippenham Avenue, Wembley.
 HEREFORD: S. Jesson, 181 Kings Acre Road, Hereford (3237.)
 HULL: Mrs. M. Longson, 4 Chester, Wold Road, Hull.
 MAIDSTONE YMCA: P. Pickering, G3ORP, 101 Chatham Road, Maidstone, Kent.
 MEDWAY: H. E. Wills, 111 Laburnum Road, Strood, Kent.
 MELTON MOWBRAY: R. Winters, G3NVK, 32 Redwood Avenue, Melton Mowbray, Leics., LE13-1TZ.
 MEXBOROUGH: L. Cunningham, 3 Tennyson Rise, Wath-on-Dearne, Rotherham, Yorks.
 MIDLAND: N. Gutteridge, G8BHE, 68 Max Road, Quinton, Birmingham, 32. (021-422 9787.)
 MID-SUSSEX: E. J. Letts, G3RXJ, 87 Meadow Lane, Burgess Hill (3552), Sussex.
 MID-WARWICKSHIRE: A. C. Outhwaite, G8GDY, 2 St. Annes Close, Leamington Spa.
 NIGERIA: E. A. Lomax, 5N2ABG, P.O. Box 68, Kaduna, Nigeria.

NORTH BUCKS.: R. Pye, G8AAT, 7 Meadow View, Potter-spury, Towcaster. (Yardley Gobion 640.)
 NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (44329).
 NORTH STAFFS: D. Maxfield, G3ZRQ, 40 Fegg Hayes Road, Stoke-on-Trent, ST6-6RA.
 NOTTINGHAM: S. F. Claringburn, 49 Fernleigh Avenue, Westdale Lane, Nottingham, NG3-6FN.
 PURLEY: A. Frost, G3FTQ, 62 Gonville Road, Thornton Heath, Surrey, CR4-6DB.
 R.R.S. CLUB: J. A. Crawford, Radio and Space Research Station Amateur Radio Club, Ditton Park, Slough, Bucks.
 R.A.I.B.C.: Mrs. F. Woolley, G3LWY, Woodclose, Penselwood, Wincanton, Somerset.
 SHEFFORD: C. L. Davies, G8DUY, 17 Brighton Gardens, Biggleswade.
 SHIREHAMPTON: E. J. Davis, G3SXY, 72 North View, Westbury Park, Bristol (33284), BS6-7PZ.
 SLADE: J. E. Drakeley, 186 Conway Road, Chelmsley Wood, Birmingham, 37.
 SOLIHULL: A. W. Bagley, G3XPY, 266 Warwick Road, Olton, Solihull. (021-705 3688.)
 SOUTH BIRMINGHAM: R. J. Thompson, 23 Fox Hill, Selly Oak, Birmingham.
 SOUTHGATE: J. Batchelor, G3XMV, 22 Faversham Avenue, Bush Hill Park, Enfield. (021-360 6537.)
 SOUTH MANCHESTER: D. Holland, G3WFT, 7 Alcester Road, Sale, M33-3GW.
 SPEN VALLEY: J. Milnes, G8DSB, 19 Cliffe Street, Staincliffe, Batley, Yorks. (Heckmondwike 2433.)
 STAR: T. Leeman, G8BUU, 115 Asket Drive, Seacroft, Leeds, LS14-1HX.
 SURREY: S. A. Morley, G3FWR, 22 Old Farleigh Road, Selsdon, South Croydon, CR2-8PB. (01-657 3258.)
 SUTTON & CHEAM: J. Korndorfer, G2DMR, 19 Park Road, Banstead.
 THAMES VALLEY: C. B. Seaman, G3ATF, 40 Park Road, Ashford, Middx.
 TORBAY: Mrs. G. Western, G3NQD, 10 Truro Avenue, Hele, Torquay.
 VERULAM: H. Young, G3YHY, 93 Leaford Crescent, Watford, Herts., WD2-5JQ.
 WEST OF SCOTLAND: V. T. Budas, GM3VTB, 28 Kelvinside Gardens, Glasgow, G20-6BB.
 WEST KENT: H. Richards, 17 Reynolds Lane, Tunbridge Wells, Kent.
 WIGAN: V. T. Brooks, G8DPE, 8 Sutherland Road, Worsley Mesnes, Wigan, Lancs.
 WILENHALL: B. J. Palin, G4AHK, 122 Castlebridge Road, Wednesfield, Yorks.
 WIRRAL: A. Fisher, G3WSD, 34 Glenmore Road, Oxton, Birkenhead, Cheshire.
 WOLVERHAMPTON: J. P. H. Burden, G3UBX, 28 Coalway Road, Wolverhampton, WV3-7LX.
 WORCESTER: B. A. Jones, G8ASO, 12 Woodside Road, Larkhill, Worcester (29208), WR5-2EG.
 YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.

this piece. Nonetheless, rest assured there will be *something* doing for certain, so head to the Peat Pitts Inn, Ogdon on alternate Wednesdays.

No doubt at all about the meeting of the **Midland** gang on November 21—they will be at the Midland Institute in Margaret Street, Birmingham, for a Junk Sale, and you should be there *early* if you want to get a sniff at the good stuff!

The first and third Thursdays seem to be the approach for **Mid-Sussex**, in their hideaway at Marle Place, Leylands Road, Burgess Hill. Incidentally, this group do a very nice *Newsletter*, which is always a pleasure to read.

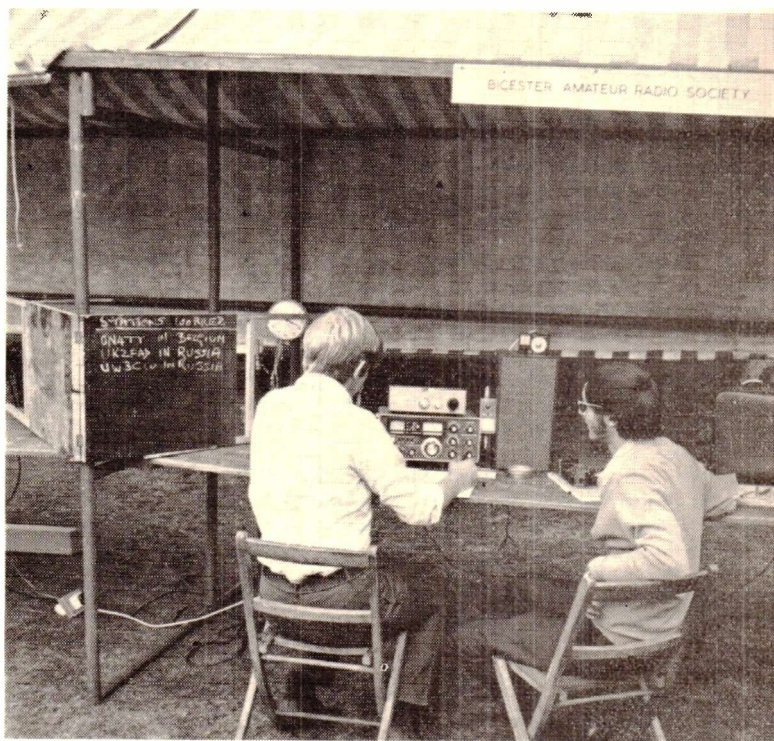
Now to **R.A.I.B.C.**, for the invalid and bedfast types who are interested either as SWL or licensed amateurs. We are always saying how much they need to have supporters — here is a practical suggestion: Is there any Club in the South who would be prepared to run a regular Junk Sale, along the lines of the Star Club effort already mentioned? It seems the Star lads had offers of quite a lot of stuff from the South, so far away from Leeds that they just couldn't get down to collect it. Offers, please, to G3LWY, as Panel, opposite.

It is quite a while now since last we heard from **Conway Valley**; they now write to say they have made a change of Hq., to Kneeshaw Lupton and Co., Llandulas, Abergele, Denbighshire, where they hope eventually to set up a permanent station. As to the programme, we have November 9, for GW3GRY to talk about Calculators as the first talk, the second being by G3AOS on latest developments at VHF and UHF. This is an unusual idea, to run two talks at the same meeting, but it is understood to be very successful.

* * *

The most important meeting of the year for **Slade** is in November. They have their AGM at Church House, High Street, Erdington, Birmingham, on November 17. All members should make the effort to turn up for this session.

The latest issue of the **Wolverhampton** club *Newsletter* features a very impressive front cover design. On the inside, we get the news, a list of the members of the Committee, and a programme of events; this says that on November 6 Mr. J. R. Tipple of the GPO will be talking about the Birmingham Post Office Radio Tower, and on the 20th, the lads will be entertaining members of the Dudley Club at their Hq. in Neachells Cottage, Stockwell End, Tettenhall, Wolverhampton WV6-9PH. The remaining dates, 13th and 27th, appear to be down as



There is an active Club group at Bicester, Oxon. from whom we hear occasionally. Recently, they put on a station for a local fete in aid of charity and here we see the HF-band installation operating on 20-40-80m. with an FT-100. Though the aerial was only a makeshift erection at 20ft. good results were obtained. When this picture was taken, the operators were G3YYT and G3WRV.

Natter evenings.

Another club having its AGM in November is **South Birmingham** on November 1, 8.0 p.m. at the Hq. at Hampstead House, Fairfax Road, West Heath. All members are asked to make a special effort to attend.

The Junk Sale on November 14 has twice been put back on the **Bury and Rossendale** programme, so there should have been plenty of time for lots of goodies to come up for sale—the meeting is in the George Hotel, Market Street, Bury.

The lads at **Purley** have been in a bit of a tizzy of late, owing to difficulties with their Hq. booking. All is now cleared up and they get together on the first and third Fridays of each month, at Lansdowne Hall, Lansdowne Road. This gives November 3 for a Natter Nite, and the 17th for a Junk Sale.

Although they are called **Mexborough**, they meet at the Cadet Hut, Dunford House, Wath-on-Dearne, every Friday evening; the canteen facilities are popular, and the programme is mainly practical, with as many outside visits as can be fixed up. Sounds a good group.

There are five Thursdays in November, so there are five meetings for the **Bedford** club, in the Dolphin, The Broadway. November 2 is a visit; November 9 a talk by G2CLP on Propagation; November 16 a Film Evening; then there is November 23 for G3UQR to lead a discussion on Linears, leaving November 30 for a session

on Aerial Rotators and Indicators, by G3XDU, G3FWA, G3XKB and G4BCS.

The **Shirehampton (Bristol)** club was able to avoid the shut-down period through the summer, which pleased them not a little; since then they have been carrying on with their programme of events, based on Friday evenings, when they run G4AHG, their own call, on the air, also an R.A.E. class, Morse, and some constructional projects. Details can be obtained from G3SXY, address as in the Panel, p.566.

At **Basingstoke** a new publicity chap has been elected; he says the normal form of meetings on the first and third Saturday evenings is continuing, the former date being a **Beginners' Night**, and the latter a series of brief talks on **Operating Techniques and Station Operation**. However, we do not have the details of the venue, which is simply quoted as being "as usual." Hence, potential visitors or members should get in touch with G3CBU—see Panel.

Sherwood Community Centre, Mansfield Road, is the home of the **Nottingham** crew; on November 2 they have a **Forum**, and on the 9th, K. Viles talks about **Safety in the Shack**. An **Activity Night** on the 16th is followed by a talk by J. Hill on **Single-Frequency Multi-Channel Working**, on November 23. Another **Activity Night** rounds off the month on November 30.

* * *

On to **Edgware** now; they have bookings at the **Watling Community Centre**, 145 Orange Hill Road, Edgware, on November 9 and 23; the latter is to be an informal, but the programme for the 9th had yet to be finalised at the time of writing.

If you are in **Solihull** High Street, there are two places to take note of—the first is the **Malt Shovel**, where the lads foregather informally at about 9.0 p.m. on November 7; and the **Manor House**, where the formal meetings are held, starting at 7.30 in the evening on November 21.

Every Thursday at the **Youth Centre**, 31 The Park, you will find a group of amateurs from the area of **Yeovil**. We have no precise details of the form of activity, but believe it to be based on a talk or films or whatever on one evening in each month, with the rest being "open" to give the utmost flexibility to members.

South Manchester have two venues. One, the VHF group, is at **Greeba**, Shady Lane, Manchester 23, while the other, which is the main meeting place, is at **Sale Moor Community Centre**, Norris Road, Sale. The VHF group night is Monday, while the main meeting is on Fridays; the programme for the latter is November 3, a discussion on the way the membership started their career in Amateur Radio; November 10, the annual dinner, at the **Woodlands Hotel**, Wellington Road, Timperley, Altrincham; on November 17 G3SMT will be talking about an **FET Voltmeter**; and on the 24th comes the first part of a slide lecture on **Life in Antarctica**, by G3SVW/VP8LK. December is started off, appropriately enough on the 1st, with a talk on the ever-popular subject of **Aerials**.

A change of venue is mentioned in the **Radio Society of Harrow** programme; it seems that their last move was not as successful as had been hoped. The new place is with the **Sea Cadets**, whose Hq. is situated at the end

of **Woodlands Road**, which in turn is a turning off **Station Road**, near **Middlesex Motors**. Here, they will be found on November 3, for a programme as yet unannounced; also on November 10 for one of their famous **Junk Sales**; and November 17 for a talk on **Aerials and Working DX**, by G2TA.

Up North we go now, to **West of Scotland**. Fridays it is, with November 3 as a talk by GM3CSM on **How to be a Contest King**, followed on the 10th by GM4APK talking about his first year on the air. GM8MJ has November 17 for his contribution, which is on the subject of **Top Band Techniques**—would that his words could be reprinted and handed to every natter-net operator! Then on November 24, GM3AXX will yarn a bit, taking his theme as "**Hamming Past and Present**."

At **Cray Valley**, there is a talk on **RAEN** down for November 2, to be given by members of that organisation. Then on November 16, there is a **Surplus Sale**, both of these sessions being held, as usual, at the **Congregational Church Hall**, Court Road, Eltham, S.E.9.

Mid-Warwickshire have their own place at 28 **Hamilton Terrace**, Leamington Spa, with very good facilities. They open up every week, but the first Monday evening in each month is devoted to a lecture, the topic for November 6 being **The Use of Test Equipment**, by G8FRA.

Reformation

The **Radio and Space Research Station** at **Slough** has reformed its radio club, under the presidency of Dr. J. A. Saxton. Members have a wide range of interests, varying from UHF and Microwaves to HF/DX working, and to cater for them an HF-Band CW/SSB station and aerials are a first priority, followed by VHF as soon as possible.

Dissolution

One is always sad to hear of a club falling by the wayside, but it has to be admitted there are all sorts of reasons to generate such a situation. The officers of the **Nigerian** society—which is a national society in its own right—have said that they are not willing to take office for another year, so the choice is to either find new officers, or dissolve. Let us hope they have someone willing to be elected to this onerous task.

However, this is by no means an isolated problem; **A.R.M.S.** recently held an **Annual General Meeting**, at which the total attendance was four, all of whom were committee members. While it is possible to regard this as a massive vote of confidence, most committee members would feel reluctant to let an **AGM** go on with such a small attendance, if there were no ordinary members in the hall. **A.R.M.S.** officers took the other line, to wait for almost an hour for latecomers, and then get on with the business, re-electing those who were present and those who had indicated willingness to be elected in their letter of apology to the meeting.

* * *

Over to **Acton, Brentford and Chiswick** who have a talk by HB9QK on November 21, on **Amateur Radio in Switzerland**. The Hq. address is, as always, 66 High Road, Chiswick, W.4.

North Staffs. are running two meetings—the last

SHORT CLUB NOTICES

CLUB NAME	HEADQUARTERS LOCATION	MEETING DAY MONTHLY
Brighton (Tech. Coll.)	Richmond Terrace	November 13, 27
Cheltenham (RSGB Group)	Royal Crescent Hotel, Clarence Street	November 2
Chippenham	Boys High School, Hardenhuish Lane	Tuesdays
Cornish	SWEB Clubroom, Pool, Camborne	November 2
Dunstable Downs	77 High Street South, Dunstable	Fridays
Echelford	St. Martins Court, Kingston Crescent, Ashford, Middx.	November 9, 30
Exeter	Community Centre, St. Davids Hill	November 14
Hull	592 Hessele Road	Fridays
Medway	Aurora Hotel, Gillingham	Fridays
North Bucks.	Wolverton Youth Club	November 13
Sheffield	Church Hall, Amphil Road	Thursdays
Spen Valley	Grammar School, Heckmondwike	Thursdays
Thames Valley	Three Pigeons, Portsmouth Road, Thames Ditton	November 1
West Kent	Arts Centre, Monson Road, Tunbridge Wells	November 3, 17

N.B.—In each case the Secretary's name and address appears in the Panel on p.566.

two Mondays in each month—as R.A.E. classes, starting sharp at 8.15 p.m. for an hour. In addition they were entering their GB3JOA for the Jamboree-on-the-Air on the HF and VHF bands. For details of the Club, please contact G3ZRQ—see Panel, p.566.

Weekly meetings have been the form at Coventry for years; for November 3, there is, as on the 17th, a Club Night-on-the-Air. November 10 is G2DRW's Quiz, and on the 24th there is, provisionally, a visit to another Club. Coventry's Hq. is at 121 St. Nicholas' Street, Radford Road.

Sutton and Cheam have a newsletter which threw your scribe a bit, in that it makes no reference whatever to the name of the Club, nor does it refer to the date of the meeting which we should be reporting! However, we do know the group has Hq. at The Harrow, Cheam, and that something is usually arranged on the programme each month. For the rest, we are to refer you to the hon. secretary—see Panel.

Rather a nice idea—in the news-sheet circulated immediately after the AGM, the Melton Mowbray chaps have inserted a full and complete list of the members and their addresses. For November 17, at the St. John Ambulance Hall, Asfordby Hill, they have a talk on Test Equipment and its uses.

At the informal meeting of the Chiltern group on November 10, they will be activating the Club rig. As for November 10, they have a talk on the Radio and

Space Research station, and the Troposphere; the venue is the Ernest Turner works at High Wycombe.

Most unusually, we have not the current, November, details of the Verulam group. However, we can say the Hq. is at the Town Hall, St. Albans, and that this is a club which is keen on outside events and good lectures. For details, contact G3YHY at the address in the Panel on p.566.

A bit of a reshuffle is reported in the membership of the Worcester committee, albeit the secretary continues in his post. Naturally, so soon after an AGM we have no data on the programme except the dates, which are November 6 and 18th, and the venue, the Crown Hotel, Broad Street.

Unfortunately, the Secretary for Carlisle didn't make the deadline last time out, because he posted his letter to the Victoria Street address in error. He mentions they have managed to get an R.A.E. class running at Carlisle Technical College. Although he does not say so specifically, we are led to believe the meeting night is a Monday, and the venue Currock Community Centre, Currock House, Lediard Avenue.

The Newsletter put out by BARTG for the RTTY enthusiast is a model of its kind; the current one is a bit overloaded with contest data, results and rules, but this is the way the news falls. On the other hand, there is, as usual, a good article on the teleprinter—one feels that by keeping the Newsletter, one would in the end have a file of repair and maintenance data on any teleprinter ever made! Details, from the Club Secretary, at the address in the Panel.

Now to Hereford where the venue is the County Control Civil Defence Hq., Gaol Street, and the evening a Friday in each week. They have just had one little triumph in that they have managed to get an R.A.E. course laid on at the local Technical College after quite a struggle.

The Southgate crowd have their Hq. these days in Civil Defence Hut, Bowes Road, opposite Arnos Grove Tube, and the meeting date is the second Thursday in each month. We have no details of the October programme, but doubtless there will be something of interest—this group nearly always do find something to tickle the intellect.

For Cannock Chase, meetings are at the Bridgetown Social Club, Walsall Road, on Thursdays at 8.0 p.m. We understand that henceforth this group is dissociated from the WAB/HAB ploy, which is now being run quite separately. All locally interested in radio are invited to come into the Club, and G8EHY (see Panel) will be very glad to hear from potential members.

Signing

That's the lot for this month. For next time, you should include details for December and any important dates for January, because, as always, our January 1973 issue, with the report on the 1972 MCC, will displace this feature. So, the deadline for next time will be to arrive by first post November 3—a tight deadline for you, but tighter still for us! The address is "Club Secretary," SHORT WAVE MAGAZINE, BUCKINGHAM.

NEW QTH's

This space is available for the publication of the addresses of all holders of new U.K. call signs, as issued or changes of address of transmitters already licensed. All addresses published here will be reprinted in the U.K. section of the "RADIO AMATEUR CALL BOOK" in preparation. QTH's are inserted as they are received, up to the limit of the space allowance each month. Please write clearly and address on a separate slip to QTH Section.

- G4BBD, M. Tooley, 39 The Park, Kingswood, Bristol, BS15 4BL.
- G4BFE, Mrs. Kay Forbes, 42 Lower Redland Road, Redland, Bristol, BS6 6ST.
- GW4BGU, E. Jones, 12 Hen Tan-Y-Manod, Bethania, Blaenau Ffestiniog, Merionethshire.
- G4BHF, R. W. H. Murden, High Cliffe, 93 Gillshill Road, Kingston-upon-Hull, Yorkshire.
- G4BHY, H. Kleeman, 41 Frognal, London, N.W.3. (Tel. 01-794 3366.)
- G4BIL, A. W. Rose, 17 Norrice Lea, London, N2 ORD. (Tel. 01-455 6075.)
- GM4BIT, R. Wilson, 22 Caerlaverock Road, Prestwick, Ayrshire. (Tel. Prestwick 79491.)
- G4BIX, D. D. Price, Colehill House, Winchester Road, Bishops Waltham, Southampton, Hants., SO3 1BW. (Tel. Bishops Waltham 2577.)
- G4BJN, D. J. Harvey, 48 Waltham Road, Southall, Middlesex.
- G4BJQ, I. F. Ireland, 49 Bathurst Road, Wingersh, Wokingham, Berks., RG11 5JB.
- G4BJS, J. C. Loose, 43 Willows Crescent, Birmingham, B12 9NE.
- GW8FII, W. T. Davis, 20 Erw Goch, Waun Fawr, Aberystwyth, Cardiganshire.
- GM8FLU, P. Coull, 66 Pitfour Court, Peterhead, Aberdeenshire, AB4 6YG.
- G8FZR, H. L. Cockram, 7 Wife-of-Bath Hill, Canterbury, Kent. (Tel. Canterbury 61717.)
- G8GBF, R. W. Taylor, 8 Park Avenue, Markfield, Leicester, LE6 0WA. (Tel. Markfield 2694.)
- G8GBG, W. G. Taylor, 8 Park Avenue, Markfield, Leicester, LE6 0WA. (Tel. Markfield 2694.)
- G8GBN, J. S. Hitchins, 46 Granville Road, Finchley, London, N12 0HJ. (Tel. 01-346 2744.)
- GM8GEC, J. McVicar, 31 Lochend Road North, Musselburgh, Midlothian. (Tel. 031-665 2420.)
- G8GEV, J. R. Moore, 17 Lodge Road, Knutsford, Cheshire.
- G8GGI, R. B. Geddes, 9 Norwood Street, Scarborough, Yorkshire, YO12 7EG.
- G8GHD, W. M. Edwards, 31 Marbles Way, Tadworth, Surrey.
- G8GHM, J. H. Saynor, 28 Lune Road, Norton, Stockton-on-Tees, Teesside. (Tel. Stockton 551770.)
- G8GHZ, S. J. Purser, 34 Booth Rise, Northampton, NN3 1HR. (Tel. Northampton 43832.)
- G8GIM, M. E. Lewis, 10 Kenmore Drive, Filton Park, Bristol, BS7 0TT.
- G8GJB, P. J. Roberts, 37 Sunnyhill Road, Herne Bay, Kent.
- G8GJC, J. G. Tillin, 68 Whitley Wood Lane, Reading, Berks. (Tel. 0734-84629.)
- G8GJL, R. D. Graystone, 110 Victoria Street, Ipswich, Suffolk, IP1 2JX. (Tel. Ipswich 58847.)
- G8GJM, R. J. Harwood, 74 Shepherds Lane, Bracknell, Berks., RG12 2DE. (Tel. Bracknell 22898.)
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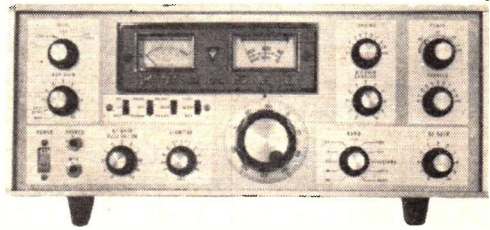
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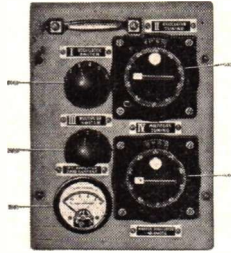
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SELL OR EXCHANGE: Lafayette HA-600, as new, £28. Would exchange for Eddystone 750, 840C or 504.—Snowden, Swainsea Lane, Pickering, Yorks.

SELLING: Eddystone 888A receiver, perfect condition, re-valved and re-aligned, with handbook, £70.—Elsworthy, 2a Steele House, High Street, Dovercourt, Essex.

WANTED: Trio TX-599 amateur bands transmitter. Condition and price, please.—Box No. 5109, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

EXCHANGE: Eddystone EC-10 Mk. II, perfect condition, FOR amateur-bands-only Rx. Selling Codar AT5 Tx and mains PSU, £12.—Brown, G3NQX, 9 Lowther Crescent, Leyland, Lancs.

BARGAIN: 30-ft. wooden lattice tower in three sections, ideal for that heavy Quad or beam, very sturdy, bargain, £4. Buyer must dismantle and collect.—Harrison, G4ADF, White Cottage, Codmore Hill, Pulborough, Sussex. (Tel: Billingshurst 2942, daytime).

MANUALS: For 130 ex-Services radio's and Tx/Rx's, s.a.e. for list.—Brooks, 5 Farrant House, Winstanley Road, London, S.W.11.

WANTED: Hallicrafters S.27C receiver covering 130-210 MHz, must be in good condition. Details and price, please.—Graham, 43 Sturdee Avenue, Gillingham, Kent.

SELLING: Heathkit Mohican GC-1U receiver, £13. JXX speech compressor, £5. KW-2000 mobile PSU, £14. Engine, 49 cc, £1.25. Home built linear, 4/PL509's, £10. Parmeko transformer, o/p 6v./8v. at 8 amps, 50p. And an 813, 50p.—Reeves, G3OAB, QTHR, Tel: 021-747 8489.

SALE: Codar A.T.5 and 250/S PSU, with manual and cabling, £21 plus carriage. Sanwa Multimeter, 20K o.p.v., new, £5. Crystals: Ten assorted new HC-6U wire-in, price 60p with s.a.e.—Jenkin, 125 Lambeth Street, Blackburn, Lancs.

OFFERING: For balloon-supported verticals, met. balloons at 65p and 275ft. reels aluminium wire, 55p, including post and packing.—Stratton, G3XKV, 15 Avenue Road, Brentford, Middlesex. (Tel: 01-560 867, after 6.0 p.m.).

WANTED: High-grade general coverage receiver, such as Racal R.217 or Redifon R.408, and receiver for LF such as Hammarlund SP-600VLF or Collins R.389. Also a good modern teleprinter. State price, please. — Passfield, 30 Greenleaf Close, Tulse Hill, London, S.W.2. (Tel: 01-674 5825).

SELLING: Trio TS-510 transceiver with PS-510 AC/PSU, new 614B's, recently serviced by supplier, good condition, £140 or near offer; Class-D Mk. II wavemeter, very good, £15; Katsumi Keyer with Bauer paddle, £5; Hamgear PM-111 preselector, new but needs new FET, £5; Grundig TK-140 tape recorder, needs attention, £5; R.C.A. mains transformer, 2300-1500-0-1500-2300v., 1.75 kVA, £10. Could deliver. — Butterfield, G4AAQ, York House, Sharlston Common, Wakefield, Yorks. (Tel: Crofton 862353).

SALE: Eddystone 888A receiver, amateur bands, good condition, £65. Carriage extra.—Fowler, G3VFFV, QTHR, (Tel: Aldridge 53914).

SALE: HRO-MX with PSU, speaker, five coil packs, spare valves, superb condition, £25 or near offer.—Moore, 20 Samuel Richardson House, North End Crescent, London, W14 8TE.

SELLING: K.W. Vespa Mk. II with PSU, £85. Trio JR-500SE with Codar Q-multiplier, £45.—Silverthorn Radio Club, G3YJZ, QTHR. (Tel: 01-804 8074).

FOR SALE: McElroy bug key, £4-50; T.W. 2m. converter. IF 28-30 MHz, £6; scope tuning indicator CRM (FSK), unused condition, with manual, £8; R.A.C. fil. transformer, 10v. at 5 A, twice, £3; seven 813's with 3 bases, £4; Pye Ranger High-Band. unmodified, £4. — Box No. 5110, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

SALE: B.40 and B.41 receivers, first class condition with manuals, reasonable offer secures as space is needed. — Bell, 82 St. Catherines Avenue, Luton, Beds.

SELLING: FT-2F 2m. transceiver, with narrow-band filter and factory fitted AM detector, £80 or near offer; HW-12A transceiver, 80m. coverage, with DC/PSU, £55 or offer. — Brinkworth, 7 Squires Lane, Finchley, London, N.3. (Tel: 01-346 0974).

SELLING: Amateur bands receiver, transistor, £10; Marconi HF signal generator Type TF-144F/H, £10; Sangamo-Weston E.772 test meter, 20,000 ohms per volt, £10; BMVR-1725 voltage stabiliser, £12; moving coil frequency meter, 50 Hz, £2. — Watson, 74 Bowrons Avenue, Wembley, Middlesex. (Tel: 01-903 4363).

SALE: Hammarlund HQ-170, good condition, £68; HRO coil packs 0.9-14.4 MHz, £1 each; Sentinel 2m. converter 28-30 MHz, £9; KW-103 SWR/Pwr meter, 75-ohm, £8-50. — Tibbert, 11 Darwin Road, Mickleover, Derby (511434).

OFFERING: Eddystone EC-10 receiver, with headphones and aerial all in perfect condition. Offers invited. — Bridger, 6 Mytton Grove, Shrewsbury. SY3 8UF.

SELLING: DJ-105 70-watt mixer-amplifier, brand new, £35. Pair SP25 turntables, with cartridges, in strong wooden cabinet, in excellent condition, £15. Parmeko 620-375-0-375-620v. transformer, easy 500 mA o/p, £2-50.—Waters, 8 Gay Bowers, Hockley (4930), Essex.

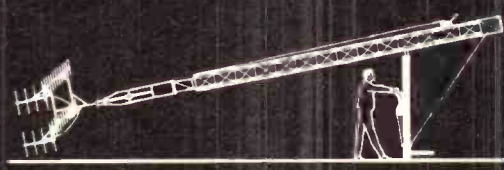
WANTED: HRO coil sets BS for amateur bands; also one Type F set, 480-960 kHz. Details of condition and price, please. — Payne, 159 Micklefield Road, High Wycombe, Bucks.

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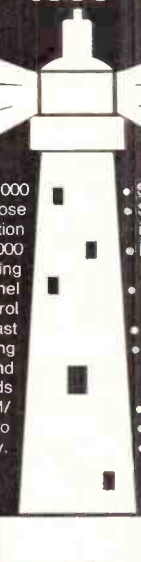
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WANTED: HA-230 or HE-30 receiver. Full details and price, please. — Patterson, 16 Summers Avenue, Bootle, Liverpool 20, Lancs.

FOR SALE: Eddystone 888A receiver, very good condition, £55.—Osborne, G3YGM, 2 Coastguard Station, Trevoze Head, Padstow, Cornwall.

WANTED: Receivers 840C, EC-10, 9R-59DS, £35 maximum. To be delivered by hand in Essex.—Box No. 5111, Short Wave Magazine. Ltd., 55 Victoria Street, London, SW1H-0HF.

SALE: Heathkit receiver Type SW-717, factory built, with speaker and headphones, in perfect condition, price £29, buyer to collect.—Potter, 37 Wykeham Hill, Wembley, Middlesex, HA9 9RY.

SELLING: Creed 7B teleprinter, £10. Creed 5060 PSU, £5. DL6EQ-type T.U., £5. BC-348 receiver, £12. Tx for 10-80m., with FM, £3. Codar preselector, £2. Ferranti 17-in. TV receiver, £5.—Sparrow, G3JKN, QTHR, or ring Denham 2229.

FOR SALE: Radar display console, 16-in. screen, with receiver unit, complete and in working order. Total weight 3 cwt. Offers?—Elsworthy, 2A Steele House, High Street, Dovercourt, Essex.

SELLING: Trio JR-310 amateur-band receiver, fitted Trio 25 kHz calibrator and 2.4 kHz Kokusai mechanical filter. One year old, in excellent condition, cost over £100, a genuine good buy at £75.—Wilkinson, 104 Falkland Road, Greatfield Estate, Hull (0482-791168), Yorkshire.

FOR SALE: R.C.A. AR88D receiver, in excellent condition, with adjusting tools, speaker, headphones, manual and spare set valves, price £45.—Bower, 3 Abbots Road, Cinderford, Glos.

SELLING: K.W. Vanguard transmitter, AM/CW, coverage 10 to 160 metres, in good condition, offers around £25.—Harvey, o/b/o Club G3VGG, 22 Elm Grove, Bromsgrove (76941), Worcs.

SALE: Minimitter converter for 10 to 80m., £10. B.44 Mk. III receiver, working on 4m., £9. Two-metre valve converter, IF 23-25 MHz, £2.50. Could deliver to 40 miles.—Penketh, G3RYV, QTHR. (Tel: Chorley 2250, Lancs.).

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WANTED: KW-2000A, K.W. Vespa or similar transceiver/transmitter.—G3AWQ, Ingle Royde, Halstead Drive, Menston (2382), Ilkley, Yorkshire.

SALE: Hallicrafters SX-110 Rx, coverage 550 kHz-32 MHz, bandspread 80-10m., manual, g/c, £32 or near offer. Gonset G.66B mobile Rx, coverage 80-10m., AM/SSB/CW, with matching DC/PSU and speaker, £35 or near offer. Codar PR-30 preselector, £3. **WANTED:** Hallicrafters S.36 or S.27C VHF receiver. Consider exchange. W-H-Y?—Perrin, G4AFY, 30 Franchise Street, Kidderminster (61752), Worcs.

SELLING: R.C.A. CRV-DZ1 marine receiver, coverage 15 kHz to 1500 kHz, direction finder, ex-W.D., never used, mint, £12.50. Eagle amateur bands communications receiver, RX-60N, 550 kHz to 33 MHz, AM/CW/SSB, bandspread, with VFA Joystick and Joymatch ATU for amateur bands, £25.—Ring Lance, 021-706 0554. (Birmingham).

SALE: National HRO, with eight general-coverage and bandspread coils, PSU and speaker, excellent, £25.—Edwards, 58 Furnham Road, Chard (2848), Somerset.

WANTED: CR-100, or similar receiver including 400-520 kHz coverage, in good condition. **FOR SALE:** Trio JR-500S amateur band Rx, £45.—O'Hare, EI2S, Airfield, Bishopstown, Cork, Eire.

SALE: Swan 500C, with 508 VFO, 230XC PSU, Vox unit and xtal calibrator, immaculate condition. Offers? LM-14 frequency meter, with charts and PSU, very good condition, £20 or near offer.—Hutchinson, G3VGH, QTHR. (York 769245).

WANTED: Drake 2C receiver, in good condition. All letters answered.—Cuthbert, 15 Ellen Court, Jarrow-on-Tyne, Co. Durham.

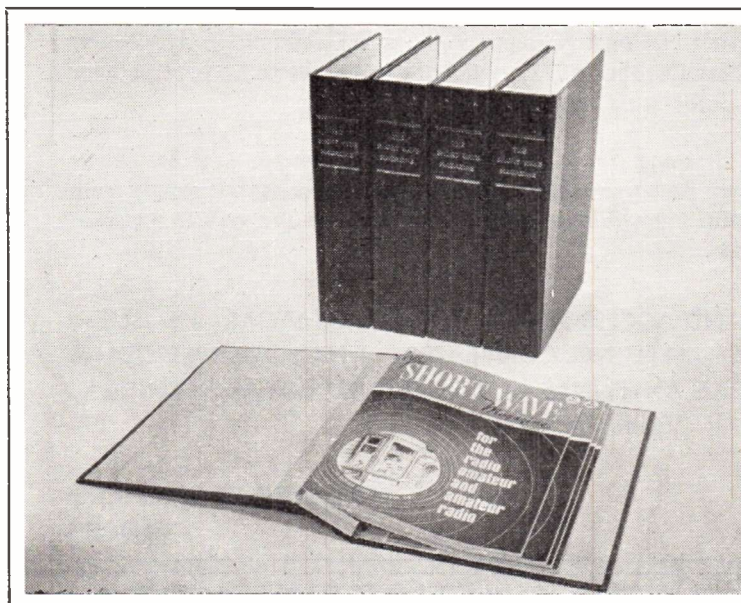
FOR SALE: Lafayette HA-350 Rx, coverage 80-10m., with 100 kHz xtal calibrator and matching speaker, £45. K.W. Vanguard Tx, 80-10m., AM/CW, 50 watts, £20.—Smith, G3ZQC, 161 Sandy Lane, Fair Oak, Eastleigh, Hants. (Tel: Wyvern 367).

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