

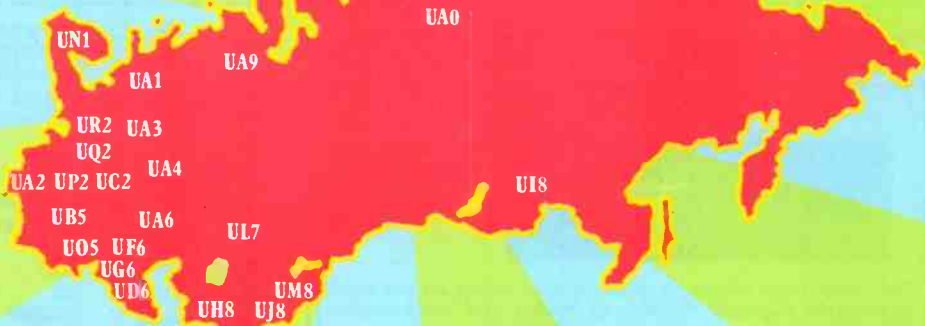
The **SHORT WAVE** Magazine

February 1985

Volume 42 Number 12

G3TXF begins a new feature, 'Oblast Corner'

G3ROO builds an ATU for the FT-707 Transceiver



OBLAST CORNER

FOR THE RADIO AMATEUR & AMATEUR RADIO

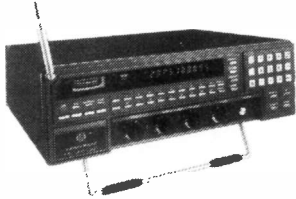


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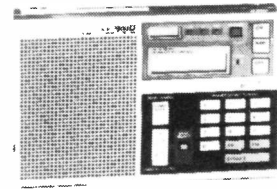
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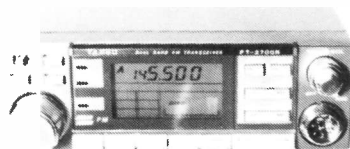
When it comes to portability, this little receiver is tops - fits into a briefcase or even a handbag. Scans - memory & bands. HF & VHF. CW, AM & SSB. **£179.**

AND NOW THREE NEW MODELS



FRG8800

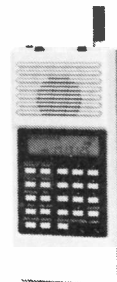
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SHORT WAVE MAGAZINE

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(GB3SWM)

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Editor: PAUL ESSERY, G3KFE/G3SWM
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AUTHOR'S MSS

Articles submitted for Editorial consideration must be typed double-spaced with wide margins on one side only of A4 sheets. Photographs should be lightly identified in pencil on the back with details on a separate sheet. All drawings and diagrams should also be shown separately, and tables of values prepared in accordance with our normal setting convention — see any issue. Payment is made at a competitive rate for all material used, and it is a condition of acceptance that full copyright passes to the Short Wave Magazine, Ltd., on publication.

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We are proud to introduce the VHF/UHF communications receiver we have all been waiting for. A glance at the brief specification will tell you why the new AR2001 receiver is going to take the listener by storm.

- ★ Continuous coverage 25-550MHz (no gaps).
- ★ Receive modes of AM (for VHF/UHF airband), FM narrow (for amateur radio, CB, business radio) and FM wide (for broadcast and TV FM).
- ★ Digital display of frequency, mode and memory channel.
- ★ Memory channels which store frequency and mode.
- ★ Full range of scan facilities.

The performance of the AR2001 sets new standards. Gone are the complaints of "deaf" receivers. The AR2001 has typical sensitivity of 0.2 microvolts for 12dB SINAD on FM (N) across the entire 25-550MHz range.

Finally, the AR2001 is small, light weight, and powered from any 12V dc source, so it can be used at home, in the car, boat or aircraft, and whilst out portable.

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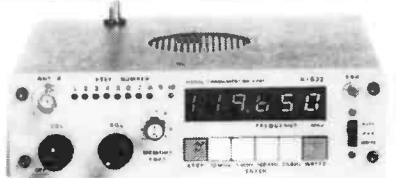
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SPECIFICATION.
Frequency range: 110 to 136MHz, i.e. all NAV/COM channels.
Number of channels: 1040 (25KHz steps).
Sensitivity: Better than 0.75 microvolts 10dB / SN.
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Power required: 12V dc negative earth 300mA typical. (Display can be switched off to reduce consumption when operating portable). Size: 160 x 45 x 130mm.
Weight: approx. 1Kg. (including memory backup batteries).

MICROWAVE MODULES LTD

2 METRE MULTIMODE TRANSVERTER MMT144/28-R



NEW RELEASE

FEATURES

- 25 Watts Tx Output
- GaAsFET RF stage
- Transmit ALC Circuit
- 13.8V DC operated
- Repeater Shift (normal, simplex, reverse)
- High Level Double Balanced Rx Mixer
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- RF VOX — Adjustable Delay and PTT Override

SPECIFICATION

GENERAL

INPUT FREQUENCY RANGE :	28 – 30 MHz
OUTPUT FREQUENCY RANGE :	144 – 146 MHz
MODES OF OPERATION :	SSB, FM, CW, FSK, AM
REPEATER SHIFT :	Simplex, Normal (– 600 kHz) Reverse (+ 600 kHz)
INPUT/OUTPUT IMPEDANCE:	50 ohm
RF CONNECTORS :	SO239 (PTFE)
POWER CONNECTOR :	5 pin DIN socket
DC POWER REQUIREMENTS :	13.8V DC at 6 Amps peak

TRANSMIT SECTION

OUTPUT POWER :	25 Watts
INPUT LEVEL RANGE :	¼ mW to 300mW
ALC RANGE :	20dB
LEVEL OF SPURIOUS OUTPUT :	– 65dB or better

RECEIVE SECTION

CONVERSION GAIN :	22dB +/- 1dB
NOISE FIGURE :	2dB or better
3rd ORDER INTERCEPT :	+ 19dBm (output)

DESCRIPTION

The MMT144/28-R is a high performance solid-state 2 metre multimode transverter, designed to allow users of existing HF band transceivers to establish a first-class transceive capability on the 144 MHz band.

The transverter incorporates many new and exciting features previously not found on equipment of this nature, which combine to make this product simply superb.

The MMT144/28-R can be used with virtually any 28–30 MHz transceiver having a low level output power in the range ¼ mW to 300mW. (An external attenuator can be used to allow a higher power level to be used if necessary.)

A noise-matched NEC GaAsFET preamplifier together with excellent filtering and a double balanced mixer produces a rugged receive converter, which has excellent strong signal handling characteristics and excellent immunity to overload and cross-modulation.

The transmit section produces a highly linear 25 watts output and incorporates an ALC circuit to ensure that a particularly clean signal is produced. This is an important feature which will virtually eliminate compressed signals and the resultant problems caused to local stations. A visual indication of relative output power is displayed by the front panel mounted LED bargraph display.

The unit incorporates the usual repeater features:— simplex, normal repeater (– 600 kHz), and reverse repeater (+ 600 kHz) and is ideally suited for all modes of communication on the 2 metre band.

The MMT144/28-R is housed in an aluminium extruded enclosure, which has both excellent electrical screening and thermal stability characteristics. Connectors are located on the rear panel together with the input level control and the DC supply fuse. Protection against reverse polarity is included. Antenna changeover at 144 MHz is achieved internally by a low-loss PIN diode switch.

This new design utilises 15 transistors, 4 regulator IC's, 3 other IC's and various diodes and PIN diodes.

All plugs are supplied.

PRICE: £215 inc. VAT (p + p £3.50).



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FRG8800 £525 inc.

GENERAL COVERAGE

Continuous coverage from 150 KHz to 30MHz. Two speed spin tuned VFO plus keyboard plus computer interface control.

ALL MODE

The FRG8800 demodulates SSB (USB and LSB), CW, AM (Wide and Narrow) and FM narrow as standard. This, complemented by an all mode squelch, produces the most practical receiver available. The FM narrow is useful for 10M, CB and for VHF with the optional VHF converter.

MEMORY

The FRG8800 comes fully equipped with twelve memories programmed and scanned at the touch of a single button. Any of the memory channels will accept a frequency within the whole range of the receiver including the VHF range with the optional VHF unit). The mode is also stored in the memory eliminating the need for inconvenient manual mode change, when hopping from one memory to the next.

SELECTIVITY AND SENSITIVITY

Four filters are fitted as standard (SSB/CW, AM, AM-NAR and FM NAR) with bandwidths chosen for optimum performance, these combined with switchable AGC and variable tone control provides maximum enjoyment despite today's crowded bands.

High input sensitivities are obtained by the latest in RF stages, making the most of inefficient aerials and difficult locations, and a continuously variable RF attenuator control overcomes problems encountered with very powerful stations.

LCD DISPLAY

The back-lit green LCD display incorporates easy to read "any angle" 10mm digits. A twelve function display indicates the transceiver's status at a glance. It includes memory channel number, mode, and frequency to a resolution of 100Hz. Also included is a two dimensional LCD, graphical SIMPO and 'S' meter, which is conventionally calibrated at 1-5 and 0-9, + 20dB, + 40dB, + 60dB respectively.

KEYBOARD

A 12 button keyboard is fitted as standard allowing quick accurate changes of frequency and band, (MHz and KHz programmed individually). The keyboard also has nine control buttons to allow rapid changes from memory to VFO, memory to memory and VFO to memory. Memory channels can also be recalled at the turn of a knob, ideal for storing calling/working channels or broadcast reception.

The keyboard is complemented by a opto-coupled, two speed, VFO drive, fast for rapid tuning of a band or slow for accurately tuning in a signal. In addition a fine tune control compensates for drift in the received signal. The dial can be electronically locked preventing accidental change in frequency.

CLOCK/TIMER

Dual accurate 12 hour clocks, with AM/PM indicators are ideal for log keeping (GMT/Local). The clock uses the main digital display and features full back-up facilities in the event of a mains failure or disconnection. The timer can activate the receiver or tape recorder via the relay contacts provided. A snooze facility allows up to 59 minutes of listening.

VHF CONVERTER (OPTIONAL)

The FRV8800 extends coverage to include 118-174 MHz all within the main frame, thereby allowing monitoring of: PMR, marine and air bands, as well as 2M.

The FRG8800 is operated as before via the keyboard or VFO, and the memory still holds any frequency and mode. The *actual* VHF frequency is displayed on the main LCD to a resolution of 100Hz.

SPECIFICATION

WORLDWIDE

At 6.1 Kg (excluding converter) the FRG8800 is ideal for taking on any trip. The power supply is easily adjustable from 240-220 VAC to 110-120V, 50/60Hz mains and 12VDC operation is available as an option.

SPECIFICATION

FREQUENCY COVERAGE:

150 KHz – 29.999 MHz
118 MHz – 173.999 MHz*

FREQUENCY RESOLUTION:

100Hz (Digital Readout)

FREQUENCY STABILITY:

<± 300 Hz in 30 mins after 1 min on
<50 Hz in 30 mins after warm up

MODES OF RECEPTION:

AM, CW, NBFM, SSB (LSB/USB)
A3E, A1A, G3E, J3E

SELECTIVITY:

SSB/CW (J3E/A1A):
2.7 KHz @ – 6dB, 8.0 KHz @ – 50dB

FM (G3E) narrow:

12.5 KHz @ – 6dB, 30 KHz @ – 40dB

AM (A3E/A3E) (standard/narrow):

6.0 KHz @ – 6dB, 15 KHz @ – 50dB
2.7 KHz @ – 6dB, 8 KHz @ – 50dB

SENSITIVITY:

SSB/CW (J3E/A1A) @ 10dB S+N/N:
<0.4uV into 50 ohm, 1.50 – 30 MHz
<3.0uV into 500 ohms, 0.15 – 1.6 MHz
<1.0uV into 50 ohms, 118 – 117 MHz*

FM (G3E) @ 20dB S+N/N:

<1.0uV into 50 ohms, 1.60 – 30 MHz
<2.0uV into 50 ohms, 118 – 174 MHz*

AM (A3E) @ 10dB S+N/N:

<4.0uV into 50 ohms, 1.60 – 30 MHz
<3.0uV into 500 ohms, 0.15 – 1.6 MHz
<1.0uV into 50 ohms, 118 – 174 MHz*

SQUELCH SENSITIVITY:

SSB/CW (J3E/A1A):
<2uV, 1.60 – 30.0 MHz
<4uV, 118 – 174 MHz*

FM (G3E)

<0.5uV, 1.6 – 30.0 MHz
<1.0uV, 118 – 174 MHz*

AM (A3E):

<2uV, 1.60 – 30.0 MHz
<4uV, 118 – 174 MHz*

AUDIO OUTPUT:

1.4W in 8 ohms internal @ 10% T.H.D.
4 – 16 ohms external speaker/phones
Constant level line output (recorder)

POWER REQUIREMENTS:

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1A Rx, 0.020A standby

DIMENSIONS (Ex/Inc. projections):

335/350 W, 120/130 H, 235/270 d, mm
Weight 6.1/6.3 Kg (w/o, c/w VHF unit)

*OPTIONAL UNIT

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Two 4 bit CPU's: 10 memories (independent Tx & Rx), reverse/simplex (either) by single key touch, scanning; manual-auto band (full or partial) — memory, clear-busy, skip-select, programmable power save system (10 selectable dwell times). Large LCD 1/2" Digits + 10 special functions, "any angle". Meter; S/battery condition, VOX, 65 x 34 x 169mm.

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FT209RH (5.0W)	c/w FNB4, YHA14, CSC11, etc.	£269.00
CSC10	Soft case (FBA5, FNB3 fitting)	£6.90
CSC11	Soft case (FNB4 fitting)	£7.65

For general accessories see FT203R list.
FNB5, FNB3, FNB4, YH2, MH12A2b, SMC8.9AA, NC15, MMB2



FT203R & FT703R HANDHELDS "THUMBWHEEL" TINY HANDHELD

Ultra compact 65W x 34D x 153Hmm, synthesised handheld. Computer aided design and component insertion with chip capacitors and resistors has produced this modern marvel: 2.5W RF (10.8V) (3.5W RF (12V)). It has VOX (for use with YH-2 lightweight headset), and built in 'S'/PO meter. Supplied with tone burst, helical and appropriate case.

FT203R	c/w FBA5, CSC6, etc.	£155.00
FT203R	c/w FNB3, CSC6, etc.	£185.00
FT203R	c/w FNB4, CSC7, etc.	£190.00
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FNB3	10.8V NiCad Pack (425mAH).	£35.00
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YH2	Headphone/Microphone option.	£29.90
MH-12A 2b	Speaker/Microphone option.	£14.55
MMB21	Mobile mounting bracket.	£7.65
SMC8.9AA	Charger (slow) 13A style.	£8.45
NC15	Charger (quick) and Power Unit.	£57.50

FT2700RH — TWO-IN-ONE

The ultimate 2M and 70cms FM radio based on Yaesu's new die-cast aluminium chassis, allowing 25W output on both bands. Two 4-bit CPU's allow simple operation of the dual VFO's 10 channel memory, with back up. Dual receiver front ends local synthesisers. IF's and transmitter RF stages gives full duplex capability. Comprehensive scanning facilities allow continuous or skip scanning between memory channels in the same band, combined with a MHz switch for changing from one band to another. Large green LCD gives aesthetically pleasing and easy to read display of transceiver operating status including memory and reverse repeater at a glance. The PO/S meter is a distinctive two colour graphical LCD incorporated into the main display.



FT2700RH	Tx/Rx, 2M/70cms, 25W/25W, Full Duplex.	£520.00
FT2SYNTH	Voice Synthesiser Module.	£21.45
OMT2700RH	Owner's Manual.	£2.65

FT270R/RH — LARGE ON OUTPUT

FT270R/RH is a 2M FM Transceiver based on a unique diecast aluminium heatsink with ducting which allows continuous 45W output (RH model). The R model is rated at 25W output. The LCD display uses large 5mm digits allowing easy reading of all transceiver functions. Dual 4-bit microprocessors allows quick operation of dual VFO's, ten memories and scanning. Upper and lower band scanning limits can be set as well as monitoring priority memory channel. Optional voice synthesiser is available to give an audible indication of frequency, at the touch of a button.



FT270R	Transceiver 2M, FM, 25W synthesised.	£325.00
FT270RH	Transceiver 2M, FM, 45W synthesised.	£380.00
FT2SYNTH	Voice Synthesiser Module.	£21.45
OMT270R	Owner's Manual.	£2.65

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FT757GX	Transceiver General Coverage Rx.	£759.00
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FP757GX	Switch mode PSU (50pc duty).	£140.00
FP757HD	Heavy duty PSU (100pc duty).	£179.00
FIF80	Computer interface for PC8001 NEC.	£106.20
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FIF232C	Computer interface RS232C.	£58.65

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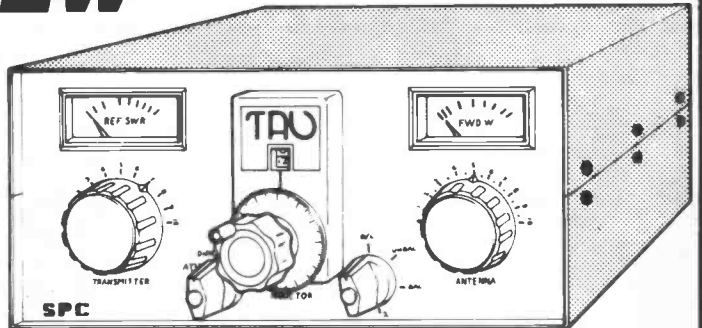
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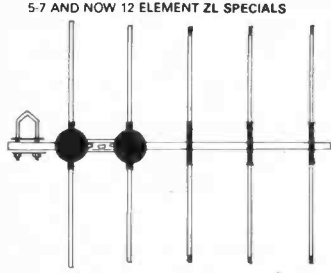
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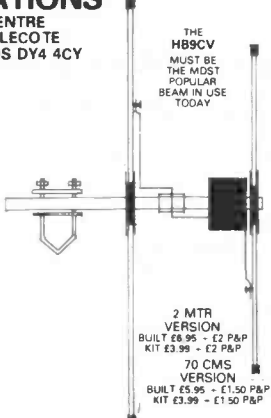


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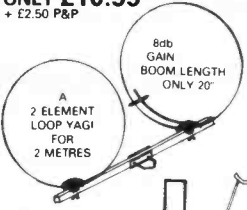
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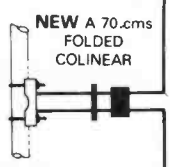
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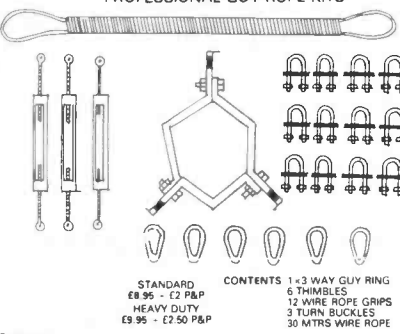


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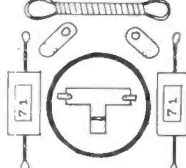
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TRIO TS930S	1250.00 (-)	TRIO TM201A 25W Mobile	295.00 (-)	TRIO SP230 (TS830, 530)	45.45 (1.50)
YAESU FT980	1475.00 (-)	ICOM IC27E 25W Mobile	359.00 (-)	TRIO SP430 (TS430)	32.40 (1.50)
ICOM IC751	1239.00 (-)	YAESU FT230R 25W Mobile	269.00 (-)	TRIO SP120 (TS130, 120)	29.27 (1.50)
ICOM IC745	898.00 (-)	TRIO TR2500 Handheld	257.00 (-)	YAESU SP102 (FT102)	57.90 (1.50)
TRIO TS430S	733.00 (-)	TRIO TH21ET Micro Handheld	179.00 (-)	TRIO SP40 Mobile speaker	15.67 (0.75)
TRIO TS830S	793.00 (-)	YAESU FT206R Handheld	209.00 (-)	YAESU SP55 Mobile speaker	14.95 (0.75)
YAESU FT757GX	759.00 (-)	ICOM IC2E Handheld	199.00 (-)	WORLD CLOCKS	
TRIO TS530S	698.00 (-)	ICOM IC02E Handheld	259.00 (-)	TRIO HC10 Digital	75.00 (2.00)
TRIO TS130S	598.00 (-)	2M MULTIMODE TRANSCEIVERS		ICOM Gold Globe Clock—LCD readout	59.00 (2.00)
YAESU FT77	479.00 (-)	TRIO TS780 2M and 70cm base	934.00 (-)	YAESU QTR 24D—Analogue quartz	34.50 (2.00)
ANTENNA TUNER UNITS		YAESU FT726R 2M fitted (70cm optional)	839.00 (-)	ANTENNA BITS	
ICOM IC-AT500 Auto	429.00 (-)	TRIO TS711E 2M base	792.00 (-)	HI-Q Balun 1:1 5kw p.e.p.	11.95 (0.75)
ICOM IC-AT100 Auto	299.00 (-)	ICOM IC271E 25W base	699.00 (-)	7.1 MHz Rat-Traps—Epoxy pair	8.95 (1.50)
TRIO AT250 Auto	277.00 (-)	ICOM IC290D 25W Mobile	469.00 (-)	Self-Amalgamating Tape 10m x 25mm	3.95 (0.75)
YAESU FC757 Auto	245.00 (-)	TRIO TR29130 25W Mobile	479.00 (-)	T-piece Polyprop. Dipole centre	1.50 (0.30)
YAESU FC102 High Power	185.00 (-)	YAESU FT290R Portable	309.00 (-)	Polyprop Strain Insulators	0.50 (0.10)
TRIO AT230	150.00 (2.00)	70cm TRANSCEIVERS		Small ceramic Egg Insulators	0.50 (0.10)
TRIO AT130	103.00 (1.50)	TRIO TW4000A Mobile 2M/70cm	510.00 (-)	Large ceramic Egg Insulators	0.75 (0.10)
YAESU FC700	103.85 (1.50)	TRIO TM401A 12W Mobile	324.00 (-)	75 ohm Twin Feeder—Light duty	0.16 (0.04)
WELZ AC38	73.95 (1.50)	TRIO TR3500 Handheld	277.00 (-)	300 ohm Twin Feeder	0.14 (0.04)
YAESU FRT7700 Short Wave Listening	48.25 (1.00)	TRIO TH41ET Micro Handheld	199.00 (-)	UR67 Low Loss Coax—50ohm	0.65 (0.20)
TAU SPC 3000	349.00 (-)	ICOM IC4E Handheld	259.00 (-)	UR76 50 ohm Coax—Dia 5mm	0.25 (0.05)
HF RECEIVERS		TRIO TS81E 70cm base	898.00 (-)	UR70 70ohm Coax	0.30 (0.05)
ICOM R71	699.00 (-)	POWER SUPPLIES		4mm Polyester Guy Rope, strength 400kg	0.16 (0.04)
ICOM R70	599.00 (-)	YAESU FP757HD	179.00 (1.50)	50 Mtrs 16 swg Hard drawn Copper Wire	6.90 (1.00)
TRIO R2000	456.00 (-)	YAESU FP700	145.00 (2.50)	WELZ SWR-POWER METER	
TRIO VC10 VHF Converter for R2000	122.00 (-)	TRIO PS430S	135.00 (2.50)	SP15M SWR-Power HF/2M 200W	45.00 (1.00)
TRIO R600	285.00 (-)	TRIO PS20	59.95 (2.00)	SP45M SWR-Power 2M/70cm 100W	65.00 (1.00)
YAESU FRG8800 New receiver	525.00 (-)	ICOM PS15	135.00 (2.50)	SP35CM SWR-Power HF/2M/70cm 200W	75.50 (1.00)
YAESU FRV8800 VHF Converter	95.00 (-)	ICOM PS20	189.00 (2.50)	COAXIAL SWITCHES	
VHF RECEIVERS		DRAE 4 amp	34.00 (-)	SA450 2 Way Diecast SO239 (500MHz)	12.95 (0.75)
JIL SX200N	299.00 (-)	12 amp	79.50 (-)	SA450 2 Way Diecast N plug (500MHz)	16.95 (0.75)
AOR AR2001 25-500MHz	365.00 (-)	6 amp	53.00 (-)	CH20A 2 Way Welz 50239 (900MHz)	21.95 (1.00)
FDK ATC720 Handheld Airband	179.00 (-)	24 amp	110.00 (-)	CH20N 2 Way Welz N plugs (900MHz)	38.75 (1.00)
FDK RX40 Handheld 141-179 MHz	142.00 (-)	6 amp	52.90 (-)	24 amp	138.00 (-)
BLACKSTAR Meteor Frequency Counter		12 amp	95.45 (-)	40 amp	276.00 (-)
	141.00 (-)	NEW AKD WAVEMETER (VHF) £24.95		GW Brass Morse Key	

GOODS NORMALLY DESPATCHED WITHIN 24 HRS. — PRICES CORRECT AT TIME OF GOING TO PRESS — E80E

FOR THE RADIO AMATEUR AND AMATEUR RADIO



EDITORIAL

10, 18 and 24 MHz

These three bands, won after a great deal of very hard work by the RSGB, ARRL, the Russian Central Radio Club and many others, back in 1979 at WARC, seem not to be getting the use that they justify. At the time they were opened it was agreed that they would be CW-only allocations, and in the U.K. at least there are power restrictions too, and aerial limitations.

All this doesn't alter the fact that for some reason, both 18 and 24 MHz are grossly under-used, the latter disastrously so. However, by general agreement they are not used by the contesters, and so they are ideal bands for rag-chewing and casual contacts on the key.

To try and improve the situation, we propose that the first weekend of each month for the rest of the year should be designated a 'New Bands Activity Period' and that those stations worldwide which are equipped for these allocations come on the air, work a few people, and then report their results. Not in any way a contest activity, just a 'gathering of the clans' — with particular stress on 18 and 24 MHz. Please pass the word around.

Having just referred to the RSGB above, reminds me that I am sometimes asked what our attitude is with respect to the Society. Notwithstanding my own continuous membership for the last 33 years, it should be quite clear by now that *Short Wave Magazine* appreciates the importance of the Society to amateur radio, especially in these days of pressure groups (after all, it is *our* pressure group), and in particular recognises and applauds its many achievements over the years.

That is not to say, of course, that the RSGB has not made mistakes in its time (what individual or organisation hasn't?), and on such occasions — if our own independence means anything — we have felt bound to make what we consider to be appropriate comment. And naturally, this is a reciprocal situation.

Ideally, everyone active in amateur radio in the U.K. should be a member of the Society, prepared to make his or her criticisms known from within the system, and to vote at elections at each level.

In other words we are very much 'for' the RSGB — in principle, always, if not *quite* always in practice! After all, no one (not even *S.W.M.*) is always right all the time.

We rather appreciated, in an odd sort of way, the mistake the Society made in one of its recent News Bulletins, when it reported that 1985 was our 50th anniversary; actually, *Short Wave Magazine* is not 50 years old until 1987!

*John Collins
G3KFE.*

VHF BANDS

NORMAN FITCH, G3FPK

The 1984 Tables

THE general impression was that 1984 was not such a good year as was 1983 and this seems to be borne out by the final placing tables. There were fewer memorable tropo. auroral and sporadic E openings so it was easier for readers to miss out on some of those that did occur. Last year, fifty readers entered the Annual VHF/UHF Table, comprising 27 Class A licensees and 23 Class B.

Congratulations to Kelvin Weaver, GW4TTU, the outright winner with 244 points. Keith Hewitt, G6DER, came second and was the only other participant to pass the double century with 208 pts. In third spot was Gordon Emmerson, G8PNN, with 194 pts.

Fourteen readers used 4m. and Bill Hodgson, G3BW, headed the list with 52 pts. Next was Arthur Breese, GD2HDZ, with 48. In joint third place were Jerry Russell, G4SEU, and Tim Raven, G4ARI, with 46 pts. Only G3BW and G4SEU worked six countries. GW4TTU led the field on 2m. with a new record points total of 129. Runner-up was Mick Allmark, G1EZF, with 109 pts. with Mick Cuckoo, G6ECM, third with 107. The only other reader to reach the magic 100 in 1984 was G6DER.

It was a closer contest on 70cm. where Chris Easton, G8TFI, won with 81 pts. He managed 18 countries. GW4TTU was second with 78 and G6DER third with 75 pts. 12 of the 35 entrants worked ten or more countries. On 23cm. G8PNN amassed 51 pts. for first place, while G8TFI was next with 44. GW4TTU was third with 37 pts., shared with Adrian Chamberlain, G4ROA.

The Annual CW Ladder was a new table in 1984 and again, GW4TTU was a clear winner with 629 different stations worked using 2m., 70cm. and 23cm. Kelvin had 32 QSOs on the microwave band and was the only one of the 23 participants to use it. Ray Baker, G4SFY, only used 2m. in which he made 553 pts. to earn second place. Appropriately, Tim Raven, G4ARI, who proposed this table, was third with 416 pts. from 4m. and 2m. QSOs. He worked 87 different stations on 4m.

The 1985 annual tables will follow the same rules as for last year. The counties in

the four band one are the 78 administrative ones in G, GD, GI, GJ, GM, GU and GW, plus the 26 in the Irish Republic. The countries are the DXCC ones plus Shetland, GM, and Sicily, IT9.

Maidenhead Locators

As most readers will know, for contest work the European Locator system has been replaced by the unique Maidenhead system. This was fully explained in the January, 1984 issue of the *Magazine*, while the July, 1984 issue carried an article explaining how to convert the old European primary squares, such as ZL, into the Maidenhead version, such as IO9I. For convenience, it makes sense to use the new locator codes in reports, as many readers have already. The new system makes no difference to our Squares Table or to the QTHCC, since both are based on the 2° by 1° squares.

Awards News

Another VHF Century Club Certificate has been issued for 144 MHz. It is no. 372 awarded to Graham Gould, G6UMP, from Kenilworth, Warks. First licensed in January, 1983, his 2m. station comprises a Yaesu FT-480R with 50w to a 10-ele. Yagi antenna. He also operates on 70cm. using a Yaesu FT-790R running one watt. Graham hopes to be using 0-10 soon and is also building some gear for 3cm.

Telephone Interference

Following publication of last month's "Funny Noises" notes, several 2m. operators have identified QRM from these BT Ambassador telephone handsets. Jim Rabbitts, G8LFB, is suffering from a very strong signal, or rather signals. He used his Icom IC-202 to track down the source which was a house on a hill three-quarters of a mile from his QTH in Whetstone, North London. Again it was a handset Type 8520, Gen. 84/1S causing these spurious emissions in the 2m. band. Characteristically, they radiate signals on four frequencies randomly spaced over about 100 kHz and wander up or down the band in the course of a day.

A BT source suggested there are about 7,000 of these instruments in use, but it should not be assumed that all are acting as radio transmitters. Hopefully the wizards of Martlesham will come up with a cure. Meantime, any lawyers among our readership might like to comment on the legal implications. These handsets are obviously behaving as illegal radio transmitters if they can be detected several miles away. If they are rented from BT, who is committing any offence? BT or the unsuspecting user? The *RSGB* is vigorously pursuing this matter with the *D.T.I.*

CW for All

News about the proposal to permit interested Class B licensees to use CW did not reach your scribe's desk until after his

January copy was on its way to the printer. To recap, from April 1, for an experimental period of one year, they may apply for a waiver to vary their licence to allow them to transmit CW. This is the outcome of negotiations between the *RSGB* and the *D.T.I.* and was officially sanctioned on December 7.

This seems a logical step to help those learning morse code from slow morse transmissions. Now they will be able to send as well, so that their tutors can assess their progress under normal operating conditions. Provided sensible safeguards are included, this development is welcomed by your scribe. However, it seems the idea does not have universal approval, some dedicated CW users fearing the bands will be cluttered up with local CW QSOs at five words per minute when they are trying to work some choice DX. Therefore, it would seem appropriate to limit this facility to certain parts of the 2m. band in particular, say 144.440 to 144.495 MHz, using SSB mode for voice. This would be in line with current band plan and is not in a part of the band that is heavily used.

Requests for a variation of the Class B licence should be sent to the *RSGB* at Lambda House, Cranborne Road, Potters Bar, Herts. EN6 3JW. Envelopes should be marked, "Class B Variation" and two 17p stamps must be sent to cover the cost.

Again it appears sensible that this minor administrative exercise be handled by our national society at negligible cost to anyone. It also suggest that *H.M.G.* recognises that radio amateurs and their national society can be trusted to carry out a degree of self regulation.

"VHF Bands" deadlines for the next three months:—

March issue — January 30

April issue — March 6

May issue — April 3

Please be sure to note these dates

Beacon Notes

The 2m. beacon GB3VHF at Wrotham, Kent, has been re-programmed to give its Maidenhead locator JO01DH. The sequence is now; call twice, locator, call twice, locator, RTTY information, this cycle taking 125 seconds. the Cornish 2m. beacon GB3CTC also gives its new locator, IO700J. The 2m. Angus beacon, GB3ANG was still sending YQ35c on Jan. 7, though. Serge Canivenc, F8SH, the *I.A.R.U. Region 1 Es Coordinator*, has confirmed the QTH of the OX3VHF beacons in eastern Greenland as Denmarkshavn (IQ06PS). He advises via OZ8SL that the equipment was sponsored and built by a group of Danish amateurs.

Contest News

The first VHF event of 1985 is the 70 MHz *Cumulatives* on Jan. 27, Feb. 10 and 24, and Mar. 10 and 24 from 1000 to 1200. These are "no separate sections" affairs for single operators with normal radial ring scoring. The 144 MHz CW contest is on Feb. 3, 0900-1500, and is also a "no separate sections" event. The 432 MHz Fixed contest is on Feb. 17, 0900-1500, and is Single-op. and Multi-op. All require exchange of RS(T), serial number and Maidenhead locator. Additionally, the *Cumulatives* require the QTH to be exchanged, e.g. 3km. north of York. The weekend Mar. 2/3 sees the 144/432 MHz event; details next month.

VHF Convention

Geoff Stone, G3FZL, has provided details of this year's *RSGB National VHF Convention* to be held on March 23 at the Sandown Park Racecourse, Esher in Surrey. Admission is £1.00 as last year with concessions for young people. As usual, there will be a big trade show with a number of specialist groups, such as *AMSAT-UK*, taking part. It is hoped to have an equipment testing facility again. At 1345, there will be an address by *RSGB* President Mrs. Joan Heathershaw, G4CHH, followed by the presentation of awards and trophies.

From 1415, there will be three streams of three, one hour lectures. *Stream A* starts with Dr. Ian White, G3SEK, giving a completely new talk on VHF/UHF receiver front end design. Next comes Geoff Brown, GJ4ICD, on the construction of high power VHF/UHF amplifiers, while the final session is a VHF Committee forum. *Stream B* starts with Chris Young, G4CCC, on getting a repeater going, followed by Graham Shirville, G3VZV, on ATV repeaters and the future, and ending with Ian Wade, G3NRW, on data and packet radio systems. *Stream C* is devoted to microwave topics starting with Mike Walters, G3JVL, on microwave measurements, followed by Dr. Ian Morison, G1GZC, on microwaves in radio astronomy, and ending with Dr. Steve Grenhaugh on satellite TV. More details next month.

Repeaters

The North Kent relay GB4NK on UHF channel RB4 was restored to service on Christmas Eve, following the fitting of a new bandpass filter in place of the original one which had "disintegrated." A 23cm. repeater Tx is now operating on 1,297.225 MHz, callsign GB3RU and sited to the west of Reading, Berks. It is on beacon mode only at present but the *Berkshire Downs Repeater Group* hopes to have it in repeater mode by the late Spring. Details from Chris Young, G4CCC. (QTHR)

ANNUAL VHF/UHF TABLE

Final Placings at December 31, 1984

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		23 CENTIMETRES		TOTAL Points
	Counties	Countries	Counties	Countries	Counties	Countries	Counties	Countries	
GW4TTU	—	—	92	37	62	16	29	8	244
G6DER	—	—	75	25	61	14	25	8	208
G8PNN	—	—	65	14	51	13	38	13	194
G4TIF	31	3	69	20	56	13	—	—	192
G1EZF	—	—	83	26	52	11	17	2	191
G3BWV	46	6	63	23	35	9	16	5	182
G4ROA	—	—	61	12	54	11	32	5	175
GD2HDZ	43	5	58	9	37	8	8	3	160
G6XVV	—	—	79	14	54	11	1	1	160
G4SEU	40	6	59	15	26	9	—	—	155
G6XLL	—	—	75	19	52	9	—	—	155
G6MGL	—	—	59	20	46	13	9	6	153
G4ZTR	17	1	54	16	38	10	22	6	146
G4MUT	37	4	52	17	29	7	—	—	146
G4ARI	42	4	72	20	—	—	—	—	138
G4VXE	—	—	67	16	44	10	—	—	137
G8ULU	—	—	58	18	32	13	8	7	136
G4HGT	14	2	57	10	43	9	—	—	135
G8FMK	—	—	36	5	48	8	30	5	132
G8TFI	—	—	—	—	63	18	32	12	125
GW8UCQ	—	—	60	17	40	8	—	—	125
G6ZPN	—	—	72	15	29	9	—	—	125
G4XKR	—	—	61	9	38	7	—	—	115
GW3CBB	6	3	56	16	21	5	8	4	110
G6ECM	—	—	79	28	—	—	—	—	107
G6YIN	—	—	71	17	13	3	—	—	104
G6AJE	—	—	64	16	14	7	—	—	101
G4NRG	22	4	23	21	20	9	4	1	99
G3FPK	—	—	75	24	—	—	—	—	99
G4SFY	—	—	71	24	—	—	—	—	95
G6HFF	—	—	60	8	21	5	—	—	94
GM8YPI	—	—	40	16	21	9	—	—	86
G8RWG	—	—	59	20	—	—	—	—	79
G4LZD	—	—	60	15	—	—	—	—	75
G8XTJ	—	—	60	14	—	—	—	—	74
G8HHI	—	—	5	9	33	3	18	4	72
G8VJV	—	—	52	16	—	—	—	—	68
G6NVQ	—	—	60	7	—	—	—	—	67
G4WHZ	—	—	41	12	6	4	—	—	63
G4YIR	—	—	51	12	—	—	—	—	63
G2DHV	10	2	34	7	3	1	—	—	57
GU4HUY	—	—	49	8	—	—	—	—	57
GM4CXP	1	1	31	13	6	2	—	—	54
GW4HBK	29	4	6	3	7	2	—	—	51
G6XSU	—	—	—	—	41	8	—	—	49
G4CMZ	38	4	1	1	—	—	—	—	44
G4EZA	—	—	31	9	—	—	—	—	40
G3PBV	—	—	—	—	—	—	30	6	36
G6CSY	—	—	8	5	7	1	4	2	27
GW3MHW	16	2	—	—	—	—	—	—	18

Three bands only count for points. Non-scoring figures in italics.

DX-Pedition

John Lemay, G4ZTR, is contemplating some 4m. operation this summer from Wales. He asks readers to suggest rare counties they would like to work and would also appreciate suggestions for suitable sites in northwest Wales. John's address is 280 Broomfield Road, Chelmsford, CM1 4DY; the 1984 Call Book address is *not* correct.

The Satellite Scene

The latest information from *AMSAT-UK* concerning the Soviet amateur satellites is that *RS5* and *RS8* are on every day. As always, Mondays are QRP days and the Wednesdays are reserved for special experiments only. Generally, *RS7* is robot only operation though sometimes its transponder may be working.

UOSAT-2, or *UO-11* is now once again in a gravity gradient stabilised condition. Its on-board computer — OBC in the jargon — initiated the necessary complex manoeuvres over the Dec. 8/9 weekend. Test images have been received from the CCD camera but further work is required on the ground station facilities at the

University of Surrey before this experiment can be fully evaluated, to quote from *UOSAT Bulletin no. 105*. During the December *Geminids* meteor shower, a number of events were recorded in the Space Dust Experiment and this data is being analysed.

AMSAT-UK's Annual General Meeting is scheduled for Saturday, April 20 at London House, as in previous years; more details nearer the time. The supply of John Branegan computer software from *AMSAT-UK* has been discontinued. The last issue of *Orbit Magazine* — No. 19 — has been published. A less costly replacement was promised, the first issue being on Jan. 15. There are no reports about activity through *Oscar-10* this month, but Dave Robinson, G4FRE, (Suffolk) did ask, "Have you noticed the incredible correlation between an *E-M-E* weekend and ones inability to get into *O-10*?" In *Oscar News* No. 50, mention is made of YU1AW who, on Oct. 14, said he was using 10w to a 12 metre dish giving about 16Kw *e.i.r.p.* No wonder the AGC on *O-10's* Rx hit the 20 dB level when he came on.

Six Metres

Very little news on 6m. activity. Martin Blythe, G4HFO, reckons he is the only Cornish station on the band. He uses a *muTek* 2m/6m. transverter which he thoroughly recommends. His antenna is a 5-ele. *Tonna Yagi* at 25ft but he suffers strong QRM from a faulty 11kV electricity pole 100 metres to the east. Martin finds that 6m. signals get over the local hills far better than do 2m. and 70cm. ones. His best QSO has been an SSB MS one with GM3WOJ (XR40a) completed in under ten minutes. The Gibraltar beacon ZB2VHF often comes out of the noise in an MS burst and is easier to hear than GB3NHQ.

Derrick Dance, GM4CXP, (Borders) has not worked anyone yet, his transverter having been sent back for attention before Christmas. He has received some response to his sked requests. F8SC wrote that SM6PU copied OX3VHF between 1655 and 1909 last Nov. 20, presumably via *Auroral Es* scatter.

Four Metres

G4ARI, (Leics.) worked 14 new CW operators in December to bring his 1984 total to 87. Kev Archer, G4CMZ, (Derby) added Cheshire and Lancs. to make it 38 counties for 1984. John Wilkinson, G4HGT, (Leeds) reckons he missed a lot on the band but, considering he used one watt to a 3-ele. antenna in the loft, did quite well. Ron Wilson, G4NZU, (Notts.) transverts from 2m. with a *Trio* TR-9130, also with a loft antenna, his being a 2-ele. *Quad*.

Jerry Russell, G4SEU, (Warks.) lists G4CAX (Cheshire), G3BW (Cumbria), GW4ALG (Gwent), G3TSJ (Gtr. Mchstr.) and GW3MHW (Dyfed) all worked, with G3ZNU (Suffolk) heard. Ian Parker, G4YUZ, (Herts.) reports a successful SSB MS sked with GM3WCS (IO86) on Dec. 16 and a 4m/2m. cross-band CW MS sked with F9HS (JN13) on the 14th in the *Geminids*. Ian got a 37 report and it was completed in 45 mins. He runs 40w from a home made 2N6084 amplifier with an *M.E.T.* 5-ele. *Yagi* at 50ft.

John Jennings, G4VOZ, (Ullesthorpe, Leics.) wonders why so few amateurs use

4m. On Oct. 13/14, he operated GB2DOG, a special event station connected with fund raising for Guide Dogs for the Blind. 19 stations were worked. He runs 80w to a rotary dipole 420ft. *a.s.l.* and has late-evening, three-way QSOs with G4LDZ (Norwich) and G3CUN (Birmingham). Cross-mode contacts are frequent and he gets better copy from vertically polarised stations when the dipole is 30° off the true azimuth. John wonders who will be the first G0 station on the band.

Two Metres

Many readers took advantage of the excellent tropo. conditions around Dec. 10-12. David Whitaker (N. Yorks.) lists D, F, GD, GJ, GU, LX, ON, OZ and Y stations in some 26 widely assorted squares. In this period, G4ARI added many D, F, ON and PA stations on the key plus EA1KC, LX1JP and DL/JA3BAG. Tim found 64 new CW stations in the month. Paul Whatton, G4DCV, (Kent) worked OK1KFQ/P (HK) and Y42RK (FK) on CW and SSB respectively on Dec. 7. On the 10th, EA1XH and EA1CYE both in YD were new on SSB. The 12th brought D, Y and OZ QSOs in FM, GL, GM and GQ. Paul now has two 14-ele. *M.E.T. Yagis*.

Down in Somerset on the 10th, Ken Osborne, G4IGO, heard D, F, ON and PA stations into the D row of squares. On the 12th he worked SM6MNS (GR11), OZ1WT (EQ21) and OZ1BUR (EQ54). Ray Baker, G4SFY, (Norfolk) worked many D and PA stations in the D row of squares over Dec. 7-9. On the 10th, he got into AG, BI, DI, DJ, EK and ZI squares but, although beacon HB9HB was S5 most of the day, no Swiss stations were heard. Ds and Fs were heard working over to EI, but no Irish stations were heard in North Walsham. More Fs and Ds in similar squares were worked on the 11th but by the 12th, the lift brought in Y23OM (GL), OZ1HOS (EQ), SM6CEN (FR), DH6LAB (EN) and OZ1FOW (GO).

Ron Bentham, G4SHC, (Gtr. Mchstr.) suffers from TVI so went out portable in the period 10-12 Dec. to YN39d taking a *Yaesu* FT-726, 100w amplifier and 9-ele. *Yagi*. Over 150 QSOs were made in six hours. Best DX included DL9NBE (FJ), DL5NAG (FK), DD1YX (GI), Y23OM (GL), DF9OX (FM) and Y23BD (GM). LX1JX was an 'end-stop' signal and worked many Gs, but no HB, OE or OK stations were heard. The most memorable QSO was with DG4NAE at 0110 on the 12th from EJ06a who was S9-plus 40 dB off the back of his beam. They both reduced power to 50-100 milliwatts and exchanged S7 reports.

Mike Johnson, G6AJE, (Leics.) came back home to find antenna/mast engineering in progress just as the lift started, so hastily re-erected a 6-ele. *Quad* at 20ft. G4FDX/LX (CJ) was a new all-

TWO METRES ANNUAL TABLE

Final Placings at December 31, 1984

Station	Counties	Countries	Total
GW4TTU	92	37	129
G1EZF	83	26	109
G6ECM	79	28	107
G6DER	75	25	100
G3FFK	75	24	99
G4SFY	71	24	95
G6XLL	75	19	94
G6XVV	79	14	93
G4ARI	72	20	92
G4TIF	69	20	89
G6YIN	71	17	88
G6ZPN	72	15	87
G3BW	63	23	86
G4VXE	67	16	83
G6AJE	64	16	80
G8RWG	59	20	79
G6MGL	59	20	79
G8PNN	65	14	79
GW8UCQ	60	17	77
G8ULU	58	18	76
G4LZD	60	15	75
G4SEU	59	15	74
G8XTJ	60	14	74
G4ROA	61	12	73
GW3CBBY	56	16	72
G4ZTR	54	16	70
G4XKR	61	9	70
G4MUT	52	17	69
G8VVF	52	16	68
G6HFF	60	8	68
G4HGT	57	10	67
GD2HDZ	58	9	67
G6NVQ	60	7	67
G4YIR	51	12	63
GU4HUUY	49	8	57
GM8YPI	40	16	56
G4WHZ	41	12	53
G4NRG	23	21	44
GM4CXP	31	13	44
G2DHV	34	7	41
G8FMK	36	5	41
G4EZA	31	9	40
G8HHI	5	9	14
G6CSY	8	5	13
GW4HBK	6	3	9
G4CMZ	1	1	2

time country. Others worked were F, D and PA in BJ, DK, DL, CL, and CN. Mick Cuckoo, G6ECM, (Kent) worked Y31SM/A (GL53g) and Y42RK (FK25j) on the 7th. On the 10th, HB9BSL and 'MKV in DH, IW1DHH (FH) and OE9HHI (EH) were contacted. Byron Fletcher, G6HCV, (Staffs.) added Fs in BF and BG for two new squares on the 10th and now has 92 confirmed out of 109 worked.

Richard Mason, G6HKS, (Camps.) managed Y31SM/A, DL4YBM (EM), GM8BDX (YP) and G14GVS (XO) on the 8th. Over the period 23-28th, GI, GM and GW stations were worked. The best of Laurie Segal's, G6XLL, (London) December Top Ten was EA1CYE (YD) on the 11th. OZ1EKI (EP) on the 12th was new as was F6CKM (BG) on the 10th, DJ7UD (EI) on the 11th and DF9OX (FM) on the 12th. Pete Hizzey, G6YLO, (Kent) spent a little time on the band on Dec. 10 to pick up Fs in BF, BG, BI and CG.

John Fitzgerald, G8XTJ, (Bucks.) made 101 QSOs in the Dec. 2 Fixed contest, best DX being GM4YXI. In the Dec. 10-12 lift operating time was at a premium and his best DX was DB2ZY (EK). LX1SR and G4FDX/LX were also worked. Arthur Breese, GD2HDZ, is one of several readers who reckoned that 1984 was a poor year overall. He thinks his points total might be his lowest ever. In the

FOUR METRES ANNUAL TABLE

Final Placings at December 31, 1984

Station	Counties	Countries	Total
G3BW	46	6	52
GD2HDZ	43	5	48
G4SEU	40	6	46
G4ARI	42	4	46
G4CMZ	38	4	42
G4MUT	37	4	41
G4TIF	31	3	34
GW4HBK	29	4	33
G4NRG	22	4	26
GW3MHW	16	2	18
G4ZTR	17	1	18
G4HGT	14	2	16
G2DHV	10	2	12
GW3CBBY	6	3	9
GM4CXP	1	1	2

lift he added DK8KL on the 10th for his ninth 1984 country.

GM4CXP admits to having had only about 200 stations worked in 1984, even so, it did bring LX and GU for two all-time new countries, now at 33. Derrick has already worked 10 counties in 1985, the more distant ones being weak, on CW. Alex Scott, GM8BDX, (Borders) netted F6CYB (BH) for square no. 41 on Dec. 10, while another Borders operator Alex McCreadie, GM8YPI, says his best DX on the 11th was F6GCT (BI).

From Wales, Jonathan Eastment, GW4LXO, (Cardiff) worked OZ1IWT (EQ) on Dec. 12 and is up to 213 squares on this band. GW4TTU took his gear to GW6OSM's site for the Fixed contest and made 381 QSOs. Kelvin went out -/P for the CW contest last November and made 93 QSOs in very bad conditions. Reg Woolley, GW8VHI, (W. Glam.) was at GW6KQC (XL40c) for the Fixed event and 235 contacts resulted. Best DX was only CM square. He noted few stations in YN, ZM and ZN squares, but lots in AL, AM, ZL, etc.

Other tropo. reports were received from the following readers:— Ron Wilson, G4NZU; Martyn Jones, G4TIF; Tim Kirby, G4VXE; Sue Frost, G4WGY; June Charles, G4YIR; Glenn Bates, G6HFF; Colin Morris, G6ZPN and Neil Clarke, G8VFF.

And now to the MS scene starting with David Whitaker who heard good bursts on Dec. 13 in the *Geminids* from F1JG (CD); OK3KCM (JI); OE5OMM (HI); YU2RSD (GF) and IV3GBO (GG). This was the first shower David had experienced. John Hunter, G3IMV, (Bucks.) thought the *Geminids* good on the east-west path and to the southeast, but not all that good in other directions. SM2JCP (KZ) was a new square and the Swede was only running about 60w. In the *Quadrantids* shower, which was exceptionally good this year, he at last completed with IN3TWX (FG) after many previous unsuccessful attempts. However, the true QTE of 130° was used for reception, but 160° for transmit periods as the Italian had got good bursts from John in earlier skeds when both stations beamed towards BD square. OH7MA (OW) and UR2RPZ (NS) were also new squares for John.

G4DCV tail-ended G4BSW's sked with SM5MIX (HS) on the 9th and completed on CW. On the 13th, G4IGO completed with OE7RKU (II63) on SSB in 70 seconds, thanks to a 35s. burst. Ken's figures for 1984 were 141 squares and 32 countries worked on 2m. by various modes. Paul Turner, G4IJE, (Essex) found the *Geminids* very good although many sked partners did not turn up. He completed on SSB with EB5EHX (ZZ).

G4SHC reports his only *Geminids* QSO of note as CT4KQ (WA21e) worked from 0000 on the 14th in 25 mins. using 2½ min. periods. This was Ron's first major

shower. Tim Kirby, G4VXE, (Gloucs.) heard some good reflections in the *Geminids* from I6CXD and Y22ME, with F1JG as good as ever. However, nothing was heard from YU at 2100. Graham Daubney, G8MBI, (Herts.) thought the *Quadrantids* quite good. On random SSB, he worked OK2BFH and SM5MIX.

Eric Gedvilas, G8XVJ, (Cheshire) found the *Quadrantids* quite amazing. He heard little till 0800 on Jan. 3, then DL0PR (EN) came up in bursts. At 0835 he had a back scatter QSO with G4KTP with 48 and 39 reports, each beaming at about 25°. A "CQ" at 0910 was answered by SM5MIX the QSO completed in 20 mins. Later, at 1733, I1ROI was worked with Eric beaming due south — no reflections when beaming at 130°. Again, beaming at 180° I0NLK (GB) was worked in 33 mins. Other signals which came in well from the south were DH2NHF, OE6WIG and Y22RQ. At 1016, LA1K was loudest at 108°. Other readers have remarked, over the air, on way-off azimuths in this year's *Quadrantids*.

GW4TTU had skeds with YU1ONB and YU7ECD in the *Geminids*, but only weak pings were received. On Dec. 13, a sked with Y22ME on SSB went through in 14 mins. on SSB and OK3KCM (JI) was worked on SSB in one burst. On the 14th, a CW sked with SM2JCP (KZ) took 65 mins. to complete. OZ1CFO (ER) was worked on SSB in one burst. None of GW8VHI's *Geminids* skeds came off. Reg advises G6XVV that the best way to arrange skeds is to seek the help of a cooperative Class A licensee, preferably operating his station on the 20m. VHF net. He has written to lots of people for skeds with less than 50% response. He says that DC7UT, (GM) who has four 16-ele. *Yagis* on 2m. is looking for MS skeds with 6m. operators, crossband.

G4YUZ had 15 skeds lined up for the *Geminids* between Dec. 12 and 16 and four were completed:— YU3TS (HF) on the 13th; YU7ECD (KF) on the 14th; YU3ZW (IG) and YU6AA (JC) on the 16th, all on CW. Nothing was heard from three stations, one sked suffered from QRM and the other seven were not completed. YU6AA at 1,780 kms. is Ian's best DX so far. On Dec. 22 he had a completed 75 mins. sked with I0KYG (GB03e) receiving 20b, 20p, the best being 3 secs. at S6.

Nick Peckett, G4KUX, (Co. Durham) sent a long letter covering the latter part of 1984. He reports a successful MS QSO in the *Perseids* in August with 9H1CD for a first G/9H contact. The QRB is 2,533 kms. Henry Souchet, 9H1CD, was on in the *Geminids*, his best QSO being with YU7AU, all over in 20 mins. His long haul skeds did not produce one ping, however. He is surprised how few people want sporadic meteor skeds during the week or even at weekends. He reserves the major showers for long distance skeds, preferring

random skeds for distances below 1,500 kms.

Seventy Centimetres

David Whitaker made good use of the Dec. 11/12 tropo. lift and listed about fifty stations heard in 24 squares. The most southerly were F1DUZ and F1FHI in ZH and the most easterly DL7QY in FJ. Denis Jones, G3UVR, (Merseyside) lists QSOs with F1HGU (AI) and F6DWG (BJ) on Dec. 10 and DL7QY the next day, all on SSB. He now has 92 squares worked. G4DCV did well on the 10th and 11th adding another 13 squares. Paul was F1HON's (DI) first G station. Other fine QSOs were with DL7QY, F1GXX (ZF), F1EFW (CG), HB9MIN/P (DH), DF9ZT (EK) and DL9AAK (FL). He specially thanks G4FDX/LX who came on specifically to give him LX on 70cms.

G4FRE mentions beacon Y41N (JO60JW) which he found on 432.033 MHz on Dec. 11. Also heard was DL7QY, "... fighting off a pile of G1s ...". G4HGT runs 10w to a 15-ele. *Yagi*. John worked F2LQ (ZI) on Dec. 10, the next day bringing DL7QY at 956 kms. for his best DX. F6GCT (BI) was also worked. Adrian Chamberlain, G4ROA, (Coventry) added ON4YG for a new 1984 country, and F1CYB (BH) for a new square on Dec. 10. G4SEU contacted GU3EJL on Alderney, which was new, and DL2KBB was Jerry's first German on the band.

G4TIF (Warks.) added G6WZA (Somerset), G3HHD (N. Yorks.) and G16ATZ (Co. Down) for three new 1984 counties on the 12th. The previous day Martyn worked DL7QY for square no. 90.

70 CENTIMETRES ANNUAL TABLE

Final Placings at December 31, 1984

Station	Counties	Countries	Total
G8TFI	63	18	81
GW4TTU	61	16	78
G6DER	61	14	75
G4TIF	56	13	69
G4ROA	54	11	65
G6XVV	54	11	65
G8PNN	51	13	64
G1EZF	52	11	63
G6XLL	52	9	61
G6MGL	46	13	59
G8FMK	48	8	56
G4VXE	44	10	54
G4HGT	43	9	52
G6XSU	41	8	49
G4ZTR	38	10	48
GW8UCQ	40	8	48
G8LULU	32	13	45
GD2HDZ	37	8	45
G4XKR	38	7	45
G3BW	35	9	44
G6ZPN	29	9	38
G4MUT	29	7	36
G8HHI	33	3	36
G4SEU	26	9	35
GM8YPI	21	9	30
G4NRG	20	9	29
GW3CBY	21	5	26
G6HFF	21	5	26
G6AJE	14	7	21
G6YIN	13	3	16
G4WHZ	6	4	10
GW4HBK	7	2	9
GM4CXP	6	2	8
G6CSY	7	1	8
G2DHY	3	1	4

G6AJE found Dec. 11/12 very rewarding, Mike's best DX being DL7QY. Also worked were Fs in BH, BI, BJ and CI, PAs in CL and CN and Ds in DK and DL. He was on for the fifth leg of the *Cumulatives*, working to GW, PA and GU.

G6HKS is now QRV with a *Yaesu FT-790R* and 17 metres of *UR-43* feeder to an HB9CV antenna at 32ft, thus rather QRP. Richard worked G4SHC (YN) and G1HGJ and G4PEC (ZP) on Dec. 30 from JO02CQ. G6XLL's best DX was F1CYB (BH20b) on Dec. 10. Other new squares on the 10th and 11th were F1HGU (AI), F6CTW (BI), ON5NY (BK) and ON5RU (CK) bringing Laurie's total to 32. After missing two previous openings, Roy Gibbons, G6XSU, (Herts.) did manage to get in on the act on Dec. 10/11 adding CI, DJ, EI, EK and FJ squares to make it 50 so far.

G6YJO lists QSOs with F1CYB, F6GCT, F6HEO (BG) on Dec. 10, and DL7QY, ON4YG (CK) and DC8VJ (DL) on the 11th. G6ZPN runs 10w from his *FT-726R* to a 19-ele. *Yagi*. On Dec. 11/12, Colin worked ON4YC, ON5RU and ON4YG all in CK; F1EHN and F6GCT in BI; DL2KBB (DK) and PE1ACB (DM). Gordon Emmerson's G8PNN, (Northumberland) only new one was G6IIA/P in Cumbria on the 8th to make it 51 counties for the year.

GD2HDZ added DL2KBB on the 12th for country no. 8 in 1984. GM8BDX found PA0HWM in CK on the same day for a new square. GM8YPI's best DX on the 11th was FIGCX (CI) and on the 12th, DL9AAK/P in FL. Over the period Dec. 10/12, GW4LXO worked F1CYB, F6HEO, F6HLD/P (CG), F1HGU (AI), G6SVJ/P (ZN) and DL6XA (EK), all new squares. Jonathan also worked DL7QY and DB1TP (EI) plus about 40 other D, F, ON and PAs in the B, C and D rows. On the morning of the 12th, beacon FX4UHF (IN93EH) on 432.866 MHz was S9 but no southern Fs were heard. EA2AWD (ZD) was heard.

The Microwaves

G3UVR operated on 23cm. in the Dec. 10/11 lift and contacted DK8VR (DJ), F6DWG (BJ), ON1QJ (BK), ON5GF (CK) and F1DED (BI) all on SSB, plus DL7QY on CW. Denis now has 35 squares on the band. On Dec. 4 he worked G8ECI (AN) in Lincs. for a new county. On Dec. 11, John Quarmby worked to EK square for a new one and is now up to 59 on 23cm. G4ZTR was on 23cm. in the lift and, in contrast to the good all round conditions on 2m, found things much more selective on the microwaves. He contacted Fs in BI and BJ, PAs in CL and CM, and Ds in DJ and DL from Chelmsford.

G6YLO now has eight countries on 23cm. and, in the lift, Pete worked F1DED, F6GCT, DC8VJ and, nearer home, G8ECI and G8IFT (YM). He has started building a transverter for 9cm. and

Final Placings at December 31, 1984			
Station	Counties	Countries	Total
G8PNN	38	13	51
G8TFI	32	12	44
GW4TTU	29	8	37
G4ROA	32	5	37
G3PBV	30	6	36
G8FMK	30	5	35
G6DER	25	8	33
G4ZTR	22	6	28
G8HHI	18	4	22
G3BW	16	5	21
G1EZF	17	2	19
G8ULU	8	7	15
G6MGL	9	6	15
GW3CBY	8	4	12
GD2HDZ	8	3	11
G6CSY	4	2	6
G4NRG	4	1	5
G6XVV	1	1	2

began collecting components last summer. However, he has not been able to find a source of 0.015" or 0.020" double-sided PTFE board, such as *Duroid D5880*, for making the capacitors, so would be most grateful if anyone can assist.

GW4LXO was on 23cm. in the Dec. lift and Jonathan's new ones were F1DED, ON5NY, ON4ASL (BL), DK1VC (DL) and F6ETI (YH), the latter a rare one by 2m. standards. ON5UHF beacon (JO10UN) on 1,296.880 was copied at S1. Other stations worked were F6DKW, F6CER and F6GCT all in BI, F6APE (ZH), DK8VR (DJ), DK8BG (EI) and GJ4ICD.

On Dec. 11, G4FRE, on hearing the good opening on 70cm., persuaded G8HPU to accompany him on a microwave portable expedition on 3.4, 5.7 and 10 GHz. They set off at 1950. On 10 GHz, no PA beacons could be heard, however on 3.4 GHz, DC8UG (DK) was copiable on a beer can at S5, so the signals were skipping over Holland. They both then worked DC8UG and then tried 5.7 GHz but the transverter seemed far too quiet. The problem was that, in the very low temperature, the prime mover, an *FT-290* was not working.

By the time the problem was sorted out, conditions seemed to be fading. But PA0EZ in Hilversum, in a nice warm

Final Placings at December 31, 1984					
Station	4m.	2m.	70cm	μWave	Points
GW4TTU	—	493	104	32	629
G4SFY	—	553	—	—	553
G4ARI	87	329	—	—	416
G4WHZ	—	334	7	—	341
G4TVH	—	277	—	—	277
G4NOZ	—	214	—	—	214
G4NZU	1	190	1	—	192
G4TON	—	161	5	—	166
G4WGY	—	154	—	—	154
G4UNL	—	137	—	—	137
G4VXE	—	100	27	—	127
G4EZA	—	117	—	—	117
G2DHF	31	74	4	—	109
G4YIR	—	80	—	—	80
G4LZD	—	70	—	—	70
G4OUT	—	55	—	—	55
G4SGO	—	43	1	—	44
G4CMZ	1	38	—	—	39
GM4CXP	1	35	—	—	36
G4PSS	—	32	—	—	32
GU4HUY	—	31	—	—	31
G3URA	—	30	—	—	30
GW4HBK	27	—	—	—	27

No. of different stations worked in 1984.

shack, found he had not worked AL square on 3.4 GHz. However, nothing could be heard from him so they returned home. This foray in Arctic conditions seems to have resulted in a bout of 'flu for Dave, so he wonders whether one square on 3.4 GHz was really worth the effort.

Moonbounce

In the December feature, it was reported that GW4LXO had heard a number of stations via *E-M-E* on 2m. Jonathan has since made QSOs with SM2GGF, DL8DAT, KB8RQ, K1WHS, K6MYC and VE7BQH. He has heard OK1MS, LA1TN, KD8SI, VE2DFO, RQ2GAG, WB5LBT, HB9SV, Y22ME, K9MRI, K9RX, KG6DX and UA6LJV, so obviously his receiving system with four 9-ele. *Yagis* and 3SK97 masthead preamp. is optimised.

Design Topic

Pete Hizey, G6YLO, has been experimenting with a high performance receiver system based on what he calls, the *muTek* front end philosophy. He has taken this to the logical conclusion by having the RF stage and all the filtering at the masthead. At the "shack" end, the signal is fed directly to the high level *Schottky* mixer and re-designed IF strip on an *Icom IC-201*. He says that the results compare very favourably with an *IC-271* with *muTek* board. He has also been measuring the SSB phase noise 10 kHz away from the carrier and says it was minus 119 dB. He comments, "... a very good case for non-synthesised rigs on today's crowded 2m. band."

Four Metres QRM

Paul Lewis, G4APL, and Ian Parker, G4YUZ, have mentioned the severe interference at times from illegal radio telephones operating in our 70 MHz band. Quite often, those using them do not appreciate they are using illegal equipment so careful monitoring of the conversations, listening for names and numbers, could give a clue as to the operators. Preferably these conversations should be recorded with dates and times and the evidence offered to the *D. T. I.* with a request that the *Department* takes the appropriate action. Another reader has so sorted out a local case in this way.

Deadlines

A lengthy column this month from a large mailbag in spite of the Christmas and New Year holidays and early deadline. See the box for forthcoming deadlines and make a note of the dates in your diaries. As always, send all your news, etc. to:— "VHF Bands," SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts., AL6 9EQ. 73 de G3FPK.

A Horizontal Loop Antenna

EFFECTIVE, AND CAPABLE OF FITTING INTO THE AVERAGE BACK GARDEN

A. D. TAYLOR, G8PG

THIS article is written in response to a number of requests, both over the air and by mail, asking for further details of the horizontal loop antenna in use at G8PG. For some time prior to erecting the antenna the writer felt that large, horizontal loop antennas would be worth trying, as a number of stations around the world have reported obtaining good results with such configurations. Unlike the quad, which is carefully tuned to resonance, large loop users try to get out as much wire as they can so that the area enclosed by the loop is as large as possible. Shape does not seem to be important. Squares, circles, rectangles and wires "bent to fit into the back garden" have all proved successful. A very long, thin shape is not recommended, however.

The shape of the antenna to be described is a rectangle. Antenna erection at the G8PG QTH presents some problems because of the combination of strong winds and heavy rain commonly encountered in winter. Winds in excess of 60 m.p.h. often occur, and the accompanying heavy rain turns the clay soil into a sticky goo out of which antenna stay pickets slide with monotonous regularity. Hard experience has shown that the antenna support most likely to remain erect during the winter is a light, 20-ft. high mast — but only provided lightweight wire is used for the antenna.

To meet this requirement the loop was made from light, plastic covered, stranded wire of the type that used to be used for broadcast antennas. Fig. 1 shows the dimensions, which are the largest that could be fitted into the back garden. One 60-ft. leg runs from the shack window to the lightweight mast mentioned above. From this a 20-ft. leg slopes to a 12-ft. high mast on the other side of the garden. The second 60-ft. leg runs from that mast back to the house, and the other 20-ft. leg runs back to the shack window parallel with the rear wall of the house; it is stood-off from the wall by a distance of about three feet. An additional 8-ft. of wire was left at each of the free ends, and with the aid of suitable spacers this was made into a short open-wire feeder and brought into the shack. The spacing of this feeder is not critical, six to eight inches being suggested. The actual feedpoint can also be moved to accommodate the conditions at other sites. The four corners of the loop are supported by halyards made from polypropylene cord. This material is an excellent insulator, rot proof, very strong, and does not stretch. Nylon cord should not be used as it will stretch and cause many problems.

To feed the antenna the existing Z-match coupler was modified

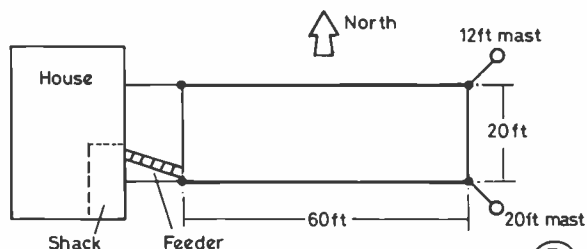


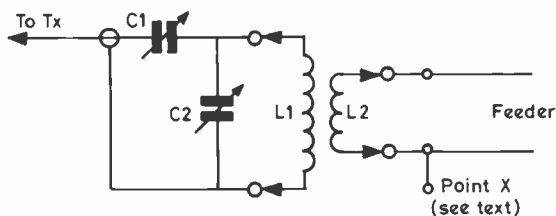
Fig. 1 LAYOUT OF ANTENNA

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to the configuration shown in Fig. 2. The purpose of connection 'X' in this diagram will be described later. All the results which follow were obtained using a Heath HW-8 QRP transceiver adjusted to give an output of 0dBw (1 watt RF) in the CW mode.

Initial tests on 7 MHz were extremely encouraging, distances up to 1,000 miles being worked without great difficulty. A second, and quite unexpected bonus on this band came when working other QRP stations at very short ranges (35-50 miles). Received signals from these stations were well up on the long wire antenna previously used, and in almost every case "best I have ever heard you" reports were received from them.

The first major test of the antenna on 14 MHz took place during the 1984 DL AGCW QRP Contest in January. Eleven hours of operating produced contacts with 26 different countries, including W, UL7 and UA9. Although not much time has been available for work on the band since January, other contacts include HH, VE, VK and additional Ws. On 21 MHz the loop has given a good account of itself when the band has been open to areas such as UA9/0, UM8, UL7, etc. During the CW part of the ARRL DX Contest 50 U.S. stations were worked in five hours, despite some time being spent in looking for (and working) a station in each of the States which the writer has actually visited.



- C1 100pF
- C2 500pF
- L1 14/21MHz 4 turns Former 1" diameter
- 7/3.5MHz 20 turns L2 close wound over L1
- L2 14/21 MHz 3 turns both 18 swg wire
- 7/3.5 MHz 15 turns

Fig. 2 ANTENNA TUNING UNIT

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The one band on which no improvement was initially obtained was 3.5 MHz. This was hardly surprising as the low height and the comparatively thin wire used meant that the radiation resistance was almost equalled by the ohmic losses in the wire (this is also found in mini-quads, but in that instance it is overcome by using a thick, tubular conductor to form the loop). When considering the problem it was suddenly realised that where the loop overall length is considerably less than one wavelength it might be better to treat it as an over-length horizontal folded monopole. To test this idea the station earth system (water pipe/central heating pipes/two counterpoise wires) was connected to point 'X' on Fig. 2. C2 had to be adjusted to re-resonate the system, but after this had been done checks on received signals indicated an improvement of an S-point or more. This also proved to be the case when transmitting, with good daylight contacts up to 250 miles and reasonable continental contacts after dark. On bands above 3.5 MHz connecting an earth to point 'X' causes a marked decrease of strength on both received and transmitted signals, so this connection should only be used when the overall length of the loop is considerably less than one wavelength.

From the results obtained it would seem that this type of antenna should be of considerable use to those who are faced with space and/or height restrictions. It seems very non-critical, and requires neither extensive pruning nor specialised test equipment to bring it into operation. The short range results obtained on 7 MHz when working close to the MUF for the path could also be significant for professional users in countries where official short range HF links have to be maintained. As a purely amateur venture it has proved extremely interesting and has given excellent results.

A Stable, Surefire VFO for the LF Bands

COLIN TURNER, G3VTT

ONE of the most often-heard requests in the writer's circle of QRP operators and constructors is "what do you recommend to make a really stable VFO?" The purpose of this article is to outline one way I have found to build stable VFO's and to offer a foolproof circuit building block which can be used in confidence for a transmitter or receiver project.

The swing in recent years to QRP operation has brought with it designs for a large number of simple transmitters. These are usually simple one or two-state rigs with crystal control which can give, in the right conditions, plenty of contacts — particularly if the crystal frequency can be altered by a series capacitor. The slight changes of frequency obtained by this VXO method are in the order of 2 to 5 kHz at most, and by using a VFO the number of QSO's can be increased due to the improvement in operating flexibility.

The circuit shown below, Fig. 1, is conventional and its secret of stability lies not only in the choice of components but also in the method of construction.

Mechanical Details

Many years ago I read an article in *S.W.M.* which gave details to the novice constructor of a simple valve VFO (valves, remember those?) and it ended with the reminder "by thine VFO shall ye be known!" In constructional circles this saying is still true. The stability and purity of our outgoing signal is still reliant on our constructional abilities. As George Dobbs, G3RJV, once said, "a VFO is like a boxer: both have to be built big to be stable, one in the ring and the other on the bands". The writer prefers to say that a good VFO can be dropped from 30,000 feet or run over by a tank and still stay on frequency. Well maybe that is taking things a little too far, but the point is clear: mechanical considerations play the greatest part in the quest for stability.

By using a robust enclosure such as the Eddystone diecast box, and by using tag strips as opposed to printed circuit boards, we can alleviate many of the factors which would cause instability and microphony. Microphony can be likened to the note of the

VFO, when heard in a local receiver, as sounding like a Chinese gong when the VFO enclosure is struck. The writer abhors the use of printed circuits for VFO construction (as does Wes Heywood W7ZOI, America's well-known QRP constructor). The PCB's are often mounted too close to the VFO bottom or sides; when the VFO is moved or struck during normal operation the board is flexed and the capacity between the board and the surrounding metal work changes so shifting the VFO frequency. This situation is a most agreeable one if we are searching for a new form of musical instrument; however in a transmitter or receiver with stability as the major requirement, it is far better to stick with diecast boxes and tag strips.

Circuitry

The circuit of this VFO is conventional. A Colpitts FET oscillator followed by a two-transistor buffer amplifier, giving a fairly constant output, and a toroid is used for the tuned circuit inductance. The use of a toroid may cause a ripple of disbelief in some construction circles. However, I have proved to myself many times that a toroid is superior to a dust slug tuned coil by virtue of it not having a slug. Many previous VFO's were built with slug tuned inductors which were unstable, movement of the slug causing a large change in frequency; far better to have a toroid which can be firmly clamped in plastic so preventing the turns of wire from moving and the inductance changing.

The minor drawback of the toroid requiring clamping can be best overcome by the use of a nylon bolt and two large plastic, not metal, washers to sandwich the toroid. Amidon toroids are obtainable from *TMP* of Clwyd who regularly advertise in *S.W.M.*; they also offer a purpose designed plastic collar to fit the various sizes of core. In the writer's VFO a junk-box fibre washer was used along with a fibre collar and a nylon 4BA screw found in an old transformer assembly. Never throw anything away! Be sure never to use a metal screw to secure the toroid 'sandwich' as it could alter the inductance and hence the operating frequency.

Table of Values

Fig. 1

R1 = 22K	C1, C2, C3, CT = see Table 1
R2 = 15K	C4, C7 = 0.01 μ F disc ceramic
R3 = 10K	25V DC working
R4 = 33K	C5, C6 = 0.1 μ F d/c, 25V DC working
R5 = 390R	D1 = 1N4148
R6 = 1K	D2 = BZY88C8V2
R7 = 47R	TR1 = 2N3819
R8 = 220R	TR2, TR3 = BC107, BC108, or BC171
	L1 = see Table 1

Note: all resistors are 1/4-watt; C1, C2, C3 are silver mica types.

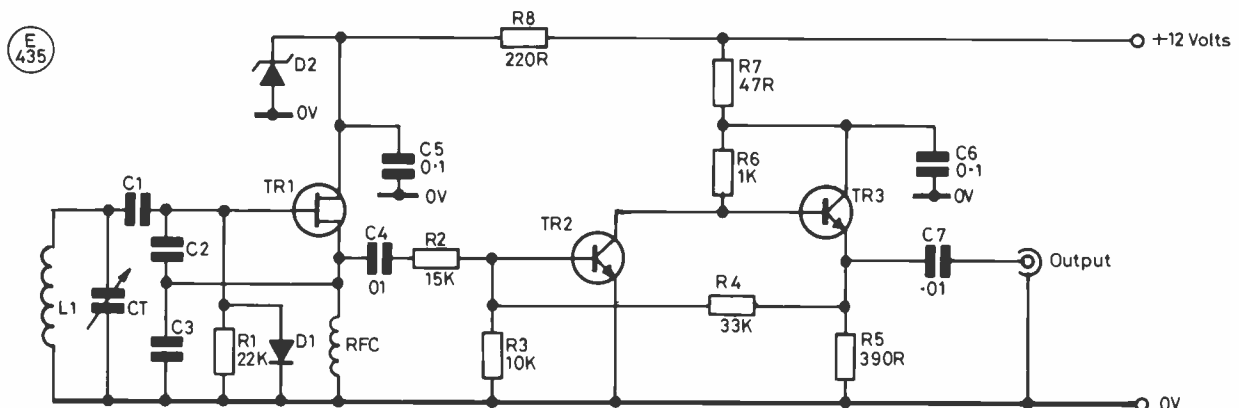
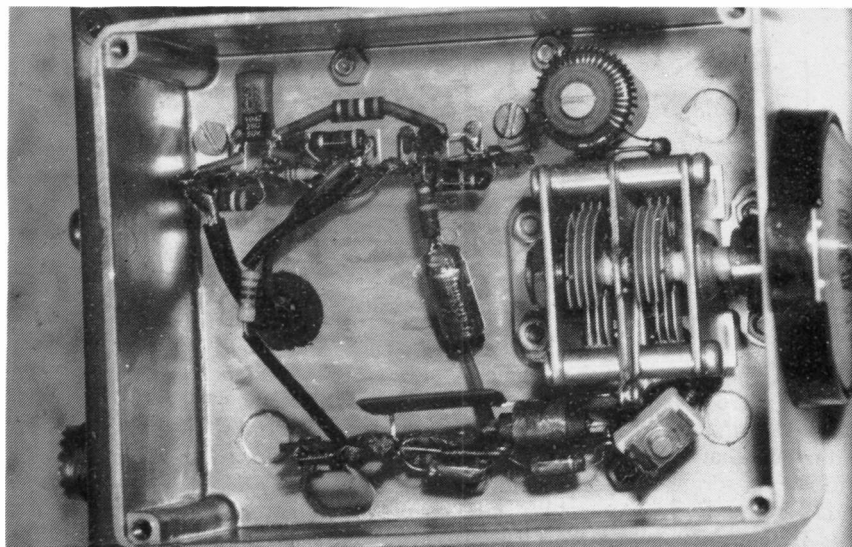


Fig.1 VFO CIRCUIT

General construction of an 80m. VFO; this particular unit is part of a 3.5 MHz receiver.

photo: G3ROO



The VFO tuning capacitor should be of the type which has a double bearing, *i.e.* the rotor vanes are supported at both ends. Where do you get these from? Simple — you visit every rally you can and you buy them. Another idea is to raid friends' junk boxes and either swap or buy them. Swapping is by far the best method of procurement: you can always recover the initial outlay at a later date when you want to obtain something from your friend who in turn wants something from you. This is called 'business', amongst other things, and it seems to be the predominant occupation in one form or another of all the creatures on this small blue-green planet of ours.

Double-bearing capacitors are effectively earthed at both ends of the rotor and this inherent improvement in bonding aids stability which could be impaired by poor earth contact. For the FET in this VFO I have used a 2N3819; I have yet to find one of these devices fail in this circuit providing it is fitted to the tag strips carefully. The usual technique is to solder the FET in place as the very last component and to solder it with an iron that has been warmed up and then unplugged from the mains supply. Unplugging the iron should prevent the FET from becoming damaged by stray currents on the tip of the iron as sometimes happens with mains soldering irons earthed with a three core cable. The bi-polar transistors can be soldered in in the normal

way, although the writer usually leaves the fitting of these devices until the majority of resistors and capacitors have been fitted. Extra heat from the soldering iron has been known to destroy transistors that are already in place on the tag strips.

In the quest for stability it must not be forgotten that all wiring connected to tuned circuits must be short and sturdy. Generally 16 or 18 s.w.g. tinned copper wire is used for the leads between the VFO capacitor, trimmer, gate of the FET and the two feedback capacitors across the FET gate and source. Although an airspaced trimmer will give the best stability a small mica compression type has been tried with some loss of stability although offering smaller dimensions.

The supply rail is best stabilised and decoupled to a voltage of around 8.2 or 9.2 volts depending on whatever zener is available.

The two bipolar buffer transistors can be any of an ever-increasing number of types. They are generally BC107, BC108, 2N3904, or BC171. In this circuit any small general purpose *npn* type transistor seems to work.

The gate clamp diode, D1, should not be left out of the circuit nor fitted incorrectly, it is in the circuit to clamp the output of the VFO to a low level and to aid stability. The capacitors associated with the tuned circuit, C1, C2, C3, and CT should be silver mica types or a combination of silver mica and air-spaced variable capacitors if only a small section of the band in question is to be tuned. Table 1 gives details of the various coil and capacitor values for each of the three lowest bands available. Although the values will permit VFO operation in the required band some experimentation is required to give the exact amount of coverage needed. This will take the form of adjustment of the values of CT or any padding capacitors that are in parallel.

Performance

Properly constructed, a VFO using such a rigid enclosure and solid point-to-point wiring will not move in frequency if the box is struck. This is certainly true for 160/80/40m., where the only VFO frequency change is due to switch-on drift — often only a few tens of hertz. The output is a few hundred millivolts which the writer has found to be enough to drive many receiver and transmitter projects.

	C1 (pF)	C2 (pF)	C3 (pF)	CT (pF)	L1 (turns)
160m.	1000	2200	2200	200	45
80m.	500	1000	1000	125	30
40m.	250	500	500	75	25

Table 1. Values of C1, C2, C3, CT and L1 for 160/80/40 metres. L1 is wound on a T68-2 core available from TMP Electronics. Note that the value of CT is the total value, inclusive of both tuning and a parallel capacitor to give the required value; *e.g.* for 160m. a value of CT was 200pF, made up by a 75pF variable plus a 150pF trimmer adjusted to give coverage of the CW portion of the band.

★ ★ ★ ★ Oblast Corner ★ ★ ★ ★

NIGEL CAWTHORNE, G3TXF

WITH declining sunspot numbers and a corresponding decrease in HF conditions, long distance DX openings on the HF bands become rarer. Working new countries, especially if the ones that you need are far away in the Pacific gets progressively harder as we approach sunspot minimum.

DX-ing need not stop there! Whatever conditions are like, it is usually possible to contact USSR stations on one band or another at any time of day or night from the U.K. U.S.S.R. DX-ing (or "oblast chasing") is an alternative form of HF DX-ing that is still practical even when the DX bands are otherwise pretty uninteresting!

Simple antennas such as dipoles and low power can be used very satisfactorily for making contacts easily with stations which are only one ionospheric hop away. This range includes many of the more westerly Russian oblasts.

Oblast Chasing

The April issue of *S.W.M.* carried an article describing oblast hunting and explained how to identify oblasts (administrative regions) from Russian callsigns. No sooner had the ink dried on that article, when on 1st May 1984, some major changes were made in the callsign system used by U.S.S.R. stations! As well as changes in the composition of callsigns, there were also some additions and deletions of oblasts. These were explained in a follow-up article that appeared in the August issue of *S.W.M.*

"Oblast Corner"

This alternate-month series of articles under the heading "Oblast Corner" will bring news of U.S.S.R. DX-ing of interest to both the transmitting amateur and the SWL.

After the changes that took place in May 1984, there are now a total of 184 current oblasts. These are listed in Table 1. Individual oblasts can be identified in most cases directly from the callsign. Table 1 is intended as an operating aid and check list for both

transmitting and SWL HF operators who would like to keep track of the different Russian oblasts that they have worked or heard.

Oblast Score

As a regular feature of "Oblast Corner", there will be a table of the number of different oblasts heard or worked by readers. In order to encourage newer HF operators to send in entries as well as old-time DX-ers who may have been chasing DX for years, there will be two listings within the table. An "All-Time" oblasts worked list (where the maximum number is 191) and a 1985 "In-Year" table where the maximum is 184.



Russian QSLs have improved in quality over the years: today there are fewer of the rough carton-paper type QSL. Humorous QSLs are also appearing as shown by this example from Vlad, UQ2GKM, in Latvia.



Examples of pre-war Baltic states QSLs. YL-Latvia, LY-Lithuania and ES-Estonia are all now part of the U.S.S.R. These historic QSLs are from the collection of the late Jack Box, G6BQ.

The "In-Year" table will show the number of oblasts heard or worked since 1 January 1985 and will run for one year. The oblast tables are open to both SWLs and transmitting amateurs and QSOs can be on any mode. However if your oblast QSOs are all on one mode (CW or SSB), please state that with your entry.

DX-peditions and Special Calls

Rare oblast 049 (UI-C) was active in September with the call RI8CA. QSLs go via RA3AR (ex-UA3AEL). Although not in a rare oblast, the special call EU3R was recently in use to celebrate the 60th anniversary of the Russian magazine *Radio*.

Days of Old

If you have never worked stations with prefixes like YL2, LY1 or ES4, don't worry, because now you never will! These prefixes have passed into the history of amateur radio. These were some of the prefixes used in Latvia, Lithuania and Estonia in pre-war days, before they became part of the U.S.S.R. The cards used in the illustration come from the collection of the late G6BQ. These and many other of Jack's rare and interesting QSLs are now being kept safely by Dennis, G3MXJ.

<i>Oblast</i>	<i>ALL TIME</i>	<i>1985</i>	<i>Oblast</i>	<i>ALL TIME</i>	<i>1985</i>	<i>Oblast</i>	<i>ALL TIME</i>	<i>1985</i>	<i>Oblast</i>	<i>ALL TIME</i>	<i>1985</i>
UA1A 169			UA6P 96			UB-E 60			UI-F 47		
UA1C 136			UA6U 115			UB-F 70			UI-G 54		
UA1N 88			UA6W 86			UB-G 78			UI-I 51		
UA1O 113			UA6X 87			UB-H 71			UI-L 48		
UA1P 114			UA6Y 102			UB-I 73			UI-O 50		
UA1Q 120			UA8T 174			UB-J 67			UI-Q 185		
UA1T 144			UA8V 175			UB-K 72			UI-T 52		
UA1W 149			UA9A 165			UB-L 77			UI-U 55		
UA1Z 143			UA9C 154			UB-M 59			UI-V 181		
UA2F 125			UA9F 140			UB-N 57			UI-Z 56		
UA3A 170			UA9G 141			UB-P 58			UJ-J 40		
UA3D 142			UA9H 158			UB-Q 64			UJ-K 182		
UA3E 147			UA9J 162			UB-R 81			UJ-R 42		
UA3G 137			UA9K 163			UB-S 74			UJ-S 41		
UA3I 126			UA9L 161			UB-T 79			UJ-X 183		
UA3L 155			UA9M 146			UB-U 65			UL-A 179		
UA3M 168			UA9O 145			UB-V 66			UL-B 16		
UA3N 132			UA9Q 134			UB-W 68			UL-C 28		
UA3P 160			UA9S 167			UB-X 62			UL-D 29		
UA3Q 121			UA9U 130			UB-Y 82			UL-E 25		
UA3R 157			UA9W 84			UB-Z 69			UL-F 27		
UA3S 151			UA9X 90			UC-A 188			UL-G 190		
UA3T 122			UA9Y 99			UC-C 9			UL-I 17		
UA3U 123			UA9Z 100			UC-I 8			UL-J 19		
UA3V 119			UA0A 103			UC-L 5			UL-K 24		
UA3W 135			UA0B 105			UC-O 7			UL-L 26		
UA3X 127			UA0C 110			UC-S 10			UL-M 22		
UA3Y 118			UA0D 111			UC-W 6			UL-N 31		
UA3Z 117			UA0F 153			UD-N 2			UL-O 20		
UA4A 156			UA0H 106			UD-D 1			UL-P 23		
UA4C 152			UA0I 138			UD-K 3			UL-Q 18		
UA4F 148			UA0J 112			UF-F 12			UL-R 178		
UA4H 133			UA0K 139			UF-O 15			UL-T 21		
UA4L 164			UA0L 107			UF-Q 14			UL-V 30		
UA4N 131			UA0O 85			UF-V 13			UL-Y 176		
UA4P 94			UA0Q 98			UG-G 4			UM-M 36		
UA4S 91			UA0S 124			UH-A 191			UM-N 34		
UA4U 92			UA0U 166			UH-B 180			UM-P 177		
UA4W 95			UA0W 104			UH-E 44			UM-Q 33		
UA4Y 97			UA0X 129			UH-H 43			UM-T 184		
UA6A 101			UA0Y 159			UH-W 45			UO-O 39		
UA6E 109			UA0Z 128			UH-Y 46			UP-B 38		
UA6H 108			UB-A 75			UI-A 189			UQ-G 37		
UA6I 89			UB-B 76			UI-B 53			UR-R 83		
UA6J 93			UB-C 80			UI-C 49			UT-J 187		
UA6L 150			UB-D 63			UI-D 173			UT-U 186		

<i>Deleted Oblasts</i>	<i>All Time</i>
UA1-116 (Pre-1963)	
UB5- 61 (Pre-1965)	
UC2- 11 (Pre-1960)	
UM- 32 (Pre-1960)	
UM- 35 (Pre-1960)	
4K0-171 Arctic, deleted May 84	
4K1-172 Antarctic, deleted May 84	

Table 1

Operating aid and checklist for oblast chasing. Use this list to keep your "All-Time" and "In-Year 1985" oblast records. The seven deleted oblasts are shown separately. See April and August 1984 issues of *S.W.M.* for details of how to determine the oblast from the callsign. Send your "All-Time" and "In-Year 1985" totals to G3TXF to appear in the next "Oblast Corner" in the April issue; the deadline and his address are at the end of the feature.

Contest News

HF contests are usually a good opportunity to work many U.S.S.R. stations and to add to your oblasts. The beginning of the new year brings the CQ Worldwide 160 contests (January 25 – 27 on CW and February 22 – 24 on SSB). U.S.S.R. activity on 160m. has increased dramatically over the past few years since Russian stations were first allowed on Top Band.

The RSGB's 7 MHz CW contest will provide numerous QSOs

for U.K. stations including a number of U.S.S.R. contacts. Starting at 12z on Saturday, February 23rd, the 7 MHz CW contest runs through to 09z on the Sunday morning, February 24th. U.S.S.R. stations are regular participants in many of the RSGB's HF contests.

Send your first entries for the "All-Time" and "1985 In-Year" oblasts heard/worked tables to G3TXF at Holt Cottage, Kingston Hill, Kingston-upon-Thames, Surrey, KT2 7JH, by **February 21st**, to appear in the April issue.

“Why Not Call It QHO?”

suggested Old Fangler

Jack Hum, G5UM

CHRISTMAS, they said down at The Club, was rather like a sawtooth waveform: a tremendous build-up and then . . . flop, down to the no-voltage level. And now another Christmas had come and gone.

“A very over-rated business, Christmas” said The Man at The Club, casting his mind back to the events of a couple of weeks — yet it seemed an aeon — ago: “At our factory every year on December the First they start a thing called the SAC. . . .”

He was cut short by Ethelbald: “The Ess Ay See’ Wossat? Strategic Air Commaand?” he enquired, elongating the vowel in that American manner he had heard so many times on the telly.

“No, you clot . . . sorry, Ethelbald, take back ‘clot’ and substitute ‘my electronic friend’. I really must try to radiate some of that sweetness and light we were told so much about over Christmas. As I was saying, down at the works they form this thing every December the First called The Society for the Abolition of Christmas, the SAC. Got it Ethelbald?”

Ethelbald grunted that he had.

“Yes”, went on TMC: “They form this SAC when the mad rush begins at the start of December and they wind it up on Christmas Eve”.

“Presumably when the suppliers’ reps come round with their Christmas gifts for the workforce” came the deep sardonic voice of Highly Technical Gent, whose person though invisibly sunk in the old armchair in the clubroom was none the less evident from the wreath of smoke winding ceilingwards from his saxophone-shaped stink-pipe, as the younger members risibly called it.

“I love Christmas!” roared Ethelbald: “All those prezzies and all those extra football matches on the telly . . . some of your *are* a misanthropic old lot!”

“Phew!” whistled Virginibus: “I’ve never heard you use such a long word before. Quite honestly, I didn’t know you had it in you.”

“Nor did I. It just came out” murmured Ethelbald half apologetically.

“Right, then” piped Virginibus, rubbing his hands together: “Here we all are at our first club meeting of the new year and nothing arranged. Quite honestly, I rather like it this way”.

“Huh, I’m sure of that. You don’t need to concentrate on lecturers telling you all that stuff about Eye Seas and fifth order products and other things you don’t understand.” It was Highly Technical Gent again.

Smothering a temptation to reply “Old grouch, that’s what you are”, Virginibus went to opine that Mister Chairperson might care to outline the programme for the new year now upon them, and would there be a river trip again so they could all go waterborne mobile?

“Careful, Virginibus”: You oughta read that bit in The Licence about operating from any estuary, dock or similar riparian environment” came an anonymous voice from the knot of members standing around doing nothing in particular, waiting for someone to open the proceedings and give them a sense of direction on this first cold meet-of-the-year, cold in the psychological sense but not in the physical sense, for a coal fire

blazed in the grate and already the battered kettle was sizzling on the hob, although tea was still half an hour away. Noticing this Highly Technical Gent boomed: “Conservation of energy, that’s what I like to see. Make the old coal fire do some work for you rather than switch on the electric kettle every time.”

“Quite honestly, so do I” chimed in Virginibus.

Until now Old Fangler had said nothing except to proffer a short, perhaps curt, good evening to the electronic chums as they had drifted into the clubroom during the last half hour. Maybe his decades of radioactivity were wearing him down. Maybe he was just in a New Year Blues mood. He would soon cheer up. He always did, especially when the dogmatism began to fly to give him an opportunity to pontificate upon them.

“D’you know, Virginibus” he began, “You’ve said ‘quite honestly’ no fewer than three times in the last four minutes to my hearing and goodness knows how many times before that.”

“Quite honestly, Old Fangler . . . er, sorry OM . . . I hadn’t noticed. But does it matter a lot?”

“No, no, Virginibus, of course not” observed Old Fangler in his best avuncular vein: “Except that clichés can become darned boring. You tend to wait for them like that ‘See you further down the log’ thing or when you are watching one of those silly interviews on television. Have you noticed how often people are asked ‘How do you feel’ about this, that and the other on the most inappropriate occasions?”

Ethelbald cut in upon hearing this: “I’ve never seen a cleeshay on the telly in me life!” he roared.

“That’s because you simply look and don’t see” murmured TMC: “You’re like those people who must have a transistor radio on all the time quite oblivious to what’s coming out of it. They hear but they don’t listen. All part of the age of inattention.”

“I’m not inattentive!” Ethelbald came back defiantly: “I could tell you who scored every one of the goals City got last Saturday.”

“Department of Utterly Useless Information” came from beneath the saxophone pipe.

“Cool it, chums” remarked Mister Chairperson, ambling over to the group and delaying his visit to the Morse Room where several young hopefuls showed signs of “wanting to take the Class-A”. This Morse thing in HTG’s opinion was a waste of time: he had told the hopefuls on many an occasion that when they got their Class A’s they would be exchanging a noise-to-signal ratio on the HF bands for that delightful signal-to-noise ratio they enjoyed on their Class-B metre-waves. They tended to take little notice of him but to press on dit-dardless.

“What’s the discussion about?” enquired Mister Chairperson.

“Oh, nothing much . . . just clichés” muttered Old Fangler.

“Well, what’s the wrong with clichés? They are the cement of conversation” replied Mister C.

“Yes, but some of that cement gets stuck in the cracks” came back Old Fangler: “Don’t you remember that animated discussion we had in this place only a few months back about the intrusive ‘there’ which people so often say over the air when they mean ‘here’? And all those royal plural ‘we’s’?”

Mister Chairperson said he did indeed remember: the occasion had prompted the suggestion that there ought to be a club meeting devoted entirely to operating standards and how to improve them.

Warming to his theme Old Fangler launched a diatribe upon the CB terminology which, he averred, was being increasingly inflicted on the amateur radio scene. “All that stuff about ‘I can hear you in the back of the set’ and calling a transceiver ‘a radio’ and saying ‘on this side’ when all that is meant is the simple word ‘here’ . . .”

“Quite honestly, none of that bothers me at all” chipped in Virginibus, to which Highly Technical Gent added the thought that perhaps after all these new terms strengthened the aforementioned cement of conversation and might get us out of some of our time-hallowed, redundant and cliché-ridden habits.

“Cliché-ridden! What about ‘quite honestly’? That’s the fifth

time Virginibus has said it" exclaimed Old Fangler: "I'm going to suggest we invent a new Q-signal for it. Let's call it QHO."

"Careful, Old Fangler" advised Mister Chairperson: "Have you checked if QHO doesn't already mean something?"

Old Fangler confessed that he hadn't, adding that the thought had crossed his mind only at that moment.

Mister Moneybags, who until then had been preoccupied with collecting the subs for 1985 from those members in the clubroom who still had any cash left after Christmas, came over to the group. "What's the talking point?" he enquired.

Said Mister Chairperson: "Old Fangler has suggested we invent a new Q-symbol for that overworked phrase 'quite honestly'. I suppose he only wants it used in the Morse code . . . it would sound pretty daft on speech. He says QHO should be used for 'quite honestly' because so many people for so much of the time seem to use the phrase. I don't know why they do. After all, you wouldn't think a person was dishonest until he had qualified himself by saying 'quite honestly', would you?"

Mister Moneybags rubbed his chin: "H'm, we're getting into the higher semantics again, aren't we? But then we often do in this place!" he said with a laugh, adding: "If I may utter a word of warning, Old Fangler, do you remember the case of that chap who suggested in the ham press that the code-group QWU should be adopted for use during contests to signify 'Have Worked U'?"

Old Fangler admitted he vaguely recalled seeing the suggestion in some mag or other years before Virginibus was born; but he went on to say that the amateur radio movement had always adapted Q-signals to meet its own peculiar needs. Did his hearers remember "QLF" for "Send with your left foot now"?

"Quite honestly, I find that really insulting" protested Virginibus in an S9-plus voice: "All these newcomers trying to improve their Morse speeds and then you tell them they are sending with their left feet!"

"I said nothing of the sort, young squirt . . . sorry, my young electronic friend. It's only good manners to go along at the speed of the other person's Morse and give them all the encouragement you can. But I *do* get tired of trying to copy those electronic keyers that go along at twenty-five-per and send gibberish for much of the time."

"Yes, Old Fangler, you've got a good point there and a good excuse to send 'QLF' back to them" soothed Mister Chairperson: "But let's not launch QHO. It might (er, quite honestly) rebound on us. Remember what happened when that man flew his kite about QWU? He was told later that it meant 'I am towing a glider'."

By now Highly Technical Gent had uncoiled himself from the armchair and ambled over to the group contemplating the hiss of the kettle on the fire as it emulated the sound of that 432 MHz converter which one member had tried to build with little success except for the noise of escaping steam. "I've been ear-wiggling on the discussion" he remarked ". . . and the bit that interested me most was when you were all talking about how CB terms are coming into amateur radio. My question to you is [and here he perceptibly took on his best professor-on-the-campus mood]: Does it really matter? If you can get away from those decades-old, time-worn said-it-all-before so much the better, I would say. And after all, it's electronic communication we're ultimately all interested in. So when we have a message to send *what* we say is much more important than *how* we say it."

"We-l-l, yes, with respect HTG it *does* matter how we say it" murmured Mister Chairperson: "It's got to be to the point and none of this waffling from gasbags who don't realise that frequency allocations are a commodity to be used sparingly . . . maybe it doesn't matter whether we use CB talk or ham talk so long as we say what we want to say decently and succinctly."

"Suck *what*?" boomed Ethelbald: "I haven't met that one before!"

"Time for tea" piped up Virginibus: "A cup that cheers is something I'd like better than anything else at this point in time, quite honestly."

The "Mini-Monitor" Revisited

REV. G. C. DOBBS, G3RJV

REMEMBER the first time *Short Wave Magazine* had its new jazzy cover? In that issue, March 1984, I described the Mini-Monitor, a compact direct conversion receiver for 7 and 14 MHz monitoring. Since that time I have been in correspondence with Martyn Lindars, an avid receiver builder who has made several suggestions worth passing on to readers.

Tut-Tut

Martyn's first observation is an error in one of the values in the VFO circuit, Fig. 1(a). The value of R2 was given as 47 ohms, which allows the VFO to work but ensures a short life for the PP3 battery. The value should be 470 ohms which gives about 3mA drain from the battery.

The VFO Tuned Circuit

Martyn also tried various combinations of the components in the VFO circuit and offers the amended circuit in Fig. 1(b). In this circuit the whole coil is used for 7 MHz and only part for 14 MHz; this involves reversing the switch band labelling, and C3 now couples between the tuned circuit and TR1. As with the original circuit the 14 MHz tuning range is set up with the core in L1 and then the 7 MHz range is set with the trimmer CT1.

Martyn has tried several types of transistor in the TR3 stage, the audio preamplifier, and finds that the BC107A gives a good account of itself. He also points out that the annoying hiss he obtained with an 8-ohm miniature earpiece was much improved by the use of good quality headphones.

Our thanks to Martyn, who likes the design and would like to hear of any other 'feedback' on the Mini-Monitor Receiver.

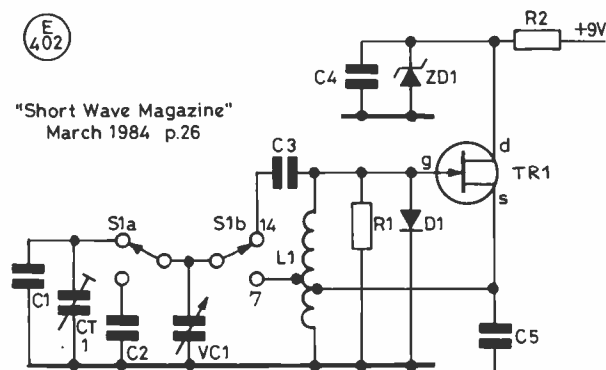


Fig. 1(a) ORIGINAL CIRCUIT

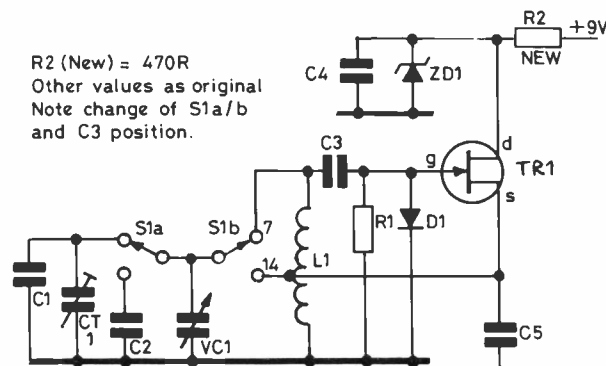


Fig. 1(b) MODIFIED MINI-MONITOR V.F.O.

RTTY Contests — One Man's Pleasure

KEN MICHAELSON, G3RDG

THIS article is addressed to those of you who are RTTY enthusiasts. Have you ever thought of entering for one of the many contests which take place during the year and which are organised by teleprinter groups in various countries?

I started as a complete beginner, but learnt the hard way as I went along. Very few people, believe me, have contesting in the blood! One has to listen and learn from other more experienced operators. You might wonder why anyone should sit at the keyboard for 36 hours, with the minimum breaks allowed, taking part in a contest. It sounds too much like work, I hear you say. Not so. You would agree that to be good at something takes a personal effort, and whether serious or not, contest operating can be good for you and for amateur radio.

In the first place contest work improves the efficiency of your operating techniques. A quiet 'rag-chew' is most enjoyable but it does not give you any training for fast and accurate operation. If you are ever called on to work under conditions of emergency such as Raynet, it will be necessary for you to be able to operate both correctly and with speed because under these circumstances you may have only one opportunity to copy a message of the utmost urgency. Entering contest enables you to discover how good you are at operating under pressure. By taking part you will learn sharp operating, no wasted words and no wasted effort. You will learn how to 'concentrate' and how to 'arrange' your thinking. These two words contain the essence of successful operating under pressure. Even if there is only a small increase in your operating efficiency, then you have benefitted yourself, and incidentally, the rest of the RTTY operators as a spin-off.

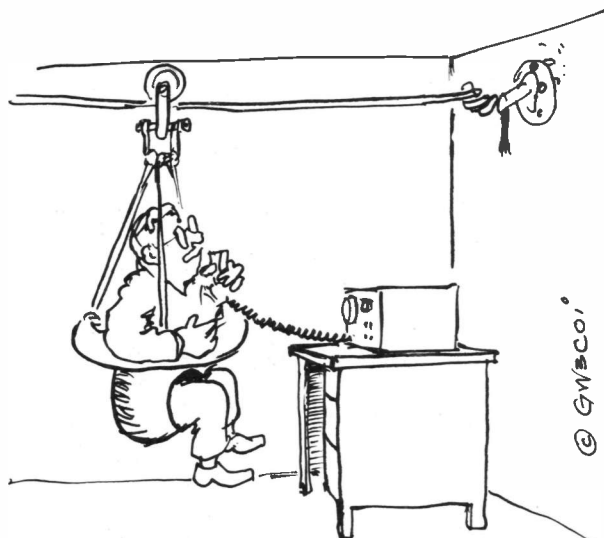
The second reason is that you will discover exactly what your station is capable of in terms of efficient working. Most amateur radio gear is never used to its fullest capacity, and operating in a contest will show up any faults in your gear which would not have been noticed under ordinary day-to-day working. I know it did with me. The most obvious is the 'Transmit/Receive' changeover

switch. Up until I became interested in contests I had an arrangement of two switches which had to be changed to go from transmit to receive, but what with the teleprinter keyboard, the tape reader controls, the tuning knob, the gain control and the changeover switches, it really was a little too much for one pair of hands hoping to give a snappy return message! I therefore had to think how I could speed up matters. Relays are the operator's friends! you have no idea what a 4-pole changeover relay can do for your 'transmit/receive' action. Come to that, it is possible to buy a 4-pole miniature changeover switch from *Maplin*, (catalogue no. FH08J) if you find it inconvenient to obtain the relay coil voltage.

What is meant by 'operating efficiency'. Well basically, your station has to be running perfectly. The placement of the various pieces of gear are of great importance because you should be able to have all the controls to hand. None of this twisting round in your seat to adjust the microphone gain for example. My own station is arranged having two tables at ninety degrees to each other against two walls of the room making the corner. I sit on a swivel chair at the centre of the angle and therefore can use either the left hand or right, (or both, which shouldn't be necessary) to alter any control which might require adjustment. But don't think that because you may not be lucky enough to have the use of a room, it will prevent you from entering contests, or, for that matter, running your station at peak efficiency. Care and thought are the keystones of success. Try alternative ways of placing your teleprinter/transceiver, etc, until you come up with the most comfortable arrangement. Remember that in contests you will be operating for long periods at a stretch. Then again, you must have correct lighting. I don't mean lots of floodlights on the operating position, it is only necessary to have a light shining over one or the other shoulder onto the working area. In fact, since I operate with a BBC computer and a monitor screen, I find that a 60-watt bulb in an 'Anglepoise' table fitting is all I really require.

For a number of years now there have been RTTY contests. There are about six big ones on the HF bands sponsored by BARTG, CARTG, SARTG, DARC, ANARTS, and the Italian amateur radio teleprinter club. All these contests have a section for SWL's so the fact of not having a callsign certainly does not bar you from having a go! My first venture into the world of contesting, in fact, was as an SWL. I thought, far safer that way to start with. There is, naturally, a contest on VHF/UHF which is organised by the BARTG and which takes place each autumn. If you are, or intend to become, a member of BARTG (British Amateur Radio Teleprinter Group), then the major award they offer is the Quarter Century Award (QCA for short). The basic requirement for this award is to show evidence of two-way RTTY contacts with a minimum of 25 different countries. Short wave listeners, of course, have their own section. Endorsements are available in steps of 25. For those of you who enjoy chasing DX, the contest is an ideal time. Very many stations come on the air just for the contests, and I have worked some very interesting RTTY stations while taking part in a contest that I most certainly would not have heard in the normal course of events.

As far as the HF contests go, or for that matter any RTTY operating, there are specific portions of the HF bands where one can find other RTTY stations. These are 3.590 MHz, 7.040 MHz, 14.090 MHz, 21.090 MHz and 28.090 MHz, plus or minus about 10 kHz; and since the rules of almost all the clubs say that a station can be counted if worked again on another band, (e.g. 14 MHz and 21 MHz) it is necessary to keep a checklist of the bands and the



"most of the stuff here is ex-Navy . . ."

stations worked on those bands, so that when the station appears a quick look will decide whether he is to be contacted or not. I daresay that in this computer age it is possible to have a running list for each band and just ask the computer if you have worked the station before on the band, but I am afraid that I use the old fashioned way of writing callsigns down!

When the contest has finished, there is more work to do. If you have been using a mechanical teleprinter, then all the information is on the paper, and only has to be copied from the paper to the log book, but if a computer aided station is used, the procedure possibly is slightly different, depending upon the make of micro and the program loaded into it. Some RTTY programs will automatically keep a check and you are able to get the information by keying instructions into the computer, but others may require different operations. But having got all the information ready, the next thing is to complete the sheets to send to the organising club. The final date for receipt of the logsheets is always quoted in the rules, and I suggest to you that you send off your logsheets as soon as you can, as time flies, and if you decide

to use sea mail it can take quite some time to get to say, Australia. Contest logsheets and summary sheets are both printed by the RSGB and are self-explanatory as regards the entries.

An Exchange Points table is used in some contests to claim points according to the zone you work. We are zone 14 here and so if you worked a station in, say zone 14 also you could claim 26 points; if you worked a station in zone 3 then you could claim 2 points, and so on. There is a "Prefix — Country — Zone" list published by Geoff Watts editor of "DX News-Sheet", which gives all the zones applicable to the various prefixes, and I would think that this would be a necessary part of the 'equipment' you would require. See his advertisement in any issue of *S.W.M.*

I hope that I have given you a little insight into the world of contest operating in the RTTY mode. There is the excitement of the chase, hearing a rare one and waiting to get your chance to work him, and the satisfaction of having all your equipment in tip-top working condition for the event and the feeling that you yourself have achieved something worthwhile. . . . Good hunting!

A Simple Diode Tester

P. C. COLE, G3JFS

ALTHOUGH it is easy to test semiconductor diodes using the resistance range of a multimeter, this method soon becomes tedious if a lot of diodes are involved because of the need to concentrate on the movement of a fine meter needle. To overcome this problem a simple 'go-no go' tester, using light emitting diodes for indication, was built to the circuit shown in Fig. 1(a).

D1 and D2 are two standard red (for maximum clarity) LEDs connected back to back and fed from a six volt AC supply via a current limiting resistor R1. A 'good' diode connected to the test terminals will light only one of these LEDs, whereas a faulty diode will not light either LED if it is open circuit, or it will light up both if it is short circuit. This allows rapid testing of a large batch of diodes since it is only necessary to observe that just one LED lights up as a diode is connected to the test terminals; any other condition and the diode is immediately rejected.

Identification of the diode connections is also a simple matter. D1 will light up if the test diode cathode is connected to terminal A, or D2 will light up if the cathode is to terminal B. If D1 and D2 are mounted above terminals A and B respectively as shown in Fig. 1(b), then the LED which lights up will indicate the terminal that is joined to the cathode of the diode. This test is particularly useful for finding the cathode and anode of some miniature diodes and LEDs which are not always clearly marked.

A 6 volt supply was chosen for convenience but other voltages

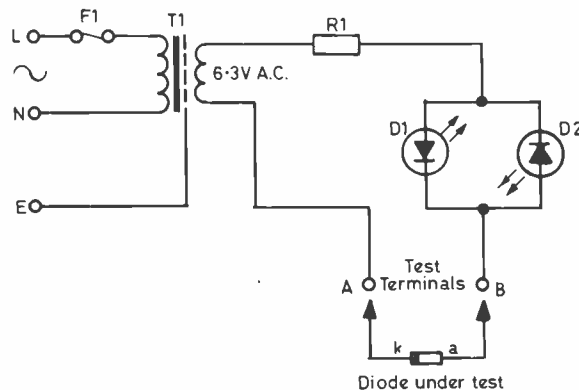


Fig. 1(a)

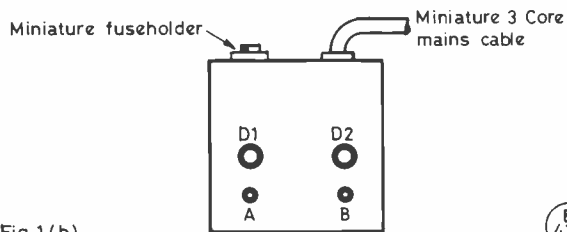


Fig. 1(b)

E 436

Fig. 1(a). The circuit diagram of the diode tester. With a 'good' diode connected to the test terminals as shown, LED D1 will light. Fig. 1(b). Panel layout of the diode tester. The components may be assembled in a small plastic case that is large enough to hold the transformer. Using the suggested layout, the LED which lights up will be the one above the test terminal going to the cathode of the diode under test.

Table of Values

Fig. 1(a)

R1 = 100R, ½-watt (for 6.3V supply)	T1 = miniature mains transformer, secondary loading approx. 50mA
D1, D2 = standard Red LEDs	F1 = 500mA fuse

up to about 15 volts may be used if the value of R1 is changed. R1 should be chosen so that the LEDs are not over-run when terminals A and B are shorted together as this is when the LEDs will dissipate the most power. The value could be calculated but in practice it is much simpler to select R1 by trial and error to achieve acceptable light levels.

In conclusion it can be said that the circuit performs its intended function very well. Note also that its usefulness can be further extended by connecting test probes to terminals A and B which will allow the unit to be used as a continuity tester.

An Aerial Tuning Unit for the Yaesu FT-707 Transceiver

IAN KEYSER, G3ROO

THERE have been many articles and comments in the amateur Press over the last thirty years discussing the Pros and cons of various designs of ATU. In the end it boils down to the fact that, if properly designed, they all do a very similar job, namely impedance matching and removing unwanted reactance. There are other factors, such as harmonic attenuation, which might be an advantage, but when used with a properly designed transmitter these are not important. Far more important is the ability to be able to construct the component parts for the ATU, such as variable inductors and high voltage variable capacitors, which are grossly overpriced on the surplus market.

Problems in locating suitable switches for ATU's are renowned! We have two conflicting requirements, multi position and small size. After years of looking I have never found a suitable unit and so resigned myself to having to build one. At first this might seem a daunting prospect, but providing suitable tools are available, and these are fairly common, it is not difficult at all. Requirements in tools are a set of drills, taps, dividers, and a pillar drill. A *Black and Decker* unit is sufficient as all we need to be able to do is to drill vertical holes. The base material we use for the switch assembly is perspex. A good source of offcuts are sign makers, although they use most of their offcuts for making letters; however, if my local firm is anything to go by they will part with suitable pieces. To help them help you it is advisable to know exactly what you want before you go to see them, otherwise you can waste a lot of their time and lose their assistance.

Construction

The switch is built on a 3¼-inch square of perspex ¼-inch thick, see Fig. 2. First check that it is square and then using diagonals mark the exact centre with a scribe. Using the dividers scribe a circle of 2¼" diameter about this centre point. The next job is to divide the circumference into 28 equal segments of about ¼-inch. This is done by halving the angles subtended by the

diagonals and then subdividing the resulting angles. Having done this, use the pillar drill with a 1/32-inch bit to drill through the perspex at the 29 marks, plus the centre mark, being as accurate as possible. Now redrill the circumference holes with a 6BA tapping drill. The reason for doing this in two operations is that it is far more easy to drill accurately with a small diameter drill; the larger drill will then follow the pilot hole.

Now comes the boring job of tapping all the holes. It takes time so be prepared, and ensure that the tap is kept perpendicular to the plane of the perspex.

Having done that we turn our attention to the wiper and shaft, and a touch of vandalism is the order of the day here! Sort out some old potentiometers from the junk box and commence to pull them apart, what we are looking for is a shaft and bush with a plastic insulator firmly attached to the end of the shaft. You might be lucky and find that the wiper attached to the shaft is suitable for the new switch, though this will more likely be the case if you have opened one of the older wirewound units. If not, it will be necessary to make a wiper similar to that in Fig. 3. Your version will perhaps need different fixing lugs, but that will be evident when you study the unit. The wiper is then 'creased' along its length to make it more rigid. A suitable material for the wiper is thin brass or bronze shim available from the local model shop.

The studs are made of 1¼" round head brass 6BA screws, and these make suitable fixing for the toroids later. Insert these in the holes around the circumference (about 330 degrees). Now fit the bush and shaft, with wiper attached, into the centre hole, having enlarged it sufficiently. Check that the wiper makes firm contact with the screw heads, bending it slightly if it does not. As the shaft is rotated it might be considered that the action is a little hard, and a way around this is to carefully flatten the heads of the screws with a file having removed the wiper and shaft assembly. It is now necessary to drill the perspex in two places to fix 'stops' for the wiper to butt against at each end of the travel; these can be seen in Fig. 2, and the photographs.

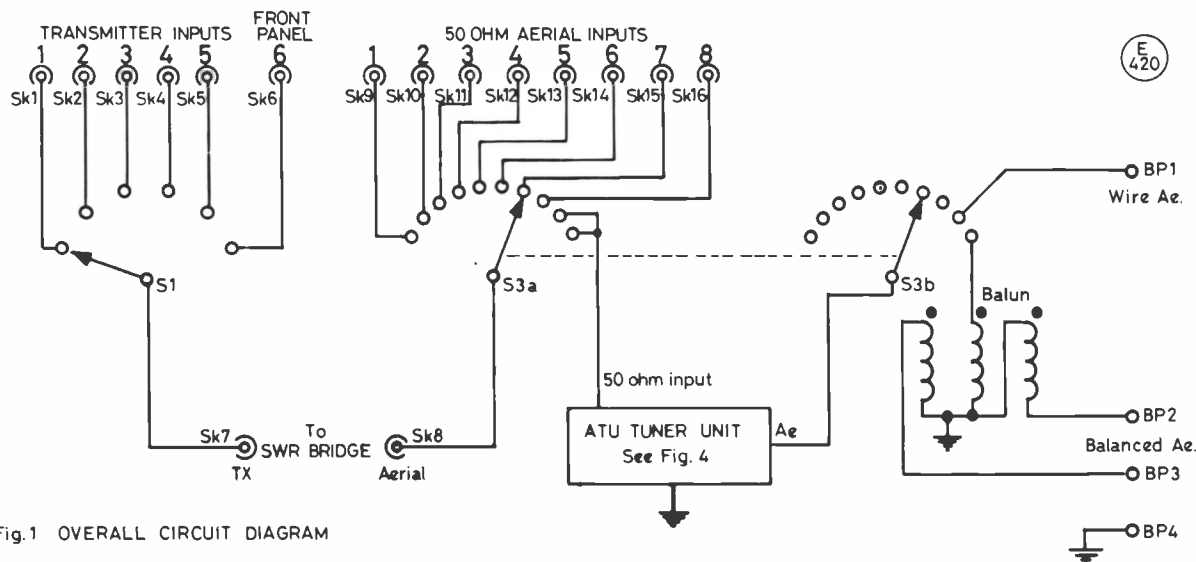


Fig.1 OVERALL CIRCUIT DIAGRAM

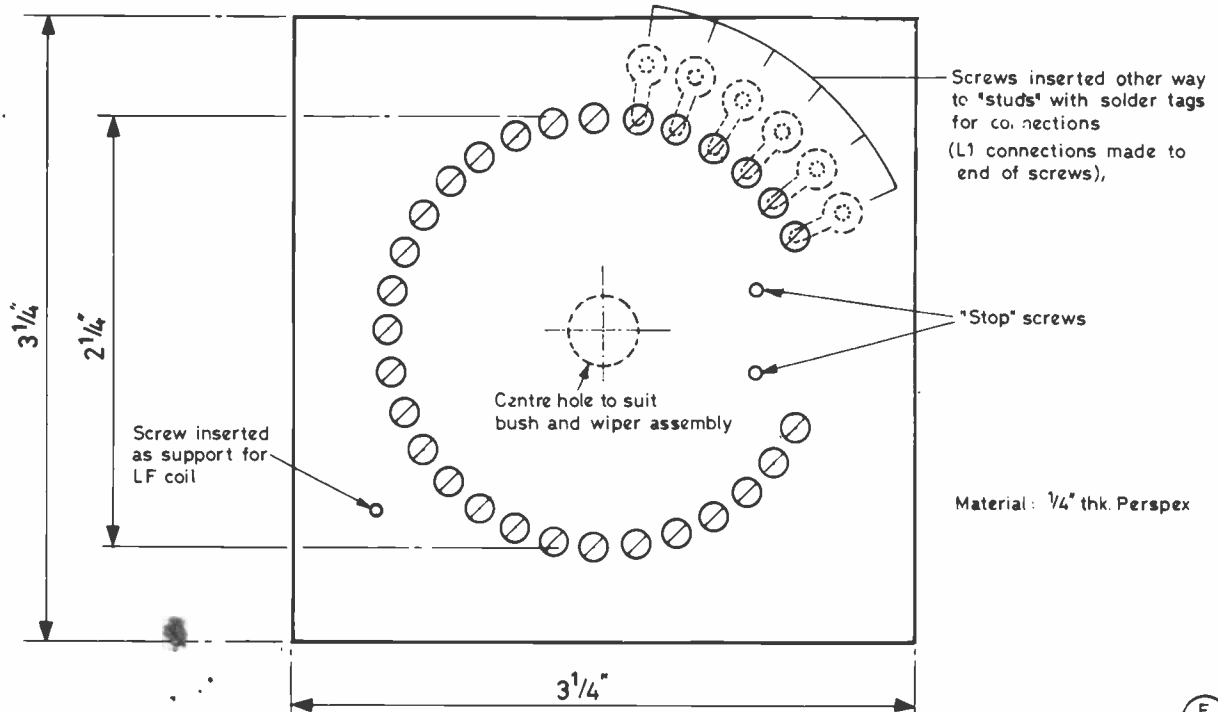


Fig. 2 SWITCH CONSTRUCTION (S2)



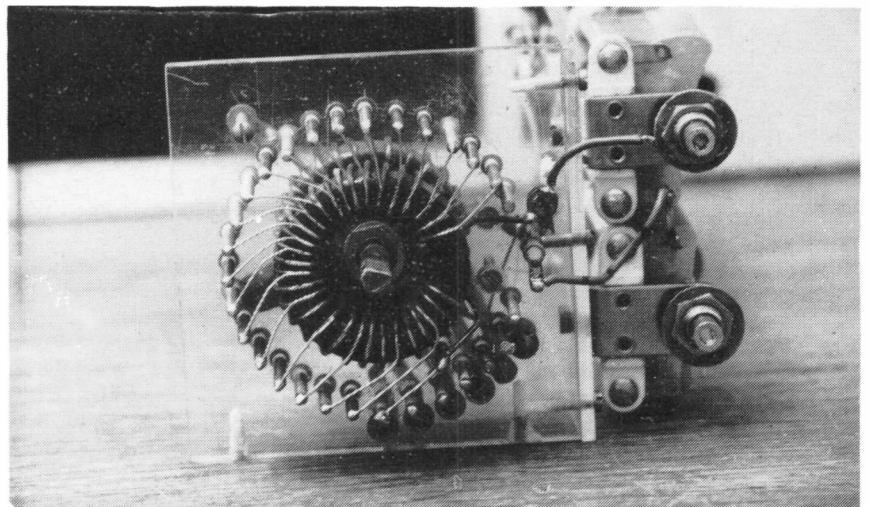
Now we come to the inductors. These are wound on dust iron rings to increase the inductance and reduce the size. There are other advantages in using toroids, the principle ones being the lack of external magnetic fields and the fact that we do not have to find decent coil formers. The lack of external field gives us the advantage of being able to house the ATU in a much smaller box than otherwise, something that is important if the unit is to look right alongside the FT-707. The wire we use has to be firm enough to stay in place when wound onto the ring, but not too hard to wind through the hole, I found that 18 s.w.g. is a suitable gauge and being fairly thick reduces resistance loss. The toroid, by increasing the inductance per turn, helps with resistance loss considerably and helps the pocket, too, by reducing the amount of wire needed — and with the price of copper wire these days that is no mean achievement!

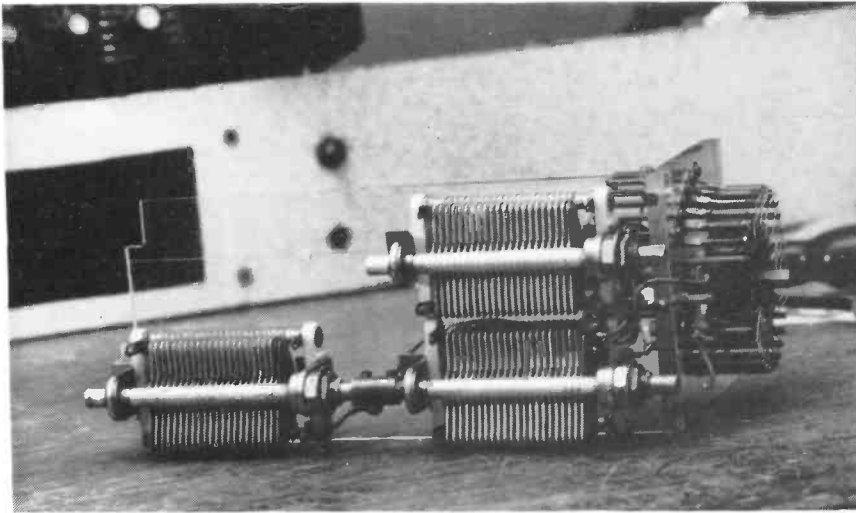
L1 consists of 33 turns of wire tightly wound on to a toroid, and this is used on the HF bands. L2 consists of 28 turns of wire and is used in series with L1 for the 160 and 80 metre bands. Having wound these toroids, the side that is going to be tapped should be rubbed over with fine sandpaper to remove the enamel insulation.

The coil is then placed in position on the switch assembly and a few temporary taps made to hold it in place. It is then an easy job to make the correct taps as in Fig. 4. Having done that turn the switch assembly over and connect L2 into circuit in the same way. This is not quite so easy as there are only six connections and the coil does not like to stay in place, so I have included another screw on the other side of the toroid to act as an anchor; this tap is not used electrically, only to support the toroid.

As will be seen in the photographs the variable capacitors are also mounted on a perspex sheet which has been attached to the switch assembly. These capacitors were found at one of the rallies, and have been seen many times at other functions fairly cheaply. Many people make the mistake that very high voltages are developed in ATUs, but this is not really the case and a spacing between the capacitors greater than 1mm. will be adequate in most cases with 100 watts (I have even used old broadcast capacitors with great success in the past). A flash-over is not the end, and if terminated quickly it is unlikely that any permanent damage will be caused. It is necessary to insulate the shafts of the capacitor from ground and for this I used flexible couplers and

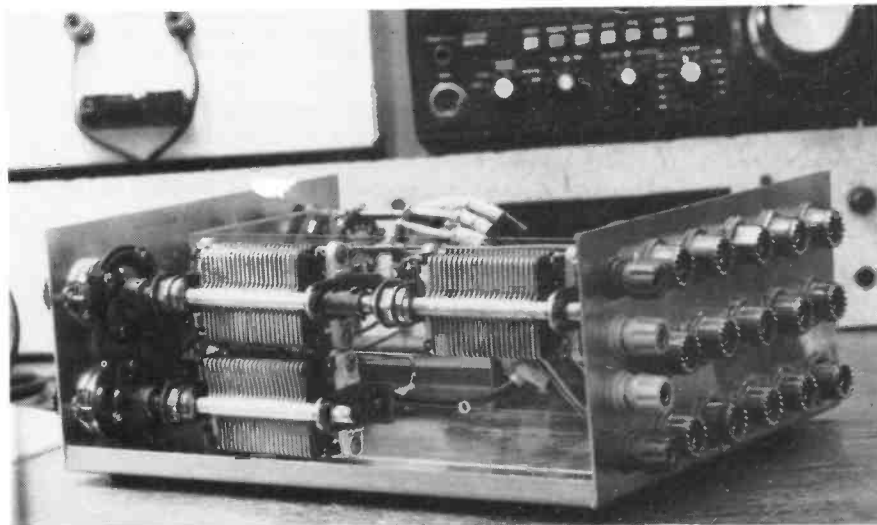
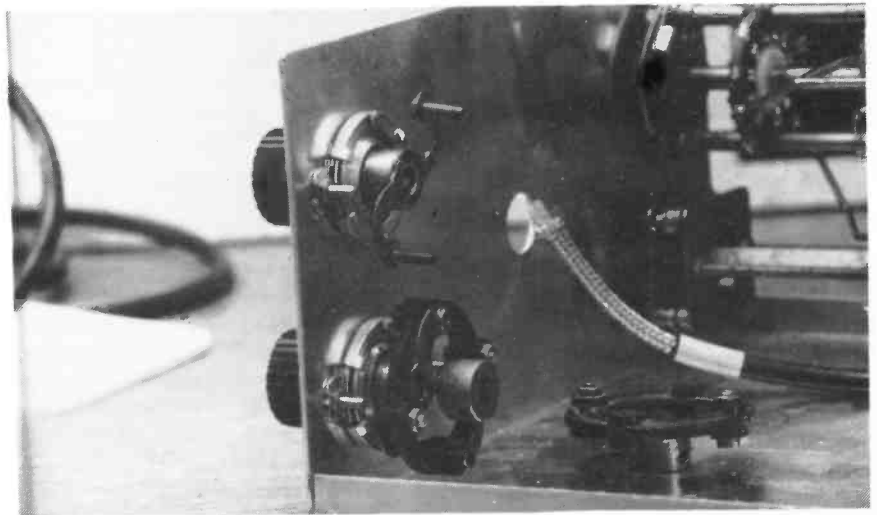
Showing L1 mounted on studs





**Tuner module of the FT-707
ATU**

**Showing flexible drive leaf
soldered to the slow-motion
drive**



**Side view and back drop of the
ATU**

slow-motion drives to make tuning easy. To make the whole assembly look more tidy I unbolted one side of the couplers and removed the shaft fixing-bush by drilling off the turnover, then I soldered the leaf directly to the back of the slow-motion drive; this also has the effect of reducing the overall length of the capacitor assembly.

The balun is fairly simple to construct and is wound on a piece

of ferrite salvaged from an old trannie radio. With a file mark a line around the piece of rod and about three inches from the end, then with a sharp tap with the side of the file the rod should snap along the file line. Now take three pieces of 16 s.w.g. enamelled wire about 15 inches long and wind six to eight turns trifilar on the rod. By that I mean all three side-by-side; this is a little difficult, but I get around it by binding the start of the windings with cotton

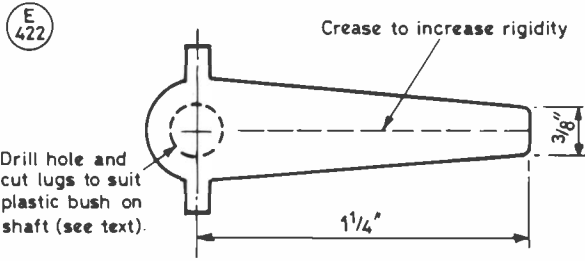


Fig. 3 Replacement brass or bronze wiper

The switches are standard 'Makaswitch' units which I had in the junk box and have not caused any problems since the unit was built over a year ago. The voltages are acceptable in nearly all the switch positions but there might be a problem on the wafer that switches the output of the tuner unit. If a better quality wafer is available it should be used in this position.

While on the subject of making components, especially for ATUs, it is well worth looking around at rallies for capacitors that have been constructed by bolting the parts together. These can be dismantled and the parts rebuilt into a suitable unit for the job in hand. New end plates, if needed, can be fashioned from perspex,

and then coating the binding with *Araldite* and leave to set. Then do the windings and bind the end with cotton without letting go. If all goes well and it does not slip coat the lot with *Araldite* and set aside. When hard, wire as shown in Fig. 1, the dots on the diagram signify the start of each winding.

Table of Values

L1 = 33 turns, 18 swg, on T-150-2	BP1 to BP4 = insulated binding posts
L2 = 28 turns, 18 swg, on T-150-2	S1 = 1-pole, 6-way
VC1, VC2, VC3 = 500 pF airspaced	S3 = 2-pole, 10-way
Sk1 to Sk16 = SO-259	Balun = see text

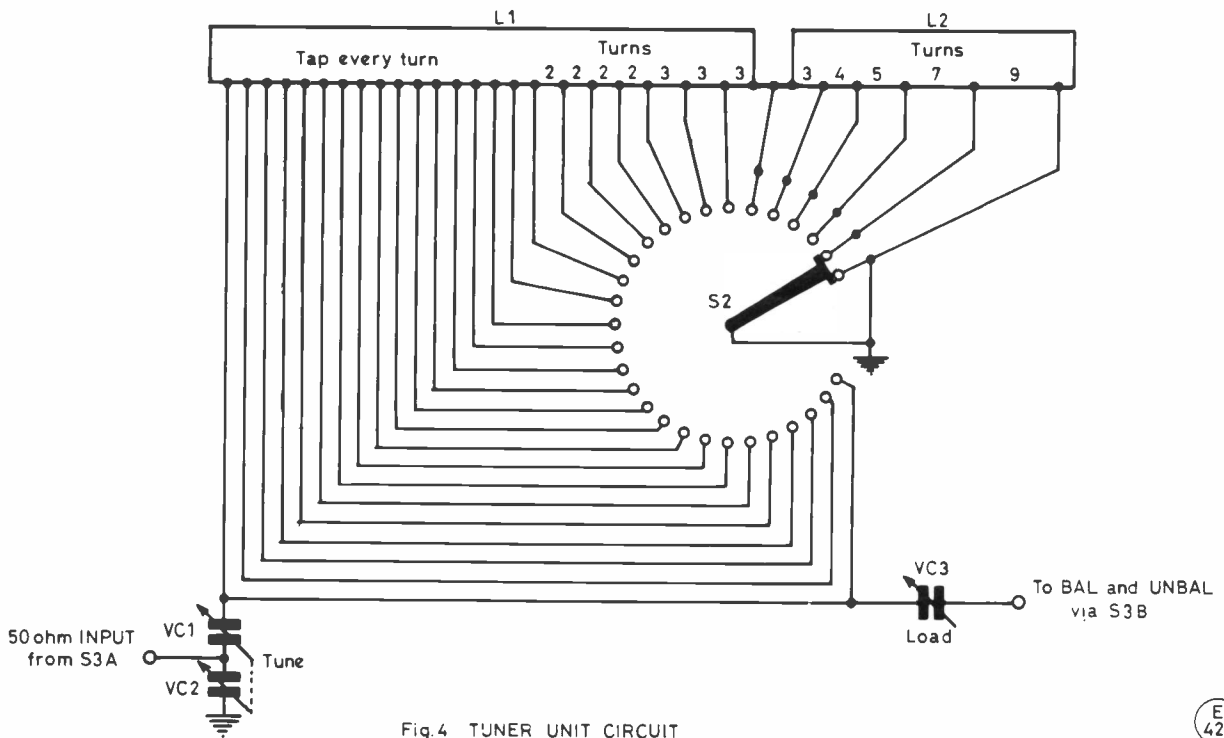


Fig. 4 TUNER UNIT CIRCUIT

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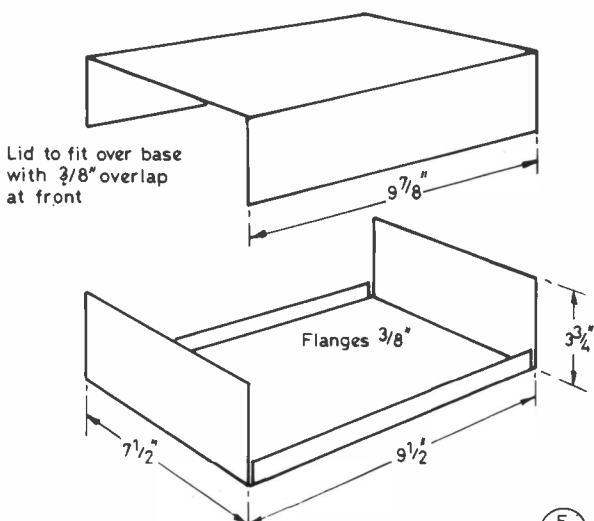


Fig. 5 CASE DETAILS (16 swg Aluminium)

E 424

and washers can be used to increase the spacing between the plates. At the VHF Convention last year there were large capacitors on sale for £2 which could very easily have been rebuilt into 500pF capacitors suitable for the full maximum legal power at a fraction of the price of a ready-built unit.

Conclusion

The unit has been in use now for over a year and has proved very useful, especially with the signal generator plugged in the back (beware of going on transmit while switched to this position otherwise the attenuator in your signal generator will need some work on it!) and the socket on the front panel. It saves a lot of time changing plugs while testing a new piece of equipment. The tuner section has coped with many a random piece of wire and a good SWR has always been obtainable. The balun will cope with feed impedances of up to a few thousand ohms but does tend to get a little warm. If during use the SWR suddenly goes 'off the scale' this is due to overheating and steps must be made to reduce the impedance of the feeder.

Metalwork for this unit is available from H. L. Smith, 287-289 Edgware Road, London W2.

Concrete Base Design for Self-Supporting Masts, Part 2

D. J. REYNOLDS, G3ZPF

Proper Compaction

It is no use simply dumping the concrete into the hole, and hoping that will suffice. Concrete needs to be compacted properly if it is to last any time, but again the quantities involved can present a daunting task if the normal DIY techniques are used. Contact the local plant hire firm and hire a "concrete vibrator", or "poker" as it is sometimes called. A small compressor activates a mechanical vibrator within a steel tube, and the steel tube is dropped repeatedly into the concrete as it is poured. It might not sound much in writing, but is extremely effective and saves one hell of a lot of effort. It is also a fairly light job if the XYL suddenly feels enthusiastic.

When dealing with large amounts of concrete swirling about in a hole, it is surprising just how much sideways pressure can be exerted on the 'cast-in' section of the mast, which has to be very securely fixed vertically . . . if you intend it to remain that way.

Once the base is completed it will be advisable to cover the top surface with polythene or damp hessian on a hot day, to prevent the concrete drying out too quickly and producing surface cracking. On very cold days it pays to cover the top surface to keep any frost off the concrete until it has hardened, although few readers would contemplate aerial farming in the depths of winter.

As mentioned previously there is an initial set of concrete which will occur some minutes after placing, and after which the concrete should not be reworked. Following that the main hardening process begins, with the concrete attaining about 2/3 of its design strength after seven days. The full design strength is not usually attained until after 28 days, so there is plenty of time to recover from the exertion of concreting before the tower goes up.

Calculations

So much for the practicalities of casting the concrete base, but the size has to be worked out first, and that involves a little maths. As with previous sections the theory will be minimised, and formulae presented as 'mathematical tools' to be manipulated as a means to an end. This approach may be criticised by purists, but the author would only point out that it is not necessary to understand the complex equations of physics behind the common lump hammer in order to feel the pain as it accidentally hits your thumb. Amateurs are gradually coming to terms with extremely

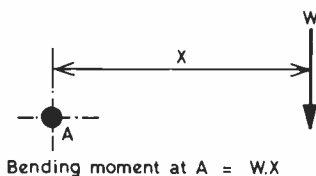
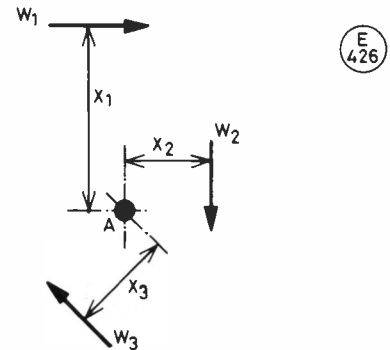


Fig. 10

E 425

Fig. 10. A bending moment is the twisting effect caused by a force at some distance from (but connected to) the point under consideration.



$$\text{Bending moment at A} = W_1 \cdot X_1 + W_2 \cdot X_2 + W_3 \cdot X_3$$

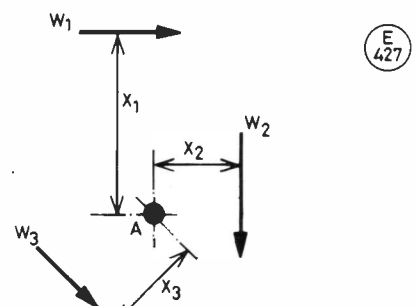
Fig. 11

Fig. 11. Where several forces are acting, the total bending moment is simply the sum of the individual moments. Note that distances are measured perpendicularly from the line of action of the force.

complicated ICs as just 40-pin components, with little or no idea of their innards, and for the odd occasion the formulae here will be needed it seems pointless to churn out pages of proofs.

Resultants

It has already been pointed out in a previous article that a bending moment is equal to a force multiplied by its distance from the point being acted upon, as illustrated in Fig. 10 for reference. Where several forces exist then the total moment is simply the algebraic sum of each of the individual moments (Fig. 11)



$$\text{Bending moment at A} = W_1 \cdot X_1 + W_2 \cdot X_2 - W_3 \cdot X_3$$

Fig. 12

Fig. 12. Where some of the forces are acting in opposition to others it is necessary to ensure that they are subtracted. To avoid confusion it is best to adopt an arbitrary sign convention; say, clockwise moments are positive — or whatever.

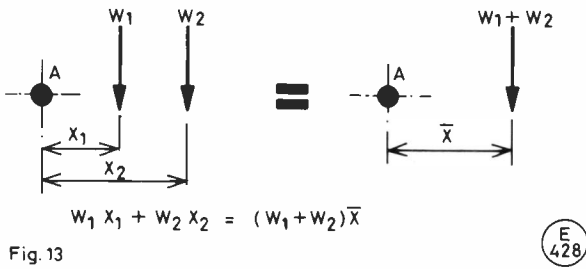


Fig. 13

E 428

Fig. 13. This illustrates the principle of a resultant. See text for details.

although care must be taken in case some of the forces oppose others, as outlined in Fig. 12.

Obviously if $W_3 \cdot X_3$ is greater than the sum of the other two moments then the formula of Fig. 12 will give a negative answer, but this simply means that the net twisting effect will be in the direction of W_3 , rather than W_1 and W_2 . It is useful to adopt a 'sign convention' when dealing with bending moments and loads, such as clockwise moments = +ve, and downward forces = +ve. In this way the sign of the answer will instantly tell the direction without fear of confusion.

The total effect of the individual moments is referred to as the 'resultant' bending moment, and can be expressed in terms of the sum of the individual forces causing the moments, multiplied by the distance to the 'resultant line-of-action' as shown in Fig. 13. Note how the distance to the line of action is referred to by a letter with a line over it, which in our case would be referred to as 'bar-X'. Readers need not adopt any special notation for the distance, but it does make it stand out from the rest.

Shifting the Centre-of-Gravity

The same technique can be applied to a base where we have an overturning moment plus vertical loads. In Fig. 14 the overturning moment is from the wind forces acting about point 'A', and this is resisted by the 'restoring' moments generated by the self weights of the mast plus the base acting in the opposite direction. There are two things to check out here, the first being that the restoring moments are at least twice the magnitude of the overturning moment, to give a factor of safety of two against the base simply toppling over. The second thing to find is the position of the resultant line-of-action in order that the ground pressures under the base may be checked. Here the case is slightly different to those previously explained as the bending moment is *not* caused

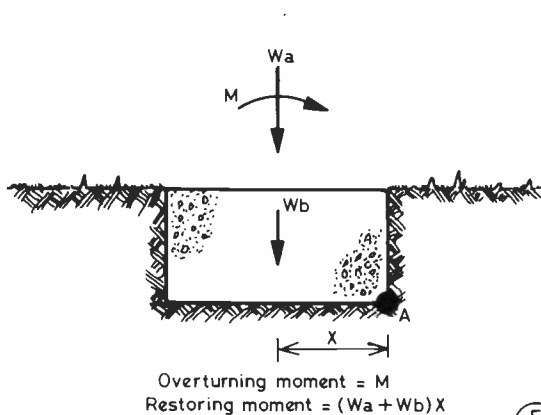


Fig. 14

E 429

Fig. 14. The combined self-weights of the aerial-plus-base resist the overturning moment caused by the wind. The restoring moment should be at least twice the overturning moment to give an adequate factor of safety.

by the vertical loads. Nevertheless it is possible to express the resultant in terms of the vertical loads but shifted slightly from the centreline of the base.

The way to look at this is to understand that the action of the bending moment is to cause a shift in the centre-of-gravity of the base away from the centreline, which in turn causes an uneven pressure distribution under the base. For those that need to know, the line-of-action of the resultant actually passes through the centre-of-gravity of the pressure diagram (pew) but we are straying into deeper waters there.

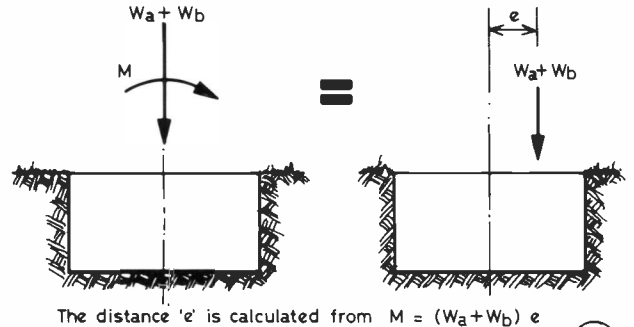


Fig. 15

E 430

Fig. 15. The principle of resultants applied to a mast base as a preliminary step towards determining the distribution and magnitude of the bearing pressures under the base.

The distance 'e' is calculated from $M = (W_a + W_b) \cdot e$ and it can be shown that once 'e' is greater than one-sixth of the length (or breadth) of the base then the pressure along the upwind side of the base goes 'below' zero, and the pressure diagram changes from that shown in Fig. 6 to that in Fig. 7.

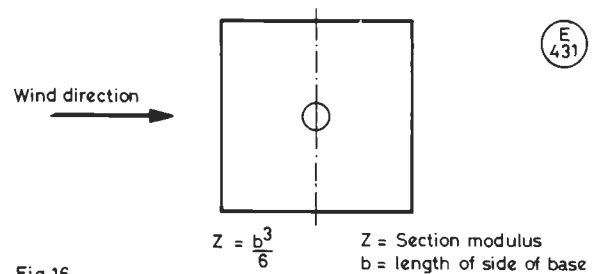


Fig. 16

E 431

Fig. 16. Plan view of base showing the section modulus for a wind direction at right-angles to one of the sides of the base.

When the direction of the moment is relatively constant, as in the structural frames of buildings, then providing the S.G.B.P. is not exceeded then 'tension' under a base is acceptable. In the case of a mast base the wind direction changes frequently, as does the magnitude of the moment it delivers. Any base that lifts slightly at one edge could then rock very slightly, so it is better for mast bases to make the length and breadth (which will be the same) large enough to ensure that 'e' never exceeds one-sixth of either, but

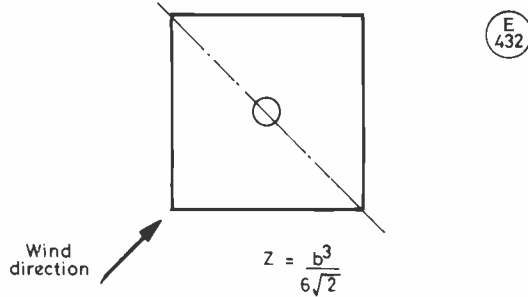


Fig. 17

Fig. 17. The section modulus of a square section 'bending' about a diagonal is less than that about its perpendicular axes. This smaller value must be taken as the wind forces can come from any direction.

keep in mind that the depth must be a minimum of half the side length.

Given the above situation then the pressures under the base can be determined from:—

$$P_{\max} = \frac{W}{A} + \frac{W.e}{Z} \quad \text{where: } W = W_a + W_b$$

$$P_{\min} = \frac{W}{A} - \frac{W.e}{Z}$$

$e = \text{eccentricity}$
 $A = \text{plan area of base}$
 $Z = \text{section modulus of base (when viewed on plan)}$

Fig. 16 shows the plan view of a base with the value of Z for the wind direction shown. Unfortunately the wind does not always blow at right angles to one of the sides of the base, and unless bent about one of its normal axes the 'Z' for a square section is not as shown. The value of Z will be at a minimum when the wind blows at 45° to the base, as shown in Fig. 17, and this is the limiting condition as the smaller the value of Z then the higher the pressures under the base for a given loading condition. All that then remains to be done is to calculate the maximum pressures under the base, and check that it is less than the S.G.B.P. but if it is higher then choose a slightly larger base size and try again.

Sidewall Pressures

Some readers may well be wondering why the soil pressures on the downwind side face of the base were not considered as contributing to the overall stability since as Fig. 18 shows, there would appear to be an advantage in doing so. There are two main reasons for why it was neglected, the first being that the soil around the sides of the base will have been disturbed during the process of digging the hole and it is very unlikely that it will have been compacted to anything like its former strength. Even if it were fully compacted the maximum pressures would be exerted at

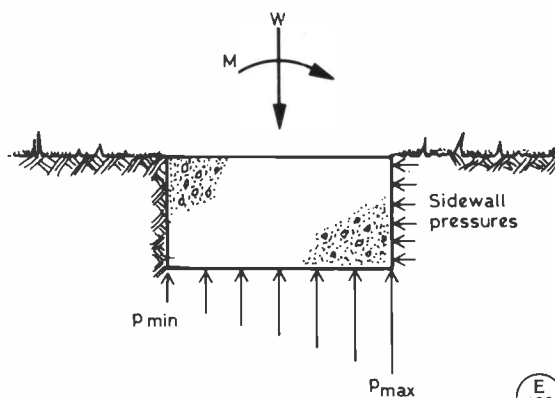


Fig. 18

Fig. 18. Sidewall pressures must be neglected when determining the stability of the base. See text for details.

the surface, and the vulnerability of soil near the surface to weather variations has already been discussed. One good downpour would soften the soil at the surface so much that its S.G.B.P. would soon be reduced to zero.

Although the disturbed soil is enclosed by intact soil all around it the base would need to compress the soil locally to bear upon it, which implies that the base will have to tilt very slightly from the vertical. As with the case of 'tension' under the base, cyclic windloads would cause it to rock about and open up vertical cracks in the soil around the edges of the base. Fig. 19 illustrates this situation, and shows the ingress of rainwater which could percolate down to the bottom level of the base and soften the soil there.

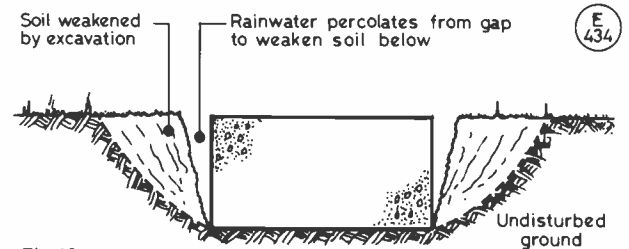


Fig. 19

Fig. 19. If sidewall pressures were relied upon, the base would rock and open up gaps around the edges of the base. As the gaps widened rainwater would percolate down to the base of the foundations and weaken the soil beneath the base.

The Design Process

The system is far simpler than it first appears, and can be summed up in the following steps:—

- (i) Determine loads from aerial and mast, etc.
- (ii) Determine bending moment due to wind.
- (iii) Determine the S.G.B.P. for the soil.
- (iv) Choose a base size and calculate its weight.
(concrete = 22 kN/m^3)
- (v) Calculate 'e'. If greater than one-sixth, repeat from (iv).
- (vi) Check that restoring moments are at least twice the overturning.
- (vii) Check that the S.G.B.P. is not exceeded.

As with the design of the mast itself, it is necessary to firstly guesstimate a size and then check through to see if it is adequate. Note that the wind moment at the base of the mast will be less than the wind moment about the bottom of the base. The latter must be used to determine soil pressures, and is larger because the depth of the base adds to the lever arm of the wind moment.

That about winds up the theoretical design of an aerial, mast, and base for a given height and windspeed. Although it is quite straight-forward once some experience is gained, the author can well imagine that it seems fairly hairy for the complete tyro, especially those not too adept at maths. Since lessons seem best learned by example it is intended to produce some worked examples to demonstrate the technique, and give some ideas on practical details and connections. It would be quite possible to write a computer program to take out all of the brain strain, and the author may well do this if sufficient interest exists.

As with all previous sections every effort has been made to ensure that the information presented is accurate, but the author accepts no liability for the consequences of it being used. Purists may well wince at the brutal simplifications which have been made, but the savings gained on smaller installations by a rigorous analysis would hardly be worth the effort and would undoubtedly discourage readers from doing it.

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

THIS has been a very thin month indeed, for reports (no doubt Christmas has something to do with that!) and also conditions. A point of interest that has arisen is the noticeable way in which Top Band has been so poor; this rather goes to indicate that the old idea that when the sunspots are down, conditions on the low bands perk up, is just so much hooey. Most likely, what in fact one observes is the reverse of the ten-metre thing: on Ten there is propagation but usually no one there to take advantage of it, while on Top Band there is a rise in activity as people find the high bands dead — but there isn't much real DX amongst the increased activity. Now for someone to shoot me down!

The Bands

At the beginning of 1984, the sunspot situation was far better than it had any right to be, but through the year it progressively fell away to the point where, in October, it was some 40% lower than one would have expected: this refers to the monthly means, and is much more indicative of the true state than the six-monthly smoothed numbers, which in fact have kept pretty well on course. The last few days have seen — or so it appears to the writer — a slight hint of an improvement, which would be mighty welcome if it were sustained.

Top Band

G6CJ has been active on the band, of course, but says he finds the band comes to a peak at a useless hour for those of us who have to go to work!

At G4AAW (Maidstone) the CW got out to 1A0KM (QSL via I0MGM), HV2VO (via 12BBJ), HZ1AB (via K8PVD), JW0EQ (via LA5NM), TF3KG, TF3XUU/8, UA9KAA, UG6GAW, UM8MU, VE1ASJ, VE3EK, KA1PE, W1RR, W1PL, W1CF, W2LT, KT3M, and W4DR. Peter also notes that there is a new spot in use for simplex operation around 1950 kHz, where G3SZA and OH5NQ have already been heard working W6 and W7s. The point about this one is that it is a lot quieter in the States than the lower end of the band.

Next we have G2HKU (Sheppey) who found conditions very wobbly — from reasonable to ugh! SSB on Top Band located I1BSN, PA0PN, and DJ7SR, while the CW dealt with Y23WA, DF9BW, F8IH/EA3, EA3VY, OK1DIJ, DL6HN, W4BT, HZ1AB, TF3AB, VE1ZZ, K2VV, OZ7YY, W2JB,

OE3REB, JW0EQ, I4NEC, OE2JKN, OE5KE, K8CCV, W1RR, OE1KM, SP3AGE, I2UBI, EA5CF, SM5DFF, EI0CZ; a larger crop than usual for Ted.

G3BDQ (Hastings) started his letter by some philosophising on the subject of propagation knowledge; John feels strongly that the text-books are very hazy about the way propagation occurs on Top Band, and to a degree on Eighty too. However, to the meat of his report: G3BDQ worked seven W1s, five W2s, eight W3s, four W4s, three in W5, all in Arkansas, seven W8s, and a couple in W0, most being hooked between 0700 and 0800, but a few at their sunset. VE1BVL, VE1ZZ, VE3EK were all worked at their sunset, and VE3MFA at the morning opening, all on CW; the SSB was used for KB3AF and WA3EUL and John was also able to help G4LMZ get over for the first time. Other DX heard on the band, and raised, included HV2VO and 1A0KM both taken on CW and phone, EA8QO, T77C, 9H1ED, TF3SZ, JW0EQ, HZ1AB twice, UA6UF/R for a little mystery, and by no means least UA0AG for a new prefix. On a different tack, John is still working on the problem of clicks, but reckons he doesn't know how one can fit any more filtering to his Corsair's fancy keying system, and lets out a gentle sigh for the departed days of cathode keying!

Next we have G4KKI (Swinton) who runs a PW 'Dart' rig on Top Band and Eighty; the HF rig is reduced to its component parts for the moment waiting for a rebuild. Up aloft there is a half-size G5RV, feeders strapped and fed against the central heating system as an earth on 160 and 80 metres. That sounds like a very good reason for going outside and expending a lot of time on earthing system improvements! Anyway, be that as it may, this set-up got out to G4ZCN, G4LMZ, G4WQD, G4ONG, G3RYU, G3RXH; all these were on DSB, while the CW signal managed DL9KZ, and G3PFZ. On a totally different tack, Bill asks if anyone knows of any worthwhile modifications to the Lowe SRX-30 receiver which is the station receiver at G4KKI — anyone with any useful information or references, please send them to your scribe, addressed c/o "CDXN", and we'll pass them on.

Finally, we have the regular twice-a-month letter from SWL D. A. Whitaker (Harrogate). David says it's only a small offering this time as it is too b..... cold in the shack to play amateur radio. Nonetheless, David heard T77V at 2200z,

UG6GAW at 0152, VE3GAS at 0230, VE3KQS at 0413, 4U1ITU at 2228, and 4X4NJ at 0229z. On the night the VEs were heard, the whole band from 1835 up above 1.9 MHz was full of W local QSOs, one indeed on top of a Russian QSO and obviously quite oblivious of each other.

Ten Metres

Nice to hear again from GW4BLE (Newport, Gwent) after a long gap. Steve was not all that active in 1984 owing to a gale that brought down his Versatower and beam, now replaced by a new one topped with a TH5 beam. As for the DX, Steve has topped the magic 300, but is keeping his hand in by filling in the gaps on each band, and a little contesting as time permits. The last one was the ARRL 28 MHz contest, December 8/9, during which the following were worked: A22ME, CE5EMZ, CE3DNP, CE6EZ, EAs, EA6, EA8, Fs, HG, Y23s, TU2ID, KG4DX, ZP5JCY, ZF2AG, PYs, ZD7BJ, ZS3BI, ZS6s, L2X (from LU), TI1C, 3X4EX, 5L2AK, 5B4DN, Z23JO, and 4X4FR. There was a total of 52 multipliers, including twenty from North America, via an opening between 1815 – 1900z on the Saturday and another, longer one, between 1450z and 1645z on the Sunday. A fine effort at this stage in the sunspot cycle.

G3NOF (Yeovil) is a pretty consistent monitor of the band, but he says he only heard signals twice; on December 9 there was some YU and GW, and on December 23 EA8. Otherwise — Nix!

"Abyssal" is the way Tony at G4HZW describes it; one or two openings to Africa were present if the beacons were audible, but no actual real live signals to exchange reports with! A Sporadic-E opening was noted on December 18 and gave I, YU, DL, HG; and during the contest there was EA, LU4US and CT2FH — though Tony missed the openings mentioned by GW4BLE, hence much wailing and gnashing of teeth.

DX News Sheet

After Geoff Watts retired, *DX News Sheet* was carried on by G3ZAY and G3XTT, who did a fine job; however, work is the curse of the DX-ing classes, as ever, and so we now find ourselves under the editorship of Bren, G4DYO, who already, in his first issue, indicates the value of a sense of humour — his "DX Review of 1984" was quite hilarious but nonetheless factual. Thanks to G3ZAY

and G3XTT, and good wishes to the future success of *DXNS* under G4DYO.

Here & There

First some points from *DXNS* issues of late. The question of A61AA's validity was called into question rather strongly by the *DX Bulletin* of K1TN in mid-December; however, G4DYO spoke to Des, G3LCS, while the latter was on leave, and the indications are that documentation has gone off to ARRL. Additionally, a Trio TS-930s has been ordered with a view to some CW operation when G3LCS gets back to A61AA towards the end of January.

The VR6 YLs will outnumber the OMs shortly, when Betty, WD9GQV arrives, with her callsign allocated as VR6BR, and QSL Manager KA9W. Local licensees of course are VR6TC, Tom Christian and VR6KY Kari.

That 3Y0AA effort was, as we had thought, too close to target for a 1985 operation window, so the date now goes back to Jan-March in 1986.

Those still in need of South Sandwich could do worse than take note that the Russians are putting a base into the area, called "Progress", and amateur operation under the call 4K1I will occur in some months' time once they have settled down.

XU1SS is quite possibly finished by the time this reaches the bookstalls; the latest news we have is that the area is under heavy attack and the station may have to close down.

Turning to *The DX Bulletin*, only two copies have reached us this month, neither post-dating Christmas, so *TDXB* is for once in the nature of a broken reed. However it does mention that KA4SBE/SU QSLs are now considered O.K. by the DXCC, after October 1, and also notes how elusive 5R8AL is, particularly for the Europeans, and quotes *DX Report* as indicating he doesn't have permission for Eighty.

Eighty

This is the band where *anything* can happen, from the CW and SSB DX found at the ends of the band, right to the rabbitings-on found among the pundits inhabiting the middle of the band! Some of the latter have the saving grace of being at least entertaining!

G3ZPF (Kingswinford) found a couple of new ones by way of A92P and 6Y5MJ on SSB, while 6Y5IC was at last nailed down after a couple of near-misses; on the other hand, HI8IH and XE1VIC slipped through the 'ZPF fingers. Something a little out of the ordinary was KV9S heard as late as 1000z working Stateside stations and quite oblivious of the Europeans hearing him. Otherwise it was all EU and U.S.A. worked, and no aerials up as yet for any other band.

G4NOZ (Colchester) says he is surprised

how rewarding this band can be for the early-morning operator; at 0530z on the morning of December 23, W2HCW, K3HBK, KB1BE, N4RJ were all exchanging reports with the Europeans, and UA2FO in Leningrad was getting good reports from ZL1BXA.

The eighty-metre SSB report from D. A. Whitaker showed OA4OS (0725z), FM7CL (0749), W6RDL (0800), 6Y5NR (0806), YB0JH (2115), VP2MR (0744), ZP5JAL (0800), A92EB (2216), PZ1AC (0037), HH2MC (0749), VK3RI (1900), PY7ZZ (2121), VK6LK (2126), 6Y5IC (2248), 3X4EX (2332), N6ATS (2338), FM7WD (2343), and OK4AWQ/MM in the Indian Ocean. A pity David never gives a hint of what he uses aloft and in the shack to wrinkle this sort of stuff out.

Just three watts of CW are available on Eighty to G4KKI, but Bill managed to work DL9YA, G3MRP, and these QRP stations; G3RJV, G4EZF who was also with an indoor aerial, GM3OXX/A, G8QM, G4BUE, and G4KKG. Sounds as though Bill is after working all the G-QRP Club members!

"CDXN" deadlines for the next three months:

March issue—January 31st

April issue—March 7th

May issue—April 4th

Be sure to note these dates

G3BDQ found himself on the band between 1945 and 2030z in the evenings and worked 9M2CO and JA6IEL on SSB — the latter 'for real' and not by way of a list. However, some 30 minutes earlier John heard someone on the list op, and he was saying "stand by for G3BDQ", then "go ahead G3BDQ" — all before G3BDQ had radiated *any* RF. Cue for G3BDQ to transmit saying "this is the *real* G3BDQ" and enjoying the stunned silence which resulted. On the key, John made it to UA9CPC, UA9CEI, and UA9MBO.

At G2HKU the activity on the band was CW, to TF3CU, K1ZZ, and W2BA.

Finally on this band we have the regular G2NJ report, from Peterborough. Nick noted, as in previous Decembers, the Europeans and Russians working JAs in the early afternoons, when the JAs were quite inaudible here. The outstanding signal among these was UR1RWX, Tallinn, who was heard to work ten JAs in the hour 1410-1510z. On December 10, an exceptional day, SM6CPY was working JA6YG, Sen. and was giving him a 569 report while being audible to G2NJ at RST449. Other contacts included F6GLF/MM, near Portugal, at 2047 one evening, and G2CNN, most unusually from his home QTH in Norfolk, passing

on the gen that in January he is going to be at Brill for some weeks and therefore signing G2CNN/A with his HW-8 rig.

The TOPS CW Net for Europe on Sunday evenings, on 3534 kHz under G4GBG as controller, was joined by Lucia CT1YH, who previously held the call CR7LU before returning to her homeland. The Wednesday evening net, we hear, has also been graced by a YL, this time Marion, GW4TNH. This last net is on 3508 kHz between 1400 and 1600z, with GW6AQ as net controller.

Now Forty

Just has to be the band you love to hate! Seriously, it seems to be either regarded with great affection by the ones who use it regularly, or downright hatred by the others!

Just one contact was made by G2HKU, namely VK2KM; this one was on CW.

Forty CW at G3BDQ was a matter of contacts with UI8LBA, VK2KM, VK3MR, and VK3VJ.

D. A. Whitaker, from Harrogate, heard VK6IR, VK3AJJ, VK9XJ, 9K2EV, UG6GCC, FR0FLO, and UF6VAW; hearing the FR0 was maybe a consolation prize for not hooking him on Top Band!

New Bands

Just a couple of reports this time. G3BDQ made one of his rare forays upon the band and came out clutching on to W3CS and W3ARK.

By way of *DX News Sheet* and others we hear that the SMs have now received permission to operate on all three of the new bands, from December 1 1984, so by the time this reaches you there should be quite a bit more activity.

G4UZN (Leeds) is a faithful reporter on these bands, which he describes as still uncharted territory. On 10 MHz, no DX was worked, but contacts were had on CW of course, with CT2FN, EA7BU, EI6BA, 4U1VIC, 4X6GP and some fifty Swedish stations. 18 MHz yielded CT1BSN, GJ3EML, and IS0LYN, with J37AE, VK, DL2GG/YV5, and lots of commercial stuff heard. As for 24 MHz, nothing has been heard on it, let alone worked!

Fifteen

Very much a daylight band nowadays, and not too good at that. Therefore, not many reports either! G3KFE flipped the band switch to this band several times and was greeted by the sound of frying eggs on occasions, of washing-machine motor noises, and, on one memorable occasion a W1 at RST 339! However, it must be admitted that the band is not open much after dark, and we never get to the rig in daylight normally.

G3NOF thought the band very poor, too: unstable to a degree, subject to sudden fade-outs, and mostly closing by 1600z. The East Coast Ws were around

from 14-1600; Africans 10-1200, and again 1500-1600, while a few VKs were noted, short path around 1000. In terms of SSB, contacts were made on G3NOF's favourite band, with A92P, FG7BM, FH8CB, FH8CR, HH2SD, J28DN, J28EF, J87BS (Mustique), K5OVC, TT8CW, VP8LP (Falkland Isles), VQ9YR, VK3PTS, VK6DU, VK6IR, East Coast Ws, W5VAW, ZS1EZ, ZS6CEA, 5X5GK, and 9L1CSIV.

All the way SSB was the word from G3BDQ, from his Hastings retreat, with VK6VB, VK6BA, VK6JH, 5H3MH (ex-VE5VJ we gather), and Z21BP.

Twenty

Also a rather poor display this time, although a bit more reliable than 21 MHz, and closing a bit later in the evening. For G3BDQ, CW was enough to get at UI8AHW, while SSB Phone accounted for VU2RX — Top Band addicts to note this station is trying for a Top Band

temporary permit for January and February.

The band opens at around 0600z to G3NOF, usually dying around 1800z; the LP openings to VK have occurred on most mornings but have been of short duration; and the short path has on occasion been open 1300-1600z. Africans were heard around 1600-1700z and East Coast W/VE from lunchtime till tea, with the W6s heard on the short path around 1500z. SSB contacts were made with C53FG, HV2VO, P29AF, VK2CU, VK6HQ, W2NQ/7, ZL2AUB, ZL2BKI, ZL2BBF, XL4IG/P, 1A0KM, 5H3HM, 5R8AL, and 6Y5NR.

Finally also from G3NOF a note that ZD8KM operates on most days; he starts at 1900z on 21075 kHz CW and moves 14052 kHz as conditions dictate. Also, G3KSK will be on as ZD8JP until June 1985, operating daily around 14200 kHz, from 1900z.

Activity Period — New Bands

For the rest of the year, we propose the first weekend in each month as an Activity Period. The idea will be to come on and see who is around and who you can work; in no way a contest just a question of getting those who can to come on and give the band a whirl, especially 18 and 24 MHz; and to report what goes on to their favourite DX column. This proposal is being circulated to magazines on both sides of the Atlantic, and we hope for their support, too.

Conclusion

The very early deadline for the next time is in the 'box' as usual, and is for the arrival of your letters, addressed as ever to your scribe, "CDXN" SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ. And, if you run across a ZA, then WFWL — work him first, worry later!

• • • **“Practically Yours”** • • •

with GLEN ROSS, G8MWR

Filters

THIS month we will be looking at filters and some of the uses to which they can be put. Filters come in many shapes and sizes and are intended for a multiplicity of purposes ranging from near DC right up into the highest microwave bands. The purpose of a filter, put at its most basic level, is to either allow certain frequencies to pass unhindered (bandpass) or to block a range of frequencies (bandstop). As is normal, you do not get something for nothing and there is always a certain amount of loss, known as the insertion loss, associated with most filters. (A certain type known as an active filter and commonly used in audio applications, such as filtering RTTY tones, can exhibit a considerable stage gain, but they do not concern us here.) With care this loss can be kept to a minimum and is usually a small price to pay for the advantages that are to be obtained from the filter.

Using Filters

One of the most obvious uses is to keep your signal out of your neighbour's TV receiver. Most of the problems are due to your signal "blasting through" the TV receiver's front end. A suitable filter will allow the TV signals to pass but can attenuate your signal by as much as 60dB (reducing the level to a millionth of what it was).

A power meter will read all the power fed into it at whatever

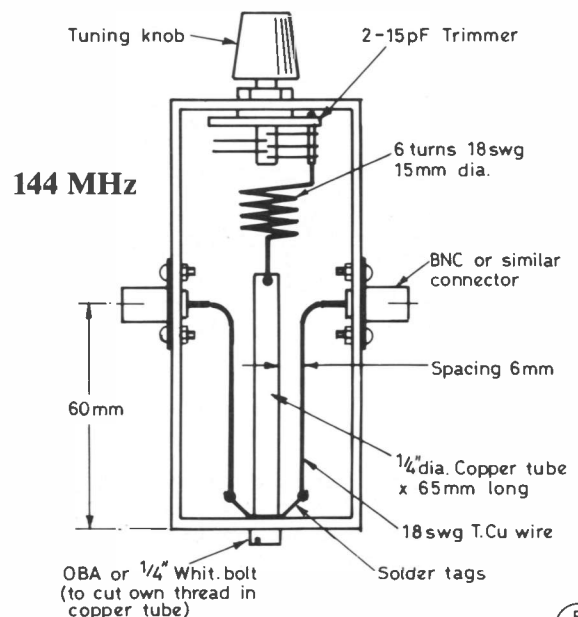


Fig. 1

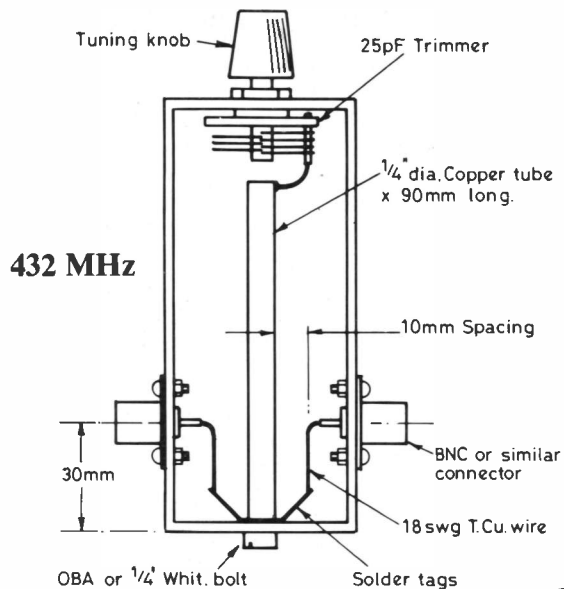


Fig. 2

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frequency, due to the fact that it is a broad band device. If your rig or linear generates spurious harmonics then these will be added to your fundamental power and you will think you have plenty of output. If you put a bandpass filter in the lead to the power meter these spurious outputs will be attenuated and you will get a correct power reading.

The output of a local oscillator strip can be filtered to ensure a clean drive to the mixer system, so ensuring a reduction in unwanted signals in the receiver and an overall improvement in performance. The list is endless and only limited by your imagination. Possibly one of the best uses for a filter is in the aerial feeder of your rig. This will do two things, first it will ensure that

combination of them, depending on the purpose of the filter. The essential point for bandpass filters to cover the VHF bands is that the "Q" of the circuit should be very high so that the response drops off rapidly outside the bands. This entails care in the construction of the filters and the use of low-loss components. They should be built into well made boxes so as to reduce detuning due to movement of the components. Great attention should be given to really solid earthing; very high currents may flow at these points and, if the earthing is poor, the losses will be high.

Practical Filters

Three filters will be described, one each for 145, 432 and 1296 MHz. Each one has a fairly wide tuning range with low insertion loss and moderate bandwidth; too tight a bandwidth can be a nuisance, involving retuning across the band. The 145 and 432 MHz units are of the quarter-wave type and the 1296 MHz filter shows the application of the half-wave system. From the designs shown it should be possible to make a unit for any frequency required.

Mechanical Details

The units are built in standard diecast boxes, the lower frequency units in boxes of about 4.5 inches in length and 2 inches square, whilst the 1296 MHz filter is in a box about 1 inch square by 3.5 inches long. The actual construction will be apparent from the diagrams and there is little to comment on except to restate that *all* earths must be well made. The tuning capacitor for the 1296 unit is made from a tubular trimmer that has had the body broken away so as to leave only the mounting and the threaded rod onto which a 2BA washer is carefully soldered. A 2BA washer is also soldered to the centre of the tuning line to form the other plate of the capacitor. This is done by first fitting the washer to the tuning screw then cutting some lightweight card. Place the card between the two washers to form a sandwich and then screw the adjusting screw in until the whole assembly is firmly held together; now solder the washer to the rod and remove the card.

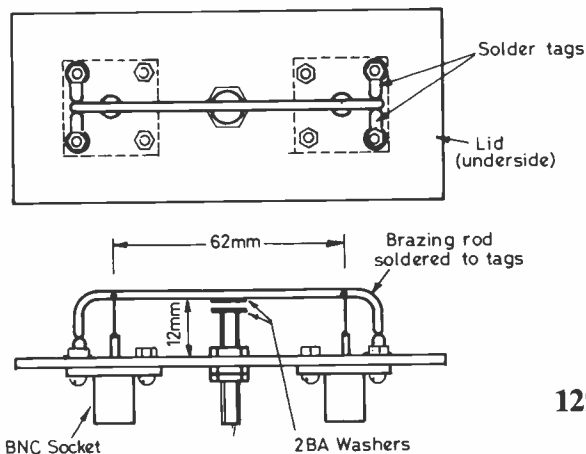
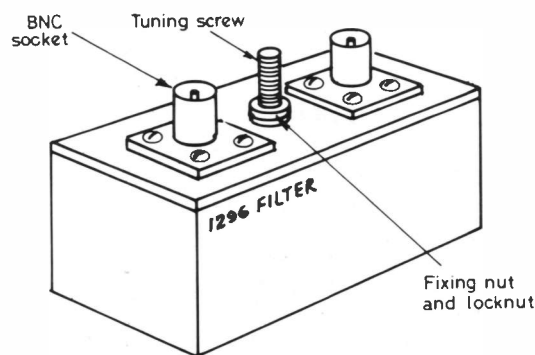


Fig. 3



1296 MHz

General appearance of unit

E 439

far less spurious energy reaches the aerial system to be radiated and, secondly, it will reduce the level of out-of-band signals reaching the receiver and so improve the blocking and cross-modulation performance.

Filter Components

The filter consists of nothing more than a tuned circuit, or

Additional Use

The two lower frequency units can be used as wavemeters. Apply the signal to be checked to one socket and connect a suitable diode and meter to the other one. Tune the filter until a peak is found on the meter. This will only be of use if the tuning control has been calibrated by using known frequencies, which is a fairly simple undertaking.

CONTEMPORARY BRIEFS . . .

MAPLIN ELECTRONIC SUPPLIES LIMITED claims to be the biggest retail supplier of electronics components in the U.K. If the size of the latest catalogue is any indication, then the company probably is. It is called the **Maplin 1985 Buyer's Guide to Electronic Components** and is in soft cover format 298×210mm and 21mm thick, weighing 0.74kg.

There are 29 sections alphabetically arranged from *Aerials* to *Wound Components*, with a final, 30th part called *Miscellaneous*. Apart from a 2m. "rubber duck" type, all the aerials are TV, FM and car radio ones and there is a wide range of hardware such as brackets, rotators, diplexers, sockets, etc. The *Batteries* stock includes all the popular sizes of zinc-carbon, zinc-chloride, alkaline, silver-oxide, mercuric-oxide, zinc-air and NiCad types and chargers and holders are listed. The *Books* section is very extensive mainly dealing with computer literature. Each title is briefly described. A wide variety of *Boxes* in metal and plastic is listed, including diecast ones and some elegant equipment cases, together with many accessories. The *Cables* section lists mains, multicore, coaxial, ribbon and coiled types, plus cable grips, ties and sleeving.

The *Capacitors* section starts with a Capacitor Finder chart from 1.8pF to 10,000µF in all the usual dielectrics and case forms. Some *Jackson Bros.* variables are listed, plus assorted trimmers and hardware. Crystals are included in this section. The short *Communications* part includes CB accessories, the only amateur radio item being a ten channel, 2m. scanning receiver. The *Computers* section features the *MultiTech MPF-1P*, *Z80* system with various peripherals and software for *Atari*, *BBC*, *Dragon* and *Commodore* machines.

The *Connectors* section is comprehensive listing everything from miniature PCB to 96-way edge connectors, BNC, UHF and N-type series and lots of system adaptors. In *Electrical Accessories* are listed a range of household items for the D-I-Y home electrician. The *Hardware* section offers the usual metal and nylon nuts and bolts, screws, grommets, transfers and such.

The catalogue includes 31 pages of *Heathkit* products including an *IBM* compatible Personal Computer Kit in the £2,000 price bracket. The *Knobs* section is followed by *Microphones* of which there are many from cheap crystal lapel types, to expensive professional dynamic models. A range of stands is also listed. The *Opto-Electrical* section includes neons, filament lamps, LEDs, LCD displays, solar panels, Xenon and laser tubes and the *Panel Meters* pages cover analogue and digital instruments. The *PCB* section includes *Vero* products, breadboards, etching materials and aids, and transfers.

Projects and Modules occupy 57 pages covering hundreds of projects from simple audio preamplifiers to electronic organs and a £620 music synthesiser. There is a comprehensive *Resistors* section which includes a wide range of rotary and slider potentiometers in linear and logarithmic laws. The *Semiconductors* section runs to 91 pages and lists a huge range of discrete devices, TTL and CMOS ICs, memories and microprocessors, etc. There is a lot of very useful applications information in this section, too.

The *Switches and Relays* sections cover virtually everything from sub-miniature toggle switches to power relays, and wafer switches to alphanumeric keyboards. However, there are no co-axial relays listed. In the *Test Gear* part are digital and analogue meters, oscilloscopes and accessories. This is followed by *Tools*, from trimming tools to drill stands, soldering irons to video tape head cleaners. The *Wound Components* part lists various coil formers, chokes and a comprehensive range of toroidal mains transformers up to 500VA rating. There are sections, too, devoted to Musical and Effects, of prime interest to disco folk, and also *Organ*

Components, while the *Miscellaneous* section even includes a blood pressure tester.

This latest **Maplin** catalogue is a sound investment and is available from the W. H. Smith shops, the shelf price being £1.35. All items are now priced on the page and the printed prices are valid till the end of February. Thereafter, quarterly updates will be available. There are **Maplin** shops in Westcliffe-on-Sea, Essex, London W.6, Manchester, Birmingham and Southampton, open Tuesday to Saturday. Some of the bulkier items like coaxial cable, are cheaper over the counter. The company's mail order operation is based in Rayleigh in Essex at P.O. Box 3, Rayleigh, Essex, SS6 8LR. The telephone number is 0702 554155, with additional numbers for retail sales, trade sales and CashTel.

DANESBURY INSTRUMENTS have sent the fourth edition of their catalogue of quality test gear and measuring instruments. It is a very nice 24 page list. The Company distributes products by U.K., U.S.A., Japanese, French, West German and Indian manufacturers. A very useful feature is a page of charts covering analogue and digital instruments, oscilloscopes, and signal sources giving instant indication of what is available. For example, if you need an LF function generator, in the Signal Sources chart you will find they list one covering 0.01 Hz to 10 MHz with sine, square and triangular wave outputs, internal and external AM and FM modulation and that "details are on page 17".

Among the hundreds of items listed are oscilloscopes by Hitachi and Bridge Scientific Instruments, hand-held and bench DMMs by Keighley, AOIP and Hitachi, and signal sources, bench PSUs, frequency counters, logic analysers, X-Y plotters and chart recorders by Unaohm, Thander, Rikadenki and Black Star. The Hitachi products carry a two year warranty with an MTBF — Minimum Time Before Failure — target of 20,000 hours.

Prices are listed separately being those ruling at the time of despatch. **Danesbury Instruments'** head office is at 22 Parkway, Welwyn Garden City, Herts., England, AL8 6HG. The telephone number is 07073 38623, Telex no. 825633 OTSSB. The person to contact there is Managing Director Roy Gibbons. The Company also has sales offices in Kidderminster, Lancashire and Glasgow and delivery is quoted as, "normally ex-stock."

N.A.S.F.



Dr. Tim Thirst, G4CTT (left) of *Eastern Communications*, presenting one of two T.E.T. beams to Dr. Tim Cole, G4RHQ, of the *Dunn Nutrition Unit*, Cambridge. The beams were donated jointly by *Eastern Communications* and *Amateur Electronics UK*, for use by the *Unit* in their communications with Africa. photo: BBC East

CLUBS ROUNDUP

By "Club Secretary"

AS many clubs have recently held their AGM, now is a good time for us to ask you all to check and be sure we have the name and address of the club's current Hon. Sec., including his post code, and with his telephone number given in the 'approved' fashion — namely "Bloggsville (0123) 456789" as the Post Office requests.

The Letters

Abergavenny & Nevill Hall foregather on Thursday evenings, in the room above Male Ward 2 at Pen-y-Fal Hospital, Abergavenny. The club specialises in RAE and Morse classes and provides a local examination centre — all the details from the Hon. Sec., — see Panel.

Tuesday, February 19 is the day for **Acton, Brentford & Chiswick**, when the group will be talking about the new 'Maidenhead Squares' system and their own personal views of it. The venue, as ever is Chiswick Town Hall, High Road, Chiswick.

The **Antrim** club is having a recruiting campaign, and any potential member, be he SWL or licensed amateur, is asked to get in touch, using the nice simple address of Antrim Radio Club, Box 3, Antrim. The next AGM is on March 11, but alas we don't have any current Hq. address details.

Still in GI, we turn to **Bangor**, where the date at the time of writing is February 1 at the Sands Hotel on Bangor's sea-front — but we understand they may have a visit lined up so it would seem a telephone call to the Hon. Sec. wouldn't come amiss.

Back on the mainland, and **Bath** — which means the "Englishcombe Inn", Englishcombe Lane, on alternate Wednesday evenings. For the latest dates try phoning the Hon. Sec. on Frome 63939.

Having just had their AGM, the **Biggin Hill** crowd is looking forward to February 19 and their RTTY demonstration, at St. Mark's Church Hall, Biggin Hill.

Still active is the **Bishops Stortford** set-up; the formal meeting is on the third Monday in each month, at the British Legion Club in Windhill; they also have an informal on the first Thursday of each month at the "Nag's Head" pub on the A120 Dunmow Road, next door to the Golf and Squash Club, in the saloon bar.

February for **Bolton** means the Horwich Leisure Centre, every Wednesday evening, with February 6 set apart for G3RJV to give his chat about QRP.

The Seven-Furlong Bar at Brighton Racecourse is the home these days of the **Brighton** club, every other Wednesday evening. More details on activities from the Hon. Sec., — see Panel.

The **Bristol** group has its Hq. at the YMCA, Park Road, Kingswood, where they are to be found every week. On February 5 they operate their GB2IST, while the club management meeting occurs on 12th. Club projects are featured on February 19, while on 26th they have a computer night and a VHF NFD discussion.

Now to **Bristol (Shirehampton)** who are also weekly, on Fridays at Twyford House, High Street, Shirehampton, from 7.30 to 9.30 p.m., they plan for a formal activity of some sort (talk, film, or whatever) on alternate weeks, and of course they have a club shack and rig for the other weeks too!

A year ago, **B.A.R.T.G.** represented some 100 members, all interested in RTTY; now they are hell-for-leather after 5000 members and of course are cashing in on the boom in the home computer, plus the interest in packet radio and mailbox systems, all of which are germane to their club's constitution. Their magazine *Datacom* has now grown to be the best offering to cross

this desk, and we hope is they can keep it up!

At **Bromsgrove** there are two clubs; the one reporting this time is based on the British Legion club, Birmingham Road, and seems to be more interested in advising how democratic it is than in giving detailed programme. However, this method sometimes comes off, and so a visit could be well worth while — try the second and fourth Tuesday of the month.

Up to **Bury** now, and hence the Mosses Centre, Cecil Street, Bury; every Tuesday, with the second one each month as the formal — February 12 has a talk on OSCAR-10. But on Sunday 10th they have their Hamfest all day, with talk-in on S22 — the Mosses lies just three minutes from Junction 2 on the M66. More details on the latter event from G1BWN who is QTHR, or the Hon. Sec. — see Panel.

Cheltenham comes next and their amalgamation of some years ago seems to have gone from strength to strength; and nowadays they are to be found in the Stanton Room in Charlton Kings Library. However, there seems to be a hiccup in the quoted dates for February, so we must refer you to the Hon. Sec. for any correction; his details are in the Panel.

At **Cheshunt** the meetings are weekly at the Church Room, Church Lane Wormley, every Wednesday. February's natter evenings are on 13th and 27th; on February 6 Phil Ranner, G4ZCX, leads a discussion on the club project, and on 20th they have the inimitable G3AAJ to give them the word on AMSAT and its activities.

February 5 and 21 are the dates for **Chichester**; the former in the Long Room and the latter in the Green Room, at Fernleigh Centre, 40 North Street, Chichester.

On to **Colchester** and on February 7 they have G1DGQ talking about scale radio controlled models, while on 21st Norman Clarke will talk about the Royal National Lifeboat Institution. Both meetings, as always, at the Colchester Institute, Sheepen Road, Colchester.

The **Cornish** Hq. these days is the Church Hall, Treleigh, and it is there on February 7 that the club will sit down to a talk by G3VWK on AMTOR.

Coventry has come a long way since they had their own little place which was, as we recall, swept away as part of the rebuilding of the City's roads; nowadays they live at Baden-Powell House, 121 St. Nicholas Street, Radford, Coventry, and they are in session every Friday evening. February 1 is down for a talk by a crime prevention officer, and on 15th there is a film night. The two intervening weeks are, as usual, 'nights on the air'.

The **Crawley** crowd alternate informals at members' homes with their main meetings at Trinity Church Hall, Ifield on, by the look of it, the fourth Wednesday of each month. However, we would strongly suggest a check with the Hon. Sec. — see Panel for his details.

A familiar handwriting appears on the letter from **Crystal Palace**, and it tells us that February 16 is their Annual General Meeting and Club constructional contest. As usual the venue is at All Saints Church Parish Rooms, at the junction of Church Road and Beulah Hill, Upper Norwood, opposite the IBA mast — which should make it easy enough to find!

At **Derby** the locals have the whole top floor at 119 Green Lane for their headquarters; they are to be found there every Wednesday evening, unless otherwise specified.

Dudley seems to have an odd date routine; we see February 4 for a committee and natter night, plus February 18 and February 25, both of which still unsettled as to programme when they wrote. Thus this group seems to go to three meetings a month. To double-check, contact the Hon. Sec. — see Panel.

No mistake with **Edgware** — the front page of the news-letter is covered in all the important details. They live at 145 Orange Hill Road, Burnt Oak, Edgware, and meet on the second and fourth Thursday of each month. February 14 is down for 'practical techniques' and on 28th they propose to put some slow CW on the air.

February 11 is the date for the **Exeter** group, at the Community Centre, St. Davids Hill, Exeter, for a talk "Introduction to

Names and Addresses of Club Secretaries reporting in this issue:

- ABERGAVENTNY: D. F. Jones, GW3SSY, 80 Craesonen Parc, Abergavenny, Gwent NP7 6PE. (0873 78674)
- ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London W3 8LB. (01-992 3778)
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- BATH: C. Ashley, G4UMN, 57 Stourbridge Drive, Frome, Somerset. (Frome 63639)
- BIGGIN HILL: I. Mitchell, G4NSD, Greenway Cottage, Tatsfield, Westerham, TN16 2BT. (Tatsfield 376)
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- B.A.R.T.G.: I. Brothwell, G4EAN, 56 Arnot Hill Road, Arnold, Nottingham NG5 6LQ.
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- SWALE: B. Hancock, G4NPM, Leahurst, Augustine Road, Minster, Sheerness, Kent ME12 2NB. (Minster 873147)
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- UK FM GROUP (Northern): J. P. Laughton, G4UNA, Claremont, Main Street, East Ardsley WF3 2AP.
- VERULAM: H. Clayton-Smith, G4JKS, 115 Marshalswick Lane, St. Albans, Herts. (St. Albans 59318)
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- WAKEFIELD: W. Parkin, G8PBE, 14 Cleveland Grove, Lupset Park, Wakefield WF2 8LD. (Wakefield 378727)
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- WIRRAL: C. Cawthorne, G4KPY, 40 Westbourne Road, West Kirby, Wirral L48 4DH.
- WOLVERHAMPTON: K. Jenkinson, 10 Avondale Road, Wolverhampton WV6 0AL. (0902 24870)
- WORCESTER: D. W. Batchelor, G4RBD, 14 Oakleigh Heath, Hallow, Worcester. (Worcester 641733)
- YEOVIL: E. H. Godfrey, G3GC, Dorset Reach, 60 Chilton Grove, Yeovil, Somerset BA21 4AW. (0935 75533)
- YORK: K. R. Cass, G3WVO, 4 Heworth Village, York. 308: D. Davis, G6YQD, 13 Maple Road, Surbiton, Surrey KT6 4AA.

Amateur Televison."

February 13 is an equipment evening for the **Farnborough** group at their place in the Railway Enthusiasts' Club in Hawley Lane, Farnborough, with members favourites in evidence. February 27 is an Open Evening, laid on for RAE students locally and visitors.

Blackpool next, which means the Kite Club; their sub. is a combined one and gives them full membership of the Kite Club during normal opening hours, plus of course the comfortable club

meeting-room facility. Find them on February 5 for the "Secret Listeners" tape and again on February 19 when they have an informal with Morse.

GM now, and **Glenrothes**, where the resident live-wire is GM3YOR. One thing they *don't* believe in is publicising the dates of the meetings at Provosts Land, Leslie, Fife. However, our card-index says that every Wednesday evening might well do the trick, plus the third Sunday of each month.

If you are into QRP operating, or home-brew gear for that

matter, you should be a member of the **G-QRP Club**; details from the Hon. Sec. — see Panel for his details.

February 28 is the date for the **Greater Peterborough** crowd, at Southfields Junior School, Stanground. It should be an interesting one as G3WDG, Charles Suckling, will give his talk on microwaves.

The **Grimsby** chaps have a quiz night on February 7, and a talk on D/F on 21st; the venue continues to be the Cromwell Social Club, Grimsby, and the start at 8 p.m. — although the club doors open at 7 p.m.

Room C11 at Allertonshire School, Northallerton, is the home of the **Hambleton** club; for all the details, get in touch with the Hon. Sec. — see Panel for his details.

Our condolences to the **Harrow** club on the recent death of their founder member Don Morgan, G3SM. Members attended the funeral and a spray was sent on behalf of the rest of the members. On February 1 they have G3OSS on the use and abuse of VHF, and there are activity nights on 8th and 22nd. That leaves February 15 for G8ASI to talk about slow-scan TV. Venue is the Harrow Arts Centre, High Road, Harrow Weald.

On the third Wednesday of the month, at West Hill Community Centre, the **Hastings** crowd has its main meeting. In addition, if you go to Ashdown Farm Community Centre, you can find them every Friday having a chat night.

The **Havering** Hq. is at Fairkytes Arts Centre, Billet Lane, Hornchurch. February 6 is an informal, and on 13th they have a 'topic', details to be announced at the time of writing. February 20 is a pre-contest briefing and then informal, and on February 27 they have a talk by Bill McClintock, G3VPK, the Zone 'C' RR for RSGB, who is also on the VHF Committee.

February 1 is AGM night for the **Hereford** crowd, at County Control, Civil Defence Hq, Gaol Street, Hereford. To recover, they have February 15 is down as an informal club meeting at the same venue.

Turning now to **Ipswich** we find that both February 13 and 27 are 'to be arranged' at the time their newsletter went to print; however, we have no doubt that if you turn up at the "Rose and Crown" at the junction of Bramford Road and the Norwich Road, you will find they have laid some interesting entertainment on. Incidentally, the clubroom has access separately from the public bars so youngsters are welcome as members.

The **I.R.T.S.** group is the Eire national society, and as such it is the place to contact should you need to know anything about the amateur radio scene in EI-land; the monthly news-sheet keeps everyone in touch, and usually carries quite a lot of both local news and club data. For more information, contact the Hon. Sec. — see Panel.

Turning now to **Kidderminster**, we find them ensconced in Aggborough Community Centre, Hoo Road, Kidderminster; for the dates, we feel we must refer you to the Hon. Sec. at the address in the Panel, as the last list sent to us indicates several variances from a regular routine.

The **Loughborough** Hq. is available to the members every night of the week; it is at the top floor of the Brush Sports & Social Club, 18 Fennel Street, near the centre of Loughborough, car parks and the main bus station. The main evening is Friday when they try to always have an organised programme running, plus a constructional night on Tuesdays. Unfortunately the RAE and Morse classes are temporarily in abeyance as all the candidates have passed! New candidates (and members) are therefore wanted, so a re-start can be made with the technical stuff.

Over to GI now and **Lough Erne**, where they have the 1985 Mobile Rally date set as April 21st, at Killyhevlin Hotel, Enniskillen. More details from the Hon. Sec. — see Panel.

Every Friday evening the radio amateurs in the **Medway** area head for No. 1 Hall, St. Lukes Church, King William Road, Gillingham; February 1 is the construction contest and February 8 the AGM, but we don't have any detail for dates after this, for which we refer you to the Hon. Sec. — see Panel.

Nice to see that on the latest cover of the **Midland** "Probe" newsletter, they have the club Hq. address of 294A Broad Street,

Birmingham, clearly marked; although they have their main meeting on February 19 for a quiz, we understand there is quite a possibility there may be members at Hq. on most evenings of the week as well.

At 61 Emscote Road, Warwick, the **Mid-Warwick** locals will show their equipment on February 12, while February 26 is a natter session.

February 6 at **North Cornwall** is mainly a natter night but includes G4LXS giving a refresher talk on D/F aerials. The venue for all meetings is the R.A.O.B. Club in Camelford — first Wednesday each month.

The change of Hq. for **North Devon** to "Micro Chips", Castle Street, Barnstaple, has now taken place, and the next session will be on February 6 and then March 6; no detail given on the programme.

North Wakefield are on-the-air on February 7, and have a lecture (or, maybe, a visit) on 14th. February 21 is 'music night', with live music and refreshments, and the monthly formal meeting is on February 28 — all are at Carr Gate Working Men's Club.

For all details on the **Poole** club we must refer you to the Hon. Sec. — see Panel for his details.

R.A.I.B.C. is the club that caters for all the blind and invalid practitioners of our hobby, whether licensed or SWL; or indeed for those who, through disability, would find amateur radio a window on the world. Of course, to make it 'go' it needs supporters and representatives — contact the Hon. Sec. to find out how you can help. And congratulate her on her brand new B.E.M.!

Deadlines for "Clubs" for the next three months—

March issue—January 25th

April issue—February 2nd

May issue—March 29th

June issue—April 26th

Please be sure to note these dates!

R.A.O.T.A. is the one for old-timers — 25 years is the minimum in the hobby. This is a once-for-all subscription affair, i.e. membership is for life. All those interested should get in touch either with the Hon. Sec. — see Panel — or if they can help more actively, with G6CJ (QTHR) who is trying to get things humming again.

Heading now for **Reading**, one finds that the club meets on alternate Tuesdays in the clubroom of the "White Horse", Peppard Road, Emmer Green, Reading. More details on the programme and dates from the Hon. Sec., — see Panel.

The third Tuesday of each month is the one for **Reigate** at the Constitutional and Conservative Centre, Warwick Road, Redhill, Surrey; for details on the programme we must refer you to the Hon. Sec. — see Panel.

What about you *ex-Royal Navy* types — or for that matter, present RN, or MN or even foreign navies? All are valid customers for the **Royal Navy** club, details of which can be obtained by way of a letter to the Hon. Sec. — see Panel for his details.

Now to **St. Helens** where the locals meet every Thursday evening at the Conservative Rooms, Boundary Road. 7.30 p.m. is the start with Morse until 8 p.m. when the formal programme begins. More details from the Hon. Sec. — see Panel.

At **Scarborough** you must look for the pavilion of the local cricket club in North Marine Road, on any Monday, when visitors and members are always welcome.

The **South Bristol** Hq. at Whitchurch Folk House, in East Dundry Road, uses Rooms 3 or 4, or both together. On February 4 they have a lecture on cables and connectors, while on 13th they have an activity night on 432 MHz. February 20 is 1985 Contest Planning evening and on 27th the month is nicely rounded off by constructional project progress reports.

The **South Cheshire** crowd has the second and fourth Monday in every month booked at the Victoria Club, Gatefield Street, Crewe. More data from the Hon. Sec. — see Panel.

On to **Southdown** where they meet at the Chaseley Home for Disabled Ex-Servicemen, South Cliff, Eastbourne, on the first Monday of each month; we were amused in the current newsletter to read of the mystification of a certain member and his wife who found a crossed 70cm. Jaybeam aerial at the bottom of their garden — fairies?

South Manchester now, and Sale Moor Community Centre, Norris Road, Sale, where they are to be found on Mondays (informally) and Fridays for the main meetings. February 1 is a club quiz, and on February 23 they have a 'quadruple midnight D/F contest'. More details from the Hon. Sec., — see Panel.

We head now for the **Stafford** group, at the "Coach and Horses" motel every Tuesday — this spot is at Weston on the A51 road. Each week they try to put on a talk or a demonstration of some sort; more details from the Hon. Sec. at the address in the Panel.

New Group

This one is at **Stanley** in Co. Durham, and is based on the "Kings Head" hotel at Stanley, where they foregather every Tuesday evening; apart from RAE tuition they also run construction classes, and doubtless other activities too. More details from the Hon. Sec., — see Panel.

At **Surrey** they are booked in at the *TS Terra Nova*, 34 The Waldrons, South Croydon, Surrey, on first and third Mondays. February 4 is the Sid Morley Memorial Lecture and is on WW2 German equipment, given by G3IEE.

A nice long programme appears on the front page of the **Sutton & Cheam** newsletter; from it we observe February 4 is a natter night and on 15th there is a junk sale, at the same place — Downs Lawn Tennis Club, Holland Avenue, Cheam.

The writer was entertained by the most recent hand-out from **WACRAL** — this is the group for the committed Christians in the hobby. Details of the club from the Hon. Sec., — see Panel.

Now the letter from **Swale** who meet each week on Mondays at the Ivy Leaf club in Dover Street, Sittingbourne; more details on the programme from the Hon. Sec., — see Panel for his details.

Turning to **Swindon**, we find them at Oakfield School, Marlowe Avenue, Swindon, every Thursday evening; they alternate informal natters with organised sessions, so that February looks like; on 7th a talk on satellite telemetry from *Sputnik* onwards, by G3MQD, on 14th a natter and on February 21 a talk on home construction the 'professional' way by G3LTZ, featuring PCB manufacture at the kitchen sink; and the month rounds off with another natter night.

Now to **Thornton Cleveleys** where they are nowadays to be found at the 1st Norbreck Scout Hq. Carr Road, Bispham, Blackpool, every Monday. The framework allows for a guest speaker on the first and third Monday, an advanced Morse class under G3ZRZ on the second and fifth Monday, and an informal/construction session on the fourth Monday in each month.

Change of Venue

The **Tiverton (South West)** crowd has moved to the "Half Moon Inn" in Fore Street, Tiverton, which will offer better facilities both socially and radio-wise. By the time this comes to be read the club will have been visited by Les Hawkyard, G5HD, to talk about RSGB, and doubtless they have other activities planned for each Tuesday evening.

No Hq!

That's the sad state for the **Torbay** group at the time of writing! They are keeping in touch by way of a net on Mondays, Wednesdays and Fridays on 3.755 MHz at 2230z and at 2200z on Saturdays. They also have the Annual Dinner arranged for March. For details of the latest position, contact the Hon. Sec., — see Panel.

Another New One!

Trowbridge is the lucky town this time, and the group has its base at the village hall, Southwick, near Trowbridge; the third Thursday is the routine for the moment and that gives them February 21 for a film show. Latest details from the Hon. Sec., — see Panel.

UK FM Group (Northern) takes care of GB3NA and GB3SY, and as a club, foregathers on the first Sunday of each month at the "Royal Hotel", Church Street, in Barnsley, at 7.30 p.m. That gives the date for the next meeting as February 3 — more details from the Hon. Sec.

February 26 is the date for the **Verulam** meeting at the R.A.F.A. Hq., New Kent Road, off Marlborough Road, St. Albans. We hear a little buzz that the proposer's call is 18CW!

Up at **Wakefield** the group gets together on alternate Tuesdays at the Community Centre, Prospect Road, Ossett, near Wakefield. February 2 is the Annual Dinner at the Centre, and on the normal meeting night of February 5 they have a radio quiz. February 12 is the committee meeting, and on February 19, G4BLT takes the stand to talk about RTTY.

The regular **West Kent** meetings go on as ever; February 8 for a surplus equipment sale, and February 22 for G4KIU's talk on Raynet. The informals fall on February 1 and 15. All four gatherings are, though they don't say so, at the Adult Education Centre Annexe, Quarry Road, Tunbridge Wells.

The **Wirral** gang are based on Heswell Church Parish Hall, next to the bus station, where they are to be found on the first and third Wednesday. Unfortunately we don't have the current programme data, for which we must refer you to the Hon. Sec.

Every Tuesday the **Wolverhampton** group meets at the Wolverhampton Electricity Sports and Social Club, St. Mark's Road, Chapel Ash, Wolverhampton. February 5 is down for G4JCP to give Part 3 of his talk about data communications, and on 12th they are calling for requests for tests on transmitters; if there are enough of these the tests will be carried out on February 19 and 26, and if not, there will be a discussion. March 5 is down for a talk on frequency synthesis by digital and mixer methods, to be given by G6UDX.

Over to **Worcester** the main meeting, on February 4, will be a slide show at the Oddfellows Club in New Street, Worcester; the informal is at the "Old Pheasant", in the same street, on February 18.

The **Yeovil** gang has a place at the Recreation Centre, Chilton Grove, Yeovil, where they are to be found every Thursday evening; February 7 is "Computer 2" by G3GC, and February 14 is G3MYM on JFET AF Amplifiers. G3GC takes over again on 21st for a demonstration of VHF matching techniques, and on 28th they have a natter night.

No letter this month from **York** so all we can say is that they will, as usual, meet at the United Services Club, every Friday evening, with a special welcome for visitors.

Finally **308** who have their corporate being at the Coach House, Church Hill Road, Surbiton. For the rest, we must refer you to the Hon. Sec., — see Panel for the details.

Conclusion

Once again we reach the bottom of the pile; deadlines for your letters are in the 'box' in the body of the piece, and are for arrival with us, addressed as always to "Club Secretary", SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts. AL6 9EQ. 'Bye now, and look out for the ice!

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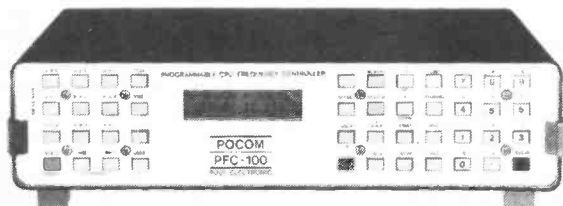
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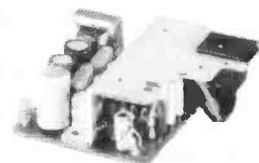


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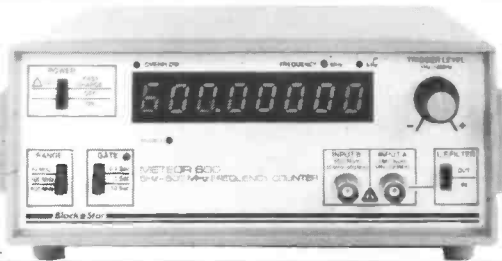
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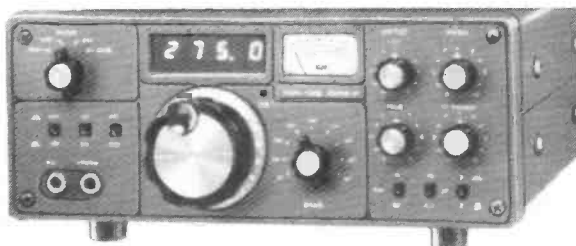


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